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REFORMING NIGERIA TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING TO MEET GLOBAL CHALLENGES THROUGH INFORMATION COMMUNICATION TECHNOLOGY

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Abstract

Information and communication technology (ICT) is an indispensable part of the contemporary world. Technical and vocational education and training (TVET) have to be reformed to meet the challenges of the knowledge age. The pervasiveness of ICT has brought about rapid technological, social, political, and economic transformation, which has eventuated in a network society organized around ICT. Reformed TVET through ICT will help develop the individual's knowledge in a broad occupational area requiring technical and professional competencies and specific occupational skills. This paper examines the concepts of Nigerian educational reforms, an overview of TVET and the concept and importance of ICT to TVET. It also explores problems of usage and implication of ICT to TVET in the Nigeria.

Keywords: Educational reforms, TVET and potentials of ICT.

Introduction

Skills polarization between the so-called mind or knowledge workers and unskilled-low-knowledge workers has widened the gap in income inequalities. Youths, women, and older workers are the groups most affected. While these changes have brought about considerable challenges to TVET, they have created new opportunities for change and innovation. However, in this new environment where human capital has become the most critical element in achieving a competitive advantage, TVET can now aim to reach its full potential. Adenle and Shobowale (2009) stated that technical and vocational education and training (TVET) is that aspect of education which exposes the learner to acquire demonstrative skills that could be transformed into economic benefit. Information and communication technology (ICT) has dramatically changed the way man lives, learns, and work, and even thinks about work. TVET has had dramatic economic and social impacts. It has created new opportunities as well as new challenges and uncertainty. Consequently many workers have been dislocated, while a significant number of young people are structurally unemployed or underemployed.

Reformed TVET will help develop the individual's knowledge in a broad occupational area requiring technical and professional competencies and specific occupational skills. TVET systems therefore needs to develop the knowledge and skills that will help the workforce become more flexible and responsive to the needs of local labour markets, while competing in the global economy. ICT revolution makes knowledge a competitive resource. In this economic era, economic prosperity depends on brains rather than brawn and value is created by employing knowledge workers and continuous

learning. The need for recurrent education and the changing labour market conditions, call for flexible access to TVET. In spite of these potentials, little is known regarding the usage of ICTs in TVET in Nigeria. Because the world of work is more complex and fluid, newer approaches to working and learning are in demand. More than ever, educational institutions are required to imbue their students with functional lifelong learning skills they need to survive and meet the challenges and changes wrought by the twenty-first century. In other words, the evolution of education from the traditional school-based, brick-and-mortar type to the current systems based on information and communication technology, dictates that the TVET sector should also adapt its processes in the expansion of opportunities to these forms of education (Idris, 2011).

Federal Republic of Nigeria (2004) reported that among the innovations planned to take place is the introduction ICT into the school systems, which is now gaining grounds even in the globe. ICT could not be regarded as the only solution to all education problems, but in the world today, they are essential tools for teaching and learning to be used by teachers but not to be substituted for the teacher. For a teacher to be versed while using these tools there is need for visions, potentialities, and opportunities in application, training and time to experiment. In order to deal with issues relating to this topic, this paper focuses on:

- Nigerian Educational Reforms
- Technical and Vocational Education and Training (TVET) An Overview
- Concept of Information and Communication Technology (ICT)
- Level of (ICT) on (TVET)

Importance of ICT to TVET

Problems of ICT Usage in TVET in Nigeria

Implications of ICT on TