CHALLENGES OF INTEGRATING INFORMATION AND COMMUNICATION TECHNOLOGY PSYCHOLOGICAL PERSPECTIVE

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ABSTRACT

The paper looked into National Policy on Education (FRN, 2013) stated that educational goals shall be clearly set out in terms of their relevance to the needs of the society i.e. the strategic repositioning of education in order to respond to the needs, interest and abilities of the learners for the good of the society. It is in this regard that the National Policy on Education (FRN, 2013) spelled out that teacher education shall continue to take cognizance of changes in methodology and in the curriculum and that teachers shall be regularly exposed to innovations in the professions; through a collaborated effort of the Ministries of Education, Science and Technology, Education Tax Fund (Olu, 2004). Olu further mentioned that the aim of School Net Nigeria is to create communities of educators and learners who use ICT to enhance education within and beyond Nigeria. The problems, issues, challenges and possible solutions were thoroughly discussed, recommendation and conclusion were made.

Keywords: Teacher Education, Information Communication Technology (ICT), Education.

Introduction

Modern world is swept by changes as new technologies emerge constantly. It is in view of this that the National Policy on Education (FRN, 2013) states that educational goals shall be clearly set out in terms of their relevance to the needs of the society. The emergence of new technologies like Information and Communication Technology (ICT) necessitated the strategic repositioning of education in order to respond to the needs, interest and abilities of the learners for the good of the society. Therefore, integration of ICT into teachers' training have become a sine qua non because, no education system can rise above the level of its teachers. It is in this regard that the National Policy on Education (FRN, 2013) spelled out that teacher education shall continue to take cognizance of changes in methodology and in the curriculum and that teachers shall be regularly exposed to innovations in the professions.

Technology have now become a potent force in shaping the world and bringing the distance target closer to solve problems of man and his environment, especially through information and communication technology (ICT). Any nation that fails to move along

will be caught in the web of underdevelopment. ICT as new as it is, has become the desire of all countries in order to cope with the challenges of the new millennium. It is for this reason that Nigeria developed National Policy on Information Technology (IT) in 2001 (Akudolu, 2002). The policy regards information technology as the bedrock for national survival and development in a rapidly changing environment and challenges to devise bold and courageous initiative to address a host of vital socio-economic issues, such as relevant infrastructure; skilled human resources; open government and other essential issues of capacity building. In September 2001, School Net Nigeria was launched through a collaborated effort of the Ministries of Education, Science and Technology, Education Tax Fund (Olu, 2004). Olu further mentioned that the aim of School Net Nigeria is to create communities of educators and learners who use ICT to enhance education within and beyond Nigeria. This effort marked the beginning of implementation of ICT in schools in Nigeria.

The emergence of this new global trend has serious implications on the nature and purpose of education. In the idea of Tinio (2011) education cannot remain a mere avenue for the transmission of a prescribed set of information over a fixed period of time. Rather it should promote "learning to learn". This implies that education via ICT will provide possibility for a life-long education. Many countries now regard understanding ICT and mastering its basic skills and concept as part of the core education curriculum, along with reading, writing and numeracy (School Net, 2006). It is in view of these realities that the National Policy on Education (FRN, 2013) came up with some changes and innovations which include the introduction of ICT opportunities in teacher education sector, so as to survive the global competition in information technology. The major aim of integration of ICT according to Akudolu (2002) is to establish the type of education system that will produce citizens who can contribute effectively to life in the society.

Integration of ICT into Teacher Education
The National Policy on Education (FRN,2013) have stressed the urgent need to integrate ICT into teacher education in Nigeria in recognition of its role in advancing knowledge and skills necessary for effective functioning in the modern world. Integration of ICT into teacher education means conducting teaching and learning activity through the use of ICT facilities. This implies that emerging technologies be interwoven into the total fabric of teacher training to make technology and education one (Blurto, 1999). In other words, ICT should be an essential tool into teacher training course/curriculum and indeed no longer possible without it.

