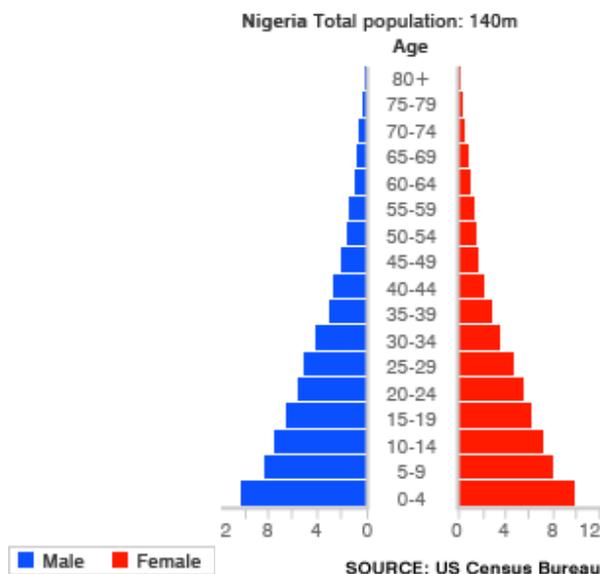


Technology assisted open learning-the alternative to increasing learning.

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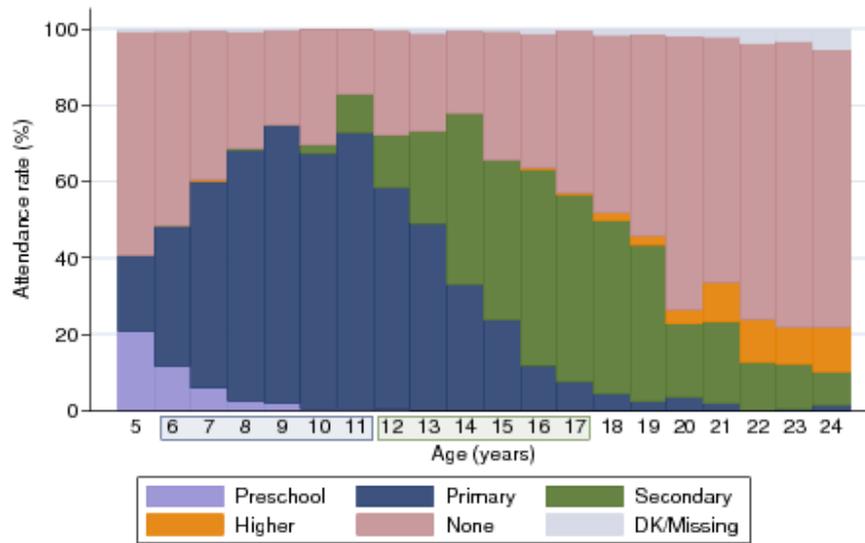
Nigeria is a developing country struggling to reach the Millennium Development Goals of universal primary education. The population profile of the country, 2005, shows a high population figure of children and adolescents between the ages of 5-24 years. Majority of the children within this age bracket are the focus of the educational development policies of the country. Educational developmental problems unresolved at the primary education level are carried over to the secondary level where they become magnified leading to disastrous consequences since it has the secondary level as its pivot. This is the bridge between the primary and tertiary education. It is the junction from where all the boulevards of higher education take off and all primary school leavers must successfully pass through it to become useful to themselves and the society. Failure to navigate successfully secondary education has resulted, over the years, in poor academic skills, low problem solving skills, high dropout rates, gross exam malpractices, school cultism, teenage prostitution, pregnancy and abortion and other vices leading to the production of ill equipped individuals lacking necessary skills to make meaningful contributions to national development. Unfortunately some of the 'fallouts' of a degenerate secondary education are involved in political leadership in the country today.

POPULATION BY AGE (IN MILLIONS)



The Education sector is beset with many problems of which are poorly skilled teaching staff, lack of learning resources, unattainable educational objectives incongruent with contemporary development and delayed entry into the education system. According to data from a Demographic and Health Survey (DHS) that was conducted in Nigeria in 2003, 60.1% of all children of primary school age were attending primary school at the time of the survey. Among children of secondary school age, 35.1% were attending secondary school. These primary and secondary school net attendance rates do not reveal facts that grossly affect educational development. Many children are in school at a level that is not appropriate for their age. Due to economic hardship, many children often enter school at an advanced age, being forced to assist parents in meeting their economic obligations. Even after enrolment, recurrent failure rates also force guardians to withdraw wards from school. They complain about the teaching and learning processes which has fostered recurrent failures discouraging parents from further keeping these

children in schools. Only a minority leaves school and even does so well past the official graduation age. The primary school age in Nigeria is between 6 to 11 years and the secondary school age 12 to 17 years. The graph below however indicates that the level of school attended for all Nigerians is between 5 and 24 years of age. This data from the survey reveals that a small percentage of Nigerians are still in primary school when they are already 20 years old. Secondary school attendance continues past 24 years of age, the highest age for which the DHS has data on current school attendance.



Friedrich Huebler, December 2005, huebler.blogspot.com

Data source: Nigeria 2003 DHS.
Level of school attended by age, Nigeria 2003

At the time of the survey, only 36.6% of all 6-year-olds were attending primary school. Between 9 and 11 years of age, primary school attendance reaches its peak, when around 72% of all children are in primary school. At the official graduation age of 17 years from secondary school, 7.8% of all children were still in primary school. Among 12-year-olds, only 13.9% were attending secondary schools, with other children just beginning to attend primary school. Secondary school attendance reaches its peak at 16 years of age, when 51.3% of all children are in secondary school. At 24 years, 8.7% of the population was still in secondary school. The repercussion of this on development is this: such children are more likely to drop out from school and to enter the labor market with limited qualifications, reducing their potential to live productive lives. Among those that still remain in school, few enter tertiary institutions and their success in school is affected by exam malpractices and other problems facing the education sector. The implication of all this is that the age group on which the development of the nation is hinged on is not being provided with the appropriate educational tools for developing them into productive citizenry.

Education is an instrument for national development; the hopes of developing countries are hinged on education to develop human capital for effective functioning of the society. For Nigeria to be in the league of nations meeting the Millennium Development Goals, it has to develop strategies for transforming its education sector. Nigeria needs to develop its education sector g upgrading infrastructures where necessary, creating a learned centered environment that is creative, collaborative, active, integrative and evaluative. The country needs to empower the teachers, expand educational opportunities by creating access, and encourage innovation and creativity. There is a need for the provision of affordable education services along with up to date

learning resources without compromising quality and standard. The tools for such transformation will involve technology, an appropriate technology.

THE ROLE OF TECHNOLOGY IN LEVERAGING DEVELOPMENT

For developing countries ICTs have the potential for increasing access to and improving the relevance and quality of education. It thus represents a potentially equalizing strategy for developing countries. ICTs greatly facilitate the acquisition and absorption of knowledge, offering developing countries unprecedented opportunities to enhance educational systems, improve policy formulation and execution, and widen the range of opportunities for business and the poor.

Concerns over educational relevance and quality coexist with the imperative of expanding educational opportunities to those living in developing countries like ours. Information and communication technologies (ICTs)—which include radio and television, as well as newer digital technologies such as computers and the Internet—are believed to be powerful enabling tools for educational change and reform. The keyword is appropriate technology. When used appropriately, giving consideration to the peculiarities of each nation in terms of culture and socioeconomic status, different ICTs can help to expand access to education, strengthen the relevance of education to the increasingly digital workplace, and raise educational quality

The value of technology literacy is acknowledged by the country. That is why computer literacy programmes are part of the curriculum of many schools. What the country needs now, however, goes beyond learning about the computer. It involves harnessing the inherent power of the computer and the internet to enhance the transmission and retention of knowledge for both the teaching and learning processes. Technology was used in the past by developed nations in part to help alleviate a lack of qualified teachers. In one well-known example, the school district in Hagerstown, Maryland, provided closed-circuit television programming in nearly all core curriculum areas to all of its schools. The courses were taught live from six studios and represented an attempt to change the way schooling took place in the district (Rockman 1991). Although the actual instruction tended to be traditional, strength of those programs was that they brought qualified instructors to an audience of students who would not otherwise have had access to them.

