Harnessing Primary Education through Information and Communication Technology: A Challenge to the Ministry of Education

BONIFACE S. AKPAN
Department of Primary Education,
Akwa Ibom State College of Education, Afaha Nsit,
Akwa Ibom State.

CHARITY O. IGBOKWE
Michael Okpara University of Agriculture, Umudike, Umuahia,
Abia State.

And

VICTORIA V. PETERS
Department of Primary Education,
Akwa Ibom State College of Education, Afaha Nsit,
Akwa Ibom State.

Abstract
This study investigated how to harness reading skills through information and communication technology in Uyo Education Zone. The population of the study consisted of all primary one pupils in the study area, numbering 1,873 pupils. A researcher developed instrument titled “Children’s Reading Activity Test” was used to generate data for this study. The instrument was face and content validated by three experts (two from Primary Education Department, one from Measurement and Evaluation). The reliability index was obtained at 0.73. Two research hypotheses were formulated for this study. The data were analyzed using independent t-test. The results indicated that there is a positive influence of ICT integrated programme on the acquisition
Primary Education in Nigeria has undergone several reforms over the years for the benefit of the Nigerian child. One of the major inputs is the application of Information and Communication Technology in teaching/learning situation for enhancing easy assimilation, comprehension of ideas, skills and functions among primary school pupils. To gain straightforward and dependable implementation, valuable lessons drawn from practice around the world could be relevant. Reliably, the Federal Republic of Nigeria has no specific policy for ICT in education. But the Ministry of Education created its ICT department since February, 2007 to ensure direct services and execution of projects in this area. Notwithstanding, several government agencies and other stakeholders in the private sector have also initiated ICT-driver projects and programmes to impact all levels of the educational sector. Since there is no specific or definite formula for determining the optional level of ICT integration in the educational system therefore, continued attempts to enhance learning/teaching in our academic system must be encouraged.

Adegunodo (2002) stated that in the areas of teaching and education, the paradigm of learning has shifted drastically from the conventional technique to a more dynamic and flexible one, which is learner-centred. He stressed that learning is now done at the convenience and disposition of the learner.

The potential of computer in teaching needs not be over-emphasized. Ball (2001), stated that style of teaching which involves the use of computers can aid greatly the acquisition of important high-level-skills which are exactly those which will be required in the future. Preudethal (2001) confirmed their position by predicting that the transition to the computer paradigm has proved to be one of the major problems of most particular subjects in education since the 80s and 90s. This of course, generates the implication that educators need to concern themselves with the ways computer could be used to assist and improve teaching and learning in the educational system. By the use of the computers, programmed instruction can be developed and according to Gallo and Nenno (2005):

a) Students will learn more rapidly through bulk information dished out to them at once.
b) Students will have the opportunity to actively respond to the material given.
c) Students will be provided immediate results, indicating whether a response is correct or not. This philosophy according to Adegunodo (2002) exposes vehemently:

a) A representation of the subject matter they teach
b) A model to determine the mental state of the learner
Purpose of the Study
The main objectives of this study are to examine:
(i) The difference in the acquisition of reading skills between pupils taught with ICT and those taught without ICT.
(ii) The difference in the acquisition of reading skills between pupils taught with ICT in urban centers and their counterparts in rural centers.

Statement of the Problem
The poor performance of pupils in reading in Nigeria public primary schools has been attributed to the poor instructional strategies used by teachers. Instructional strategies play a crucial role in pupils reading ability. Thus, the researchers realized that, there is a need to encourage the use of ICT in the teaching/learning of reading skills which could make reading more interesting to primary one pupils. The study therefore sought to determine the extent to which the use of ICT instructional strategy can improve primary one reading ability.

Research Hypotheses
(i) There is no significant difference in the Acquisition of Reading skills between pupils taught with ICT and those taught without ICT among primary school pupils in Uyo Education Zone.
(ii) There is no significant difference in the acquisition of reading skills between pupils taught with ICT in Urban centres and those taught with ICT in Rural Centres in Uyo Education Zone.

Literature Review
The Concept of Primary Education and Challenges of Globalization: The original idea about Primary Education was first designed for a six year experience, launched in September, 1976. Education, being viewed as a tool for the liberalization of individuals from the shackles of poverty, and as an enablement for the development of the self and the society is full of challenges but in various perspectives (Mkpa, 2003). There are conflicting political and social objectives which face the stakeholders in our nation’s educational system. In accordance with the provision of Nigerian Constitution of 1989 section 19, the Government
a. Directed its policy toward ensuring equal and adequate educational opportunities at all levels and to
b. Promote science and technology. Today, our educational system lacks innovativeness, depicted in the slowness of our schools and universities to adopt new
practices and technology. Conservative as they are, our education system is largely text book-driven. Teachers and instructors use “chalk” and “talk” to gain students’ understanding of their mission. The learners at all spheres have remained constant recipients of instructions rather than active participants in a classroom situation. Primary education is referred to in this document as the education given in institutions for children aged 6 to 11 plus. Since the rest of the education system depends on this level, there is need for adequate attention to be paid to its development if there must be success of the whole system. (Esu, 2004). Every good performance of any child is a clear reflection of the teacher’s activities in school. That is why Agabi and Okorie (2002) upheld that the teacher is the senior partner in the school. The teacher imparts the higher knowledge he possesses to the learners. He also transmits societal values to the learners and the teacher’s personal characteristic play a major role in the classroom system. With this, the teacher is seen as a standard model and a living example in the eyes of every child. As the learner occupies a prime place in the school system, the teacher’s quality and standard are inevitably, necessary tools for productivity and change (Dangana 2004).

Today, our children are faced with challenges of poor communication, societal nuisance, examination malpractices, attitudinal dysfunctions and all forms of irresponsibility. From where do these children experience all these?

We cannot disassociate ourselves from all these anomalies because as Agabi and Okorie (2002) state, “The teacher sets the tone and the student follows”. The nearest past, up to the date 80’s experienced the training of children in the acquisition and mastery of skills like basket making, mat-weaving, the production of foot mat, hat, brooms, brushes and others which were finally sold either to teachers or traders within the vicinity. The money made from the sales was accounted for and prudently used for the good of the child and the school as a whole. This was a great lesson and functional teaching to the child on how to become self-reliant, committed and prudent manager of the family.

The Role of Information and Communication Technologies in Improving Learning:

This cannot be overstressed. ICT implementation in schools will not just enhance or harness learning but goes far to creating opportunities for the development of skills and lifelong education. In Nigeria, the educational system allows very remote chance for lifelong learning. Access to education is therefore limited by time, age, environment, work and space. Applying information and communication technology to facilitate teaching/learning especially in primary education does not just broaden learning skills in the learner, but develops better interactive and multifaceted resourcefulness in the teacher.
However, the use of computers in contemporary Nigeria is so prevalent that the schools must embrace computer to remain viable (Durumaku – Dim, 2005). In the same vein, every primary school deserves computers, being the first formal base for education to lay a solid foundation for children. Integrating information and communication technology into teaching/learning in primary schools will lift the phase of education in Nigeria to yet another pedestal. A teacher who is adopting in implementing a technologically integrated lesson exposes the children to a more rapid learning and articulates a more comprehensive education for easy understanding. Incidentally, pupils in the rural areas lack the exposure and way with all, to catch up with expectations with their contemporaries in urban areas.

Research Methodology

The methodology used for the study was principally experimental. Non-randomized pretest-posttest control group design was used because it involves classroom experiment where experimental and control groups were naturally assembled groups of intact classes. This choice was necessary because the essence of this experimental study is to establish the cause and effect of events. The sample size that was used for this study consisted of 180 primary one pupils (95 females and 85 males). This sample size was selected through simple random sampling technique. In this process, every member of the population has an equal choice of being selected. Simple random sampling by balloting was used in the selection of six public primary schools in Uyo Education Zone. Three primary schools in urban centers, and three primary schools in the rural centers. Six intact primary one classes were also selected from six schools (that is, one primary one class from each school). These gave the total sample size of 180 pupils. The pretest was administered to the pupils before the commencement of the study (experimental group and control group). After the administration of pretest, the experimental groups were taught how to read and spell using the computer. Teaching lasted for three weeks at the rate of three periods per week. At the end of the teaching, the posttest was administered. Instrument for data collection was a designed instrument known as Children Reading Activity Test (CRAT). The children reading activity test consist of 25 items in all the validity of the instrument was done through face and content validity process. The test items were given to experts in this area for scrutiny. The instrument was corrected following their recommendations. In order to ensure the reliability of the instrument, the research administered children reading activity test (CRAT) to 50 primary one pupils who were not part of the initial population of the study. The reliability index of the instrument was 0.73 obtained by test-retest method which was high enough to justify the use of the instrument. The independent t-test was used to test the hypotheses at .05 level of significance.
Validation and Reliability of the Instrument

The instrument was designed by the researchers and subjected to validation by two professional colleagues who are experts in the area.

Data Analysis

Each hypothesis was subjected to statistical analysis using t-test statistic.

Hypothesis 1

There is no significant difference in acquisition of reading skills between pupils taught with ICT and those taught without ICT among primary schools in Uyo Educational Zone.

**Table 1:** t-test Analysis showing the difference in Acquisition of Reading Skills between Pupils taught with ICT and those taught without ICT among Primary Schools in Uyo Educational Zone.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>X</th>
<th>SD</th>
<th>df</th>
<th>t-cal</th>
<th>t-crit</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children taught with ICT</td>
<td>90</td>
<td>15.28</td>
<td>2.38</td>
<td>178</td>
<td>19.61</td>
<td>11.96</td>
<td>Rejected HO1</td>
</tr>
<tr>
<td>Children taught without ICT</td>
<td>90</td>
<td>9.18</td>
<td>1.82</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

P <.05; df = 178

Calculations

\[
\sqrt{\frac{5.66 + 3.3}{90}} = \sqrt{\frac{90}{90}} = 6.1
\]

The Table 1 result indicates that calculated t-value of 19.61 is greater than the critical t-value of 11.96. Therefore, the first null hypothesis is rejected at .05 level of significance. Hence, children taught with ICT integrated programme develop better skills than those taught without ICT Programme. Information and
Communication technologies therefore have significant influence on pupils’ reading skills.

Table 2: t-test analysis showing the difference in acquisition of Reading Skills between pupils taught with ICT in Urban Centres and those taught with ICT in Rural Centres among Primary Schools in Uyo Educational Zone.

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>$\bar{X}$</th>
<th>SD</th>
<th>df</th>
<th>t-cal</th>
<th>t-crit</th>
<th>Decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children taught with ICT Programme in Urban Centres.</td>
<td>9</td>
<td>16.1</td>
<td>2.0</td>
<td>178</td>
<td>18.59</td>
<td>1.96</td>
<td>Rejected</td>
</tr>
<tr>
<td>Children taught without ICT automated programme in Rural Centres.</td>
<td>9</td>
<td>10.0</td>
<td>1.1</td>
<td>178</td>
<td>18.59</td>
<td>1.96</td>
<td>Rejected</td>
</tr>
</tbody>
</table>

P < .05; df = 168

Calculations

$$t = \frac{16.1 - 10.0}{\sqrt{\frac{7.84}{85} + \frac{1.2769}{85}}}$$

$$= \frac{16.17}{\sqrt{.0922 + .05}}$$

$$= \frac{16.17}{6.08}$$

$$= 2.65$$

Table 2 result shows that the calculated t-value of 18.59 is greater than the critical t-value of 1.96 culminating in the rejection of the null hypothesis at .05 level of significance. This therefore means that children exposed to learning with ICT in urban centers acquire better skills than their counterpart in rural centers.

The finding therefore revealed that ICT integrated school programme has a significant influence on the child’s academic performance on reading skill acquisition.
Discussion of Findings

The findings revealed that children taught with ICT acquired better reading skills than those taught without ICT. This is in consonance with Durumaku- Dim (2005) who stressed that applying information and communication technology to facilitate teaching/learning especially in primary education does not just broaden learning skills in the learner, but develops better interactive and multifaceted resourcefulness in the teacher. Again Gallo and Nenno (2005) supported the findings herein, emphasizing that students will learn more rapidly through bulk information, dished out to them at once and that students will have the opportunity to actively respond to the material given via ICT utilization.

The findings in table 2 showing the difference in acquisition of Reading Skills between pupils taught with ICT in Urban Centres and those taught with ICT in Rural Centres clearly revealed that those in urban centres acquire more reading skills than their counterparts in rural areas. This is in agreement with Dangana (2004) who emphasized that the teacher’s quality and standard are inevitably, necessary tools for productivity and change also Agabi and Okorie (2002) stressed that children are faced with the challenge of poor communication, societal nuisance, examination malpractices, attitudinal disfunction and all forms of responsibilities due to the environment the child belongs. They stated that “The teacher sets the tone and the students follow. Durumaku – Dim (2005), in the same vein, confirmed that every primary school deserves computers, being the first formal base for education to lay a solid foundation for children. Integrating information and communication technology into teaching/learning in primary schools will lift the phase of education in Nigeria to yet another pedestal. He stressed that a teacher who is adopt in implementing a technologically integrated lesson exposes the children to a more rapid learning and articulates a more comprehensive education for easy understanding. Incidentally, pupils in the rural areas lack the exposure and way with all, to catch up with expectations with their contemporaries in urban areas. The finding therefore is that ICT integrated school programme has a significant influence on the child’s academic achievement on reading skills acquisition and as such should be encouraged.

Conclusion

In this study, issues demanding serious attention have been highlighted. Information and communication technologies have in-depth role to play in not just the development of reading skills and improvement of academic performance of the primary school child, but enhances the resourcefulness of the teacher. In view of the education in Nigeria, especially in the primary schools tested with the researchers’ experiences, reading and other relevant activities like music, fine art and drama play key roles in the
Harnessing Primary Education through Information and Communication Technology: A Challenge to the Ministry of Education

development of the child. As important subjects, and skills can be acquired for life-long performances through ICT integration and governmental attention.

