

**EDUCATION COMMUNICATION AND TECHNOLOGY:
POLICY IMPLEMENTATION AND IMPACTS OF INFORMATION
AND COMMUNICATION TECHNOLOGY (ICT) IN NIGERIA EDUCATION, SYSTEMS**

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Abstract

In the year 2000, the Federal Ministry of Education (FME), in collaboration with Computer Professionals (Registration Council) of Nigeria (CPN) launched "ICT as a tool to Educational Development" to produce a breakthrough in Educational Innovation by integrating and infusing ICT in the Country's Education System. It is however, noteworthy that the implementations of Nigeria National Policy on Information and Communication Technology are inadequate to impact positively on the Nigeria education system. This research will focus on the vision, challenges, opportunities and the benefits in the use of Information and Communication Technology in developing Nigerian education systems. Policy implications and suggestions are offered to ensure maximum use of ICT potentials in the Nigerian school system.

Keywords: Education, Development, Technology, IT Policy

1. Introduction

Information and communication technology (ICT) is high on the education reform agenda of many African countries. In this modern age, no positive impact can be sustained today without an adequate and pervasive information and communication technology infrastructure in place. The impact of ICT in development covers various aspects of a nation's socio-economic life especially growth in its educational sector. The use of ICT can impact on developing Nigerian education systems (E-Learning adoption), in dissemination of knowledge and change in learning processes, working methods and culture (Ruikar et al., 2005). In this regard, Nigeria education systems have to be adjusted to meet the challenges of the ICT age. Some benefits of ICT in education are to reduce the time for data processing and communicating information in the E- learning process and to improve communications for effective decision-making and coordination among students and lecturers (Peansupap & Walker, 2005). The imperativeness of ICT has brought about rapid technological, social, political, and economic transformation, which has eventuated in every network society organized around ICT (Castells, 1996). The field of education has not been unaffected by the influence of information and communication technology. Undoubtedly, ICT has impacted on the quality and quantity of teaching, learning, and researches in traditional and distance education institutions. In a strong term, ICT can enhance teaching and learning through its dynamic, interactive, and engaging content; and it can provide real opportunities for individualized instruction. Information and communication technology has the potential to accelerating, enriching, and deepening skills; motivating and engaging students in learning; helping to relate school experiences to work practices; helping to create economic viability for tomorrow's workers; contributes to radical changes in schools; strengthening teaching, and providing opportunities for connection between the school and the world (Davis, N E and Tearle, P. 1999; Lemke and Coughlin, 1998). Information and communication technology can make the school more efficient and productive, thereby engendering a variety of tools to enhance and facilitate teachers' professional activities (Kirschner and Woperies, 2003). In research, ICT provides opportunities for schools to communicate with one another through e-mail, mailing lists, chat rooms, and so on. It also provides quicker and easier access

to more extensive and current information, and it can be used to do complex mathematical and statistical calculations. Furthermore, it provides researchers with a steady avenue for the dissemination of research reports and findings (Yusuf and Onasanya, 2004).

2. The Impact Of ICT In Educational Development

ICT brings about possibilities of information and data processing, storage and transmission. Information and Communication Technology affects all industry and every service and has also penetrated society as a whole. Castells (1999) shows a similar view by referring to idea of new socio-economic organization. This organization is also characterized by ICT as "roots of new and modern productivity sources, new organizational forms, and of formation of a global economy". ICT, however, doesn't solve social problems but rather is prerequisite for socio economic development (Castells, 1999).

According to the UNDP (2005) report, effective deployment of ICT can also affect human development in two major ways. First, ICT as a sector of modern economic activity impacts the economic growth of a nation. Another is, ICT as an enabler for the enhancement of human productivity influences human development through the access to information knowledge and enlarging choices. Chacko (2005) argues that ICT helps in alleviation of poverty, enhancement of education and improving healthcare. The penetration of ICT into all society has transformed the societies from agrarian to industrial and now to a modern evolving Information Society (IS) (Mutula, 2004). That is to say a society in which the creation, distribution and the manipulation of useful information has become the most important economic and cultural activity" (Vosloo, 2005). Technological advances are also perceived as the underlying drivers of evolution towards an Information Society. Many more strategies and technologies have been developed to help students learn faster today, whilst achieving a greater retention with more ease. ICT in all areas of education are now used in ways that accelerate E-learning and the capacity of learners at a remarkable pace. Accelerated learning and co-operative E-learning techniques are also used with enormous successes in huge numbers of corporate training programs and schools which have access to these resources. We often find that learning time is also cut in half. Learning institutions need to include emerging technologies in cooperated into their curricula. These techniques alongside with distance learning, schooling, multimedia classrooms and service projects are illustrations of how ICT can generally be used in education. The following statement by a scholar (Symons 2000) explicitly backs up this, "To prepare all students for the New Economy, reformers are also pushing for a curriculum which will use the Internet technology and internships to immerse students in the intellectual challenges they shall face after graduation. There is a widespread recognition that the entire world can no longer afford to preserve the system of learning designed for a world that has already disappeared". Some countries see ICT as bringing even greater advantages to their development which will overtake the development even further. There is little that needs to be done to change this trajectory situation. For some, ICT divergence is inevitable, favoring developed nations more than developing ones, unless the issue is taken serious and addressed. In this modern world, ICT is a vital element in the infrastructure of nations and developing its economy. No positive impact can be sustained today without an adequate and pervasive Information and Communication Technology infrastructure in place. The impact of ICT in development covers various aspects of a nation's socio-economic life especially growth in its educational sector. Based on a review of 28 major reports on technology integration in American Schools, Culp, Honey and Mandinach (2003) advanced three major reasons for ICT in education. They suggested that ICT is usually:-