In addition to bringing students instructional content they could not receive otherwise, technology enhanced education can provide teachers with models of new ways to teach. During the "new math" era of the 1960s, educators at the University of Wisconsin developed *Patterns in Arithmetijc*, a program that included, in addition to workbooks, television lessons broadcast to elementary school classes. Use of the program was high initially but subsided as teachers learned the content and began to provide instruction in new math themselves (Rockman 1991). This unintended outcome suggests that teachers can internalize content and teaching techniques displayed through distance-learning technology. For us in Nigeria, the use of technology to enhance education may not progress at the rate at which it is being used in developed nations but over time and with gradual improvement in infrastructure to support the use of technology to assist education, lives will be transformed with the use of the computer and internet. This is one area the University of Ibadan, Distance learning Centre is working on.

Educational technology, used thoughtfully, can contribute to education reform goals, insofar as it integrates various subject matter areas e.g., history, art, reading, literature, and mathematics and challenges students to understand the complex relationships that exist among various domains. Moreover, research on instructional television has demonstrated positive effects of viewing upon learning in a variety of domains, such as children's math problem solving (research on *Square One TV*, Hall, Esty & Fisch 1990) and social attitudes (research on *Freestyle*, Johnston & Ettma 1986). A consistent finding within the research is that the potential benefits associated with instructional programming are most likely to be realized within settings where teachers (or parents) assist young viewers in making sense of what they see.

Availability of learning resources for students has been an issue parents have to contend with. Even teachers are in short supply of teaching aids to help in teaching. These are issues that the University of Ibadan Distance Learning is resolving by supporting the use of open educational resources to support learning and teaching.

The Elearning Project

Understanding the role appropriate technology in promoting quality education, especially at the primary and secondary level, the University of Ibadan Distance Learning Centre, runs elearning workshop during the long vacation period. The project was designed by the training and learning resources officer of the Distance Learning Centre. The mission of the project is to empower children ages 6-18 years with basic computer skills necessary to engage in technology enhanced education.

Objectives are:

- Imparting the skills of typing using the typing tutor software
- Improving writing and communicating skills using Microsoft Word
- Calculations using Microsoft Excel.
- Designing and creating posters and greeting cards with PowerPoint.
- Bringing out the creative talents in writing and designing through the creative art.
- Using the internet to communicate and learn

The 2007 summer vacation started on the 6th of August with an initial attendance of 13 children which gradually rose to 32. Out of the total number of children present, 14 were children of staff of the Centre, one child was on scholarship while the rest were from public and private schools. Half of the children that attended the previous year were present this year. Some of those that could not attend this year workshop traveled out of Ibadan.

The program was for a period of four weeks, starting August 6th to September 4th, 2007. A total of five resources persons and two assistants were involved in training the children. The building opposite the Centre was used for some of the workshops to accommodate the number of children that attended.

Other Workshops:

Apart from the basic computer skills, the children had other workshops to enrich their experience.

- ICT for education in Mathematics, English Language, Biology, Astronomy, Geography and Quantitative Aptitude Test.
- Fine Art Class
- Drama Class
- Story Writing Class
- Basic Computer Engineering Workshop
- Digital Audio and Video Recording Workshop

Preparation of learning resources

The availability of learning and training resources is scarce in the country. Even when they are available they are expensive and the cost is often transferred to students limiting the number of students that will attend such programmes based on economic factors. These resources made rich use of the visual and auditory capabilities of video, combining teaching with entertainment as a way to gain and maintain the attention of the learner, while getting the information across in interesting and innovative ways. We decided to opt for open educational resources which are affordable and will assist us in meeting our objectives of making the workshop affordable for the children. With the adoption of open educational resources came issues of content design and creation. Often there has been an (understandable) desire to create content employing "rich" multi-media that will appeal to children. This poses immediate problems. The effort and skills required to produce such content make it unrealistic in terms of both cost and development time. Learning resources obtained from open educational resources, were adapted and reviewed to suit the various age groups attending the workshop. Open software was used to deliver lessons

in elearning in Quantitative Aptitude Test, Geography and Astronomy. Due to the fact many Nigerian children are used to the television, lessons in Mathematics, English, Biology, were prepared as PowerPoint shows to mimic the television and loaded on the computers.

The basic instruction delivery layout involved-

- The use of face to face instruction.
- Use of computer based software for training
- Use of projector with PowerPoint Presentation
- The use of video
- Most instruction occurs in groups of 25 to 35 students in small segments from 45 to 50 minutes long.
- Instruction was either whole-class or completely individual.
- Instruction though teacher dominated, was interactive.
- When students work on their own, they complete handouts devised or selected by the teacher.
- Knowledge is represented as mastery of basic computer skills, completing simple problems in the elearning classes

	Workshop	Instructor	Activities	Materials/Resources	Venue
1	Keyboarding, Windows Operations, Microsoft Word, Internet	Lekan Agboola. Assts: Bisi Ojo, Kunbi Agboola	Typing using Typing Tutor, Writing an essay on my schools using Word, Study of Ibadan using the internet	Typing Tutor Software, Printed materials	Resource room
2	Excel, PowerPoint, Graphics	Nkiru Banjoko	Using Excel to for mathematical use, creating a list, importing table from Word to Excel. Using PowerPoint to design. Drawing with the Paint software.	Printed materials	“
3	ICT for Education	Nkiru Banjoko	Video presentation on ICT for education in post primary schools in Africa. Practicing computer based e-learning in Mathematics, Biology,	Geography software, World Wind by NASA, Celestia, Astronomy software, Audiovisual resources on ICT for education from Microsoft, Computer based e-learning software in Mathematics, Biology and English Language.	Board room

			Geography, English Language, Astronomy.		
4	Fine Arts	Rotimi Agbebi- Williams. Assts Kunbi Agboola, Bisi Ojo	Sketching, painting on calabash, molding with clay, painting on T-shirt	Refined clay, wood, poster color, emulsion paint, paint brushes, artist brushes, sketching papers, calabashes, sharpeners, erasers, acrylic paints, 2B pencils for sketching and shading, local piggy banks, local pots and lamps, tacks, retarder(for cleaning paint stains on chairs and tables).	Entrepreneurship Building
5	Drama	Taiwo Ibikunle. Asst: Bisi Ojo	Stage plays, miming		“
6	Story Writing	Mr Ebika Assts: Kunbi Agboola, Bisi Ojo	Composition, Story writing	Writing materials	“
7	Basic Computer Engineering	Tact Global College	Studying the components of a computer	A PC put apart	Tact Global College, Bodija
8	Audio and Video Recording	Dolapo Okunola	Study of how digital audio and video recording is done. Audio and video recording of the children singing.	An audio and video recording studio	UCH
9	Quiz time	Nkiru Banjoko	Using the 'Who wants to be a millionaire' ppt template		

Findings

Most children were familiar with learning about the computer. The much younger children picked up typing skills within one week easily with the 'Typing Tutor' software. The older children in secondary schools were keen on learning about how to use Excel to calculate and PowerPoint for creating posters. The Excel training, they confessed, would help with their Mathematics homework. They could create posters for extracurricular activities in school.

The Geography class was fun with the 'NASA Wind' software. The children were able to relate the location of different countries in Africa with countries of other continents of the world. While they knew about countries, they could not relate where they were in the world or connect the

continents together. What they were taught in school about geography was brought to them in 3D by the software. It was the same with the Astronomy class using 'Celestia' software. The planets came to life and the children could appreciate fully the relationship between the planets, the sun and the stars.

The Quantitative Aptitude Test had the children arranged in groups to solve common problems. The children had problems with the tests given to them. This revealed that most of the children were not used to working in teams to solve problems. They easily completed tasks given to them but took time in collaborating to solving problems.

Summary

Parents of the children that attended the elearning summer programme observed a keenness among their children to continue to use the computer and the internet to study. Most of them have had to buy computers at home and are actually involved in assisting their children to use the computer to study.