

IT Deployment as a tool for rapid Transformation of Education & Capacity Building

By

Prof Godswill Obioma *fman fcon fiica fnae fstan fipman*
Executive Secretary
Nigerian Educational Research And Development Council (NERDC)
Sheda Abuja

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Introduction

This paper locates computer studies/ICT curricula as one of the relevant tools to facilitate the attainment of the **rapid Transformation of Education & Capacity Building**. In this discourse we shall consider extensively the need for ICT integration in education as a catalyst for knowledge creation. The paper highlights on – going reform measures directed towards the provision of quality education for Nigerian children through the E-learning initiative.

Introduction

The rapid increase in globalisation and the strengthening of democratic institutions has become more pronounced in the 21st century. As nations sought closer cooperation, the improvement of basic life quality and learning to live together become more critical. Respect for the rule of law, basic human rights, improvement of the environment, peaceful coexistence across nationalities and communities, reduction of poverty, combating HIV/AIDS pandemic and economic restructuring are some of the global issues that transcends national boundaries. Nigeria's response to these global emerging issues was the development, adoption and implementation of a National Economic Empowerment and Development Strategy (NEEDS) in 2004 and a New Vision 20:2020 for Education.

VISION 20:2020 AND THE EDUCATION SECTOR

The first Pillar of the Vision 20:2020 is to guarantee the well-being and Productivity of the people with education as the bedrock.

Vision and Goals

“To establish a modern and vibrant education system that ensures the maximum development of the potentials of individuals and promotes a knowledge-driven society that propels the nation’s development”

The ability to acquire and utilize knowledge and skills effectively is the key to the growth and development that will propel Nigeria to become one of the 20 largest economies by the year 2020.

A modern and vibrant education system entails wide-ranging activities that would ensure functional and qualitative education of the highest possible standards at basic, post-basic and tertiary levels. The primary goals to achieve this include providing access to quality education at all levels, improved learning and teaching infrastructure, according greater importance to science, information technology, technical, vocational education and training.

Thus if education will be used to achieve the acquisition of knowledge, then its contents and delivery processes should be reformed in the context of improving the quality of life and facilitating the peaceful co-existence of the people of Nigeria and the world at large.

IT Deployment and Knowledge Economy

The concept of the "knowledge driven economy" (KDE) or "the new economy" is used to describe an economy in which the generation and the exploitation of knowledge has come to play the predominant part in the creation of wealth. It is about the more effective use of all types of knowledge and creativity in all manner of economic activity.

Exciting trends are sweeping across the world. In the advanced economies "knowledge" is fast becoming a strategic asset for economic

development. Technological advances and globalization is gathering pace. Advances in information and communication technology are occurring on a tremendous scale. For countries tapping into the new ideas, innovations and technologies that proliferate in a knowledge-driven economy, there is a definite abundance of wealth and opportunities for its entire people.

Most of Nigeria's wealth and power comes from the control of physical assets - land, oil, iron and steel, coal. But in the 21st century, this cannot continue to happen. The main source of value and competitive advantage in the new economy is human and intellectual capital. With a population of 150 million people, Nigeria, in theory has the capacity to make a successful transition into a truly knowledge driven economy.

The role of Information and Communication Technologies (ICTs) in the 21st century education system, the world over, has been described as vital to keeping abreast with rapidly changing technologies. The importance of ICTs has also been translated into huge potentials in terms of positive outcomes, although investments in ICTs in Nigerian's education system have not yielded much when compared to similar investments made in communication. The mode of delivery of knowledge and curriculum are not yet ICT enhanced, though with the development of a National Policy on ICT in Education, Nigeria is predictably a step in the right direction.

Networked Readiness Index

The World Economic Forum's **Networked Readiness Index** (NRI) measures the propensity for countries to exploit the opportunities offered by information and communications technology. It is published annually. The NRI seeks to better comprehend the impact of ICT on the competitiveness of nations. The NRI is a composite of three components:

- The environment for ICT offered by a given country or community (Market, political and regulatory, infrastructure environment);
- The readiness of the community's key stakeholders (individuals, businesses, and governments) to use ICT;
- The usage of ICT amongst these stakeholders.

Types of Knowledge

One of the key themes in knowledge management today is the role of Information technology in the transfer of knowledge between those who have it and those who don't. It is widely acknowledged that knowledge has two dimensions—

- **Explicit** (knowledge that has at minimum been "captured" and articulated and has ideally been "codified", that is, documented, structured and disseminated), ***This is the knowledge of principles*** and ;
- **Tacit** (knowledge that resides in people's heads or "muscle memory" and may be destined to remain there), this is ***knowledge gained from experience.***

Tacit Knowledge guarantees **life-long learning**

Life-Long Learning

Lifelong learning is the continuous building of skills and knowledge throughout the life of an individual. It occurs through experiences encountered in the course of a lifetime. These experiences could be formal (training, counseling, tutoring, mentorship, apprenticeship, higher education, etc.) or informal (experiences, situations, etc.) Lifelong learning, also known as **LLL**, is the "lifelong, voluntary, and self-motivated" pursuit of knowledge for either personal or professional reasons. As such, it not only enhances social inclusion, active citizenship and personal development, but also competitiveness and employability.

Quality improvement in IT education is driven by relevant and functional ICT curriculum. The twin issues of job creation and poverty reduction can only be assured if the ICT curriculum is tuned to achieve these. Promoting ICT capability through systematic education is curriculum related. The private sector participation in the funding of education will depend on the extent the human resource products of education meet the requirements of that sector. For the human resource products to be appropriate, the ICT curriculum has to be relevant. In all of these, the periodic review of the curriculum as a basis of offering functional education to meet rapid changes in the social and economic context is inevitable. Thus the essence of on-going reform initiatives (both basic and post basic curriculum reform initiatives) is to transform the nation and lives of our people through strategic functional and relevant ICT curricula provisions.

At this point it is important to examine the previous curricula in order to fully appreciate the new curriculum structure vis- a- vis its role in the actualisation of the NV 20-2020.

Closing the Gaps: What Curriculum Restructuring and Transformation Strategies?

Education in the generic and global context has been identified as a strategic instrument for social and economic transformation. NEEDS has recognised that for the culture of reform to be grown and sustained, education should be used to empower the people.

The difference between rich (developed) and poor (developing) countries is not found in:

- **Abundance of natural resources** for if it were, Japan will have been very poor and Nigeria very rich. But the reverse is the case. While Japan with virtually no natural resources is the second economy of the world, countries such as Gabon, Nigeria and Venezuela are debt ridden.

- **Age of the country.** It is known that Egypt as the oldest civilisation of the world is a poor country while the economies of emerging countries such as the Asian tigers are developing at a very fast rate.
- **Agricultural endowment** for even though virtually nothing grows in Switzerland it is the “safe” of the world with a strong economy.

The difference can be found in respect for the rule of law, strict protection of human rights, positive value orientation, strategic knowledge management and good governance. Rich countries strive to not only acquire and sustain these values and virtues but systematically use education to bring these about. Rich countries devote most of their resources to educational development and continually restructure their school curriculum at all levels to facilitate people empowerment through education.

Computer Education Curriculum Objectives

The Nigerian Educational Research and Development Council with a mandate in curriculum development developed the curriculum with emphasis on creative thinking, entrepreneurial skills, positive social and cultural values. The objectives of the Computer studies/ ICT Education for the learner improvement are to:

- Develop reasonable level of Competence in ICT applications that will engender entrepreneurial skills

i.e.

- Technology Literacy by incorporating Technology skills in learning
- Improve Knowledge to solve complex, real-world problems
- produce new knowledge and benefit from this knowledge

The Focal point for Development of Computer Studies/ICT Curricula in Basic Education and SSS

- *To prepare students with technology literacy, workforce, and academic skills necessary to compete in a global environment;*
- *Job Creation and self reliance*

Background Information on the Computer Studies /ICT Curricula for Basic Education(Primary school + JSS) & Senior Secondary Education structure

Basic Education Level

- The first deliberate attempt at ICT education nationally
- Provides guidance to teachers on concepts and skills to be acquired by learners
- Thematic and Learner-Centered, and structured around vital ICT constructs
- Emphasis is on life –long learning.

Curriculum Structure & Contents of Computer Studies/ICT at Basic Education Level

The 6-year primary and 3-year junior secondary school levels is connected to form a 9-year continuous uninterrupted basic education level. This is already an approved policy of government. For it is important to note that Government has approved the reduction of the content overload through a process of subject restructuring. The Nigerian Educational Research and Development Council (NERDC) restructured this curriculum with the following features.

Core compulsory subjects as English Studies, Mathematics, Basic Science and Technology, Social Studies, Civic Education , Cultural and Creative Arts, Health and Physical Education,One Major Nigerian Language, Religious Studies (Christian/Islamic) and Computer Studies/ICT

1. Elective subjects include Arabic, Agriculture, Home Economics
2. Introduction of French in primary 4 as a core subject
3. The separation of Basic Science and Basic Technology in JSS1
4. The introduction of Vocational Subjects in JSS1

5. The inclusion of Business Studies, Economics as electives in JSS1
6. The infusion of creative and critical thinking, entrepreneurship skills and relevant elements of the NV 20-2020 goals, positive values, peace studies and entrepreneurial skills in the various contents.

Post Basic Education

This constitutes the 3-year senior secondary school (SSS) and is geared towards preparing learners for productive work as well as for higher education in the NEEDS context. To this end the following curriculum reform was adopted.

1. The core curriculum of the SSS was broadened and vocationalised.
2. The study of Basic Technology at the JSS forms the basis for the further development and study of the subject at the SSS level.
3. The infusing of entrepreneurial work skills in the relevant curriculum contents but making Technical and Vocational Education and Training (TVET) core and compulsory. This is to ensure the production of graduates who can create their own jobs and wealth in fulfilment of the NEEDS tenets. This will also ensure the growing of a strong economy and technological base systematically through education.

E-learning initiative

e-Learning is a catch-all term that covers a wide range of instructional materials that can be delivered over a local area network (LAN), or on the Internet. It includes Computer-Based Training (CBT), Web-Based Training (WBT), and Electronic Performance Support Systems (EPSS), distance or online learning and online tutorials.

The Federal government of Nigeria in its role to enhance access to qualitative education initiated an e-learning initiative to cut across all the Ministries, Departments and Agencies in the country.

A committee was set up to steer this initiative in 2010 by the Federal ministry of education which is the chief driver.

The introduction of the computer studies/ICT curricula as a compulsory subject will facilitate the speedy integration and implementation of Information Technology in capacity building and educational reform.

Concluding Remarks and Lessons Learned

- IT Education as an instrument for economic and social transformation should play a key role in the reform context through systematically growing and sustaining the culture of reform.
- At present there are discernable gaps in the ICT initiatives at all levels in the context of using education to empower the people.
- In order to sustain the culture of reform, the ICT curriculum should undergo systematic strategic transformation to ensure integration of technological innovations in education.
- A Phased Plan for providing Schools with Computer Hardware, Software and connectivity
- Specialist Teachers Training programme to produce Computer Studies to commence as a matter of urgency.
- Private sector driven programme for providing schools with ICT infrastructure and facilities should be encouraged.
- Authors to intensify the development of school texts.
- Computer Studies /literacy should be made compulsory and a pre-condition for graduation in teacher education programmes.

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