Recommendations
a. Teachers should be trained for efficiency in ICT skills acquisition, development and application.
b. Adequate plans, policies and provisions should be made for direct execution and implementation of ICT-driven education in Nigeria.
c. With ICT automated teaching, learning is diversified. Children should be made to become active participants in every learning situation and instead of being text-book driven, they should be problem solvers.
d. Rather than make learning a discrete activity actualized only during the early years of life, education through ICT integrated programme, should be a lifelong activity.
e. Teachers in rural schools should be exposed to the use of ICT programme as it will enhance better learning skills in the pupils.

References


**APPENDIX**

**READING ACTIVITY TEST**

(Primary 1)

Answer all the questions in twenty (20) minutes.

Fill the missing letters to complete the words therein.

<table>
<thead>
<tr>
<th></th>
<th>Taught</th>
<th>Evaluation</th>
<th>(Pick the right letter in each case)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Boy</td>
<td>B-y</td>
<td>(a) t (b) s (c) o (d) n</td>
</tr>
<tr>
<td>2.</td>
<td>Body</td>
<td>B-dy</td>
<td>(a) s (b) t (c) o (d) c</td>
</tr>
<tr>
<td>3.</td>
<td>Bad</td>
<td>B-d</td>
<td>(a) a (b) n (c) k (d) y</td>
</tr>
<tr>
<td>4.</td>
<td>Bed</td>
<td>B-d</td>
<td>(a) x (b) k (c) e (d) q</td>
</tr>
<tr>
<td>5.</td>
<td>Bend</td>
<td>B-nd</td>
<td>(a) r (b) p (c) n (d) e</td>
</tr>
<tr>
<td>6.</td>
<td>Cup</td>
<td>C-p</td>
<td>(a) n (b) u (c) x (d) s</td>
</tr>
<tr>
<td>7.</td>
<td>Cook</td>
<td>C-ok</td>
<td>(a) t (b) s (c) o (d) p</td>
</tr>
<tr>
<td>8.</td>
<td>Can</td>
<td>C-n</td>
<td>(a) a (b) p (c) s (d) z</td>
</tr>
<tr>
<td>9.</td>
<td>Cold</td>
<td>C-ld</td>
<td>(a) b (b) d (c) e (d) o</td>
</tr>
<tr>
<td>10.</td>
<td>Cat</td>
<td>C-t</td>
<td>(a) o (b) n (c) z (d) a</td>
</tr>
<tr>
<td>11.</td>
<td>Land</td>
<td>L-nd</td>
<td>(a) b (b) a (c) d (d) t</td>
</tr>
<tr>
<td>12.</td>
<td>Look</td>
<td>L-ok</td>
<td>(a) z (b) t (c) o (d) d</td>
</tr>
<tr>
<td>13.</td>
<td>Loss</td>
<td>L-ss</td>
<td>(a) p (b) o (c) x (d) z</td>
</tr>
<tr>
<td>14.</td>
<td>Lost</td>
<td>L-st</td>
<td>(a) s (b) v (c) w (d) a</td>
</tr>
<tr>
<td>15.</td>
<td>Love</td>
<td>Lo-e</td>
<td>(a) a (b) w (c) v (d) y</td>
</tr>
<tr>
<td>16.</td>
<td>Go</td>
<td>G-</td>
<td>(a) n (b) m (c) o (d) b</td>
</tr>
<tr>
<td>17.</td>
<td>Gone</td>
<td>G-ne</td>
<td>(a) o (b) n (c) z (d) a</td>
</tr>
<tr>
<td>18.</td>
<td>Bag</td>
<td>B-g</td>
<td>(a) u (b) f (c) a (d) i</td>
</tr>
<tr>
<td>19.</td>
<td>Bottom</td>
<td>Bo-tom</td>
<td>(a) o (b) t (c) j (d) k</td>
</tr>
<tr>
<td>20.</td>
<td>Belly</td>
<td>B-lly</td>
<td>(a) e (b) v (c) g (d) h</td>
</tr>
<tr>
<td>21.</td>
<td>Mummy</td>
<td>Mum-y</td>
<td>(a) z (b) m (c) n (d) p</td>
</tr>
<tr>
<td>22.</td>
<td>Daddy</td>
<td>Dad-y</td>
<td>(a) w (b) b (c) a (d) d</td>
</tr>
<tr>
<td>23.</td>
<td>Doctor</td>
<td>Do-tor</td>
<td>(a) e (b) c (c) t (d) k</td>
</tr>
<tr>
<td>24.</td>
<td>Come</td>
<td>C-me</td>
<td>(a) m (b) n (c) o (d) j</td>
</tr>
<tr>
<td>25.</td>
<td>Papa</td>
<td>Pa-a</td>
<td>(a) a (b) k (c) p (d) t</td>
</tr>
</tbody>
</table>