Tinio (2011) has opined that effective integration of ICTs into educational system is a complex, multifaceted process that involves not just technology but also the pedagogy and teachers' competencies among others. Bitner and Bitner (2002) and Loveless (1996) have identified teachers as the most important factor to successful integration of ICT in education. Similarly, a study by Drent and Meelissen (2007) on factors that stimulate or limit innovative utilization of ICT by teachers in Netherlands, showed that student-oriented pedagogical approach and personal entrepreneurship of the teacher have a direct positive influence on the innovative use of ICT by the teachers. This denotes that

integration of ICT into education to a large extend depends on the pedagogical competence and technical skills of the teaching staff.

It is worth mentioning that teacher training institutions as we have today place more emphasis on knowledge of the content of the subject matter only. Now that teachers are implored to adapt and integrate ICT into teaching and learning activities, their training should extend to computer and other ICT facilities and how to apply it to their respective disciplines. The Nigerian Education Research and Development Council (NERDC) has developed the National Computer Education Curriculum (NCEC) in 2002. This represents the first attempt to provide guidance to teachers on the elements that constitute basic computer at the primary school level; this effort though commendable but not enough. Teachers' ability to effectively implore ICT can only be determined by the level of their preparedness during training.

Benefits of Integration of ICT into Teacher Education

When used appropriately, different ICTs are said to raise the quality of teaching and learning by transforming it into an engaging-active process connected to real life (Tinio, 2011). Olu (2009) asserts that ICT has become the latest addition to mass media that has greatly extended teachers' ability to teach effectively and the students' ability to learn better. This has informed the growing need by all countries to adopt ICT into classrooms settings in order to explore efficiencies in terms of programme delivery.

Modern constructivist educational theory emphasizes critical thinking, problem solving, social negotiation and collaboration of knowledge which Blurton (1999) refers to as pedagogical methods that changed the role of the teacher from a disseminator of information to a learning facilitator (helping students as they are actively engaged with information and materials to construct their own understanding). ICT has the potential for aiding these new educational methods, which enable students' learning by doing through its dynamic, interactive, flexible and engaging content.

The benefits of ICT have permeated all aspects of teaching and learning and are summarized by Kasokowski (1996) as cited by Nnaka (2004) as:

I. **Application of Technology to Basic Skills:** For instance, in the use of educational technology drills and practice under computer assisted instruction (CAI);

II. **Application of Technology to Advance Skills:** New technologies now allow students to have more control on their learning. They think analytically and adopt constructionist approach in some issues. This enable them to collaborate efforts to the point of assisting the teacher in instructional delivery;

III. **Enhancing of Students Attitude:** Students appear better motivated to learn, have increased self-confidence and self-esteem when using computer assisted instruction (CAI);

IV.   **Access to Online Information:** Access to internet, for instance promotes tendencies toward effective information management, communication and presentation of ideas;

V.   **Enhancement of Communication:** The use of e-mail and internet to communicate with parents, colleagues and outside world aids in academic and professional growth. It could be of great importance in taking distances etc. ICT enhances learning across subject areas (Akudolu, 2002) and removes the barriers of time and location in the provision of learning opportunities. Teaching and learning is made possible to primary school pupils who cannot avail themselves of formal school opportunities as a result of constraints of time and space.

Strategies for Integrating of ICT into Teacher Education

One of the challenges facing developing countries in this millennium is the integration of ICT in education in order to strengthen and improve the quality of teaching and learning at all levels of education. ICT implementation in education is a difficult, expensive and complex undertaking that requires that a host of issues must be considered including infrastructure, curricular change, teacher training, technical support and so on which requires careful planning. Naido (2003) aptly captioned it as he asserts that integration of ICT into educational system requires a systematic approach that is governed by clear policies and implementation processes and plan.

Tinio (2011) has opined that, there is no one formula for determining the optimal level of ICT integration in the educational system even though valuable lessons may be learned from the best practices around the world. However, Osin (1998) as cited by Blurton (1999) has offered some advice in the introduction of computers into the educational systems of developing countries. He warns against beginning a project by purchasing computers, which often results in a waste of money that could be put to better use. Instead, he advocates an eight step planning process beginning with gathering together the necessary expertise in an advisory committee that will define and implement a plan beginning with careful execution of pilot projects, cadre training for instructors and for teacher training and conducting both formative and summative evaluations of pilot projects before attempting a large scale ICT implementation.

The introduction of ICT into teacher training institutions should be long and gradual. Practical realities of ICT must be considered before planning specific ICT activity. in particular, you will need to consider the number of computers available vis-à-vis the number of students. Further consideration is in relation to the kind of ICT equipment which is available. Do you have internet access? What about e-mail? etc. It is important that teachers who are trying to develop the use of ICT should also develop strong relationship with a technical support staff that may be able to help with technical issues (School Net, 2006).

Challenges of Integrating of ICT into Teacher Education in Nigeria

Information and Communication Technology (ICT) is still in its infancy stage in the teacher training institutions in Nigeria. Attempt to enhance and reform teacher

education in this direction will therefore not be without some significant challenges. These among others include;

I.   **Teachers:** The integration of ICT may depend to a large extent on the pedagogical competence and skills of the teaching staff. Despite several workshops and training for teachers in the teacher training institutions on ICT, train tutorial staffs are still grossly insufficient. The curriculum of our tertiary training institution does not include the training of the computer instructors. Such curriculum exists for professional computer workers, not in the professional training package for teachers. Except for the few Colleges of Education that runs NCE programmes in computer studies. As a result, teachers are largely novices in the use of computers. These deficiencies in teachers' technology training has accounted to a large extent for the failure of most schools trying to grasp technology and harness the power that ICT brings to classroom.

II. **Technical Support:** Closely related to teachers' competence is the technical support staff. Blurton (1999) report that without adequate technical support, schools have experienced ''large workloads for existing staff, maintenance backlogs and reduced computer use because computers were out of service''. Thus, the provision of on-site, timely technical support may be critical to the success of ICT integration.

III. **Infrastructure Related Challenges:** Infrastructure is by no means a small challenge. In the first place, ICT facilities require appropriate rooms or buildings to house it. In many primary schools in Nigeria, particularly in the rural areas, schools are still battling with dilapidated buildings. Extensive retrofitting to ensure proper electrical wiring, heating/cooling and ventilation, and safety and security would be needed. Another basic infrastructure which poses a challenge is availability of electricity. For any educational system to make use of ICT, electricity needs to be developed and extended to all places.

IV. **Financing:** One of the greatest challenges in ICT use in education is finance. To execute ICT programmes large capital investment is needed which many developing countries may find difficult due to economic realities. This poses a challenge in balancing economic realities with educational needs. Any country that risks forsaking the integration of ICT due to cost will be caught in the web of underdevelopment.

Recommendations
To effectively integrate ICT into teacher training institutions in Nigeria, the following recommendations are made:
1.   Government should regulate telecommunication rates in order to ensure affordable ICT access for primary schools, just alike the US telecommunication act of 1996 (Blurton, 1999) which sought to help schools and libraries obtain access to telecommunication services and technologies at discount rates;

2. Computer unit should be established in every primary school in Nigeria;

3. To create ICT enable teaching and learning environment, it is necessary to provide ICT training for teachers. In essence, teacher education policies and practices has to be shaped in order to ameliorate teachers' novices in the use of ICT

4. Appropriate rooms or building with proper electrical wiring, heating/ cooling and ventilation, and safety and security to house the ICT facilities needs to be build in every teacher training institutions;

5. Administrators' must be competent in the use of technology and must have a broad understanding of the technical, curricular. Administrative, financial and social dimensions of ICT-use in education; and

6. Government should ensure steady supply of electricity to all teacher training institutions.

Conclusion

The use of newer digital ICTs provides opportunities for remarkable transformation in teacher education due to their ability to integrate multimedia and flexibility of use. Pre-service teachers should therefore be exposed to the knowledge of a variety of ICTs available for instructions and the skills of using them in teaching. Teacher education remained the best level to strengthen the use of ICT in education since teachers remain the most important factor in any education reform. It may appear too expensive, it is however a small price to pay for a potentially monumental socio-economic benefit.

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