i. a tool for addressing challenges in teaching and learning:

ICT has capabilities for delivery, management, and support of effective teaching and learning. It is equally good for geographically dispersed audiences, and it also helps students to collect and make sense of complex data. It also supports diverse and process-oriented forms of writing and communication, and it broadens the scope and timeliness of information resources available in the classroom.

ii. as change agent,

It catalyses various other changes in the content, methods, and overall quality of teaching and learning, thereby ensuring constructivist inquiry-oriented classrooms.

iii. as a central force in economic competitiveness

It deals with economic and social shifts that have technological skills critical to future employment of today's students. Looking at the role of education in the development of any society, the school will be indispensable in developing an ICT culture of any country. The school must provide effective leadership in ICT integration,

through research, modeling of effective integration of ICT, and provision of opportunities for professional development of citizens of a country.

3. National Policy for Information and Communication Technology

In order to tap the potentials of ICT, most nations of the world have evolved national information and communication technology policies to serve as a framework for ICT integration in all aspect of the society. African countries and particularly Nigeria are no exceptions to this practice. The digital divide between advanced and developing countries, particularly in Africa, is well established. Like most African countries, Nigeria as a nation, came late and slowly in the use of ICT in all sectors of the nation's life. Although Africa has 12 per cent of the total world population, the continent has two per cent presence in ICT use (Jensen, 2002). In Africa, there is low access to basic ICT equipment, low internet connectivity, low participation in the development of ICT equipment and even low involvement in software development. In fact, New York City has higher Internet connectivity than the whole of Africa (Ajayi, 2002; Hall, 1998). The seeming backwardness of the African continent in ICT necessitated a continent-wide initiative - the African Information Society Initiative (AISI), which had its origin in the African Regional Symposium on Telematic for Development, held in Addis Ababa, in April, 1995. The symposium organised by the Economic Commission for Africa (ECA), the International Telecommunication Union (ITU), UNESCO, the International Development Research Centre (IDRO), and Bellanet International, urged the ECA Conference of Ministers to consider the importance for Africa of the global information revolution (Ajayi, 2002; ADF, 1999). Based on this recommendation, the ECA Conference of Ministers in May 1995 passed resolution 795;(XXXI) titled "Building Africa's Information Highway", which called for work on national information and communication networks for planning and decision-making as part of an African information highway, and for the establishment of a high level working group made up of African experts in ICT, to prepare Africa's entry into the information society. Subsequently, in May 1996, the ECA Conference of Ministers through its resolution 812 (XXXI) approved the plan of action prepared by the high-level working group entitled the African Information Society Initiative "An action framework to build Africa's Information and Communication infrastructure" (Ajayi, 2002; ADF, 1999). The AISI action plan framework called for the formation of National Information and Communication Infrastructure (NICI) plans and strategies. This was to be an on-going process through planning, implementation, and regular evaluation of programs and a pilot project, developed according to the needs and priorities of each country (ADF, 1999). It should be stressed that Nigeria did not achieve much on the NICI plan and strategies at the beginning of 1999. A significant leap was made when the Nigerian government in October of 1999 issued a document on telecommunications development strategy and investment opportunities in Nigeria. Similarly, in October 1999, the National Policy on Telecommunication was approved (Ajayi, 2002). The document contained policy statements on objectives, structure, competition policy, satellite communication, management structure, finance and funding, manpower development and training, internet, research and development, safety and security, international perspectives, and policy implementation and review (Federal Republic of Nigeria, 2000). The national policy on telecommunication was a key step in the development of infrastructural base for ICT. In 2001, the Federal Government approved the Nigerian National Policy for Information Technology (IT), and followed this up with the establishment of the National Information Technology Development Agency (NITDA), which was charged with the implementation of the policy (Ajayi, 2002).

4. Information and Communication Technology (ICT) As A Tool For Development of Education In Nigeria

The role of ICT in the teaching and learning aspect of the economy is rapidly becoming the most important and widely discussed issues in modern contemporary education policy (Rosen and Thierer, 2000). Nigerians' Vision 2020 policy was formulated to ensure the transformation of Nigeria into becoming a fully developed nation and one of the best 20 economies of the world by the year 2020. The vision calls for Nigeria to achieve a self sufficient industrial set up (the Nigerian centric economy). In her quest to achieve the objectives of the Vision 2020, Nigeria has identified information and communication technology (ICT) as one of the major key tools for its projected transformation from its own production based economy to knowledge based driven economy by 2020. ICT is crucial enabler in a knowledge based driven economy because ICT facilitate the acquisition, utilization

and dissemination of useful knowledge towards enhancing the economic and social values of the society. To spearhead the move towards achieving this Vision 2020, the Nigerian government has embarked upon the launching of its Nigeria sat 1 satellite for the development and nurturing of the Nation's ICT industry. The Nigeria sat 1 provides first-world knowledge and infrastructure for IT at the developing-nation's cost. The use of ICT can impact on developing Nigerian education (E-Learning adoption) in dissemination of knowledge which will result in change in learning processes, working methods and culture (Ruikar et al., 2005). In this regard, some role of ICT in education is to reduce the time for data processing and communicating information in the E-learning process and also to improve communications for effective decision-making and co-ordination among students and lecturers (Peansupap & Walker, 2005). Most tertiary education and research institutions in Nigeria are funded by the federal and state governments, though few are privately owned. These institutions have made significant contribution to the dissemination of knowledge and in research in all vital fields and disciplines of human endeavor. They have played some major roles in transforming the community, state and the entire nation. They also support the needs and aspirations of students and scholars. Ajibola and Tihamiyu (2000) and Ogunsola (2005) among others, have made emphases on effect of the information explosion in the new information era. These include Digital technology, Internet connectivity, and E-learning adoption in all Nigerian tertiary institutions. Many universities in Nigeria today have local area networks in their Libraries and classes, finance departments, Management Information System units (MIS), and in some faculties/departments, etc. Meanwhile; the newly adopted National University Network (NUNET) project initiated by the National Universities Commission which is the regulatory body of Nigerian universities could not be successfully linked up for networking of the campuses as planned.

5. Analyzing the Nigerian National Policy and Regulations on Information and Communication Technology in Education

In June 10, 1993, Nigeria government established a body known as the Computer Professionals Registration Council of Nigeria to regulate and advance the knowledge of computer science and the use of computational machinery and techniques related thereto. Unfortunately, government has not given the body the full support and backing to enforce and operate effectively especially at the government institutional levels and this has made the regulating body to have no specific direction on ICT or technology plan at institutional levels. Advanced countries have specific plans for ICT. For instance, in Britain the National Grid for learning initiatives, and the strategy for Education Technology, specifically addressed ICT issues in United Kingdom and Northern Ireland respectively (Selinger and Austin, 2003). The Nigerian national policy does not give any guidelines on school technology plans. The implications of these inadequacies are that the national policy cannot adequately take care of the need of the Nigerian education system. Its educational focus is limited to the market driven goal.

6. Recommendations

There is lack of proper integration in the area of quality and professional development programs for pre-service and serving teachers. Research evaluation and the development of local context software are not addressed. In view of these inadequacies, there is need to revise the Nigerian national policy on information technology. Such revisions should be undertaken to involve stakeholders and IT regulating body in the area of education with teaching and learning as the key focus. The review should include issues of infrastructure across zones and school levels since this is important in ICT integration. It should also incorporate issues relating to teacher training institutions, pre-service teacher education, in-service education and standards for teacher competence and certification in ICT. The policy should also identify a frame of reference to gauge success in ICT application in education which will encourage refinement of school practices relating to ICT integration.

7. Conclusion

Despite the fact that Nigeria came late into the ICT world, the adoption of the Nigerian national policy for information technology in 2000 is the right step in ICT application in every sector of the nation's life. Information and communication technology is a powerful tool for the development of quality education; it is a catalyst for radical change in existing school practices and a veritable vehicle for preparing the students and teachers for the future. Success in the implementation of an ICT policy will be dependent on the recognition of the importance of sectoral application to education and sustainable implementation. Maximizing ICT potentials will involve quality

ICT policy, greater involvement of the professional body (private and public) in the funding, implementation, regulating and monitoring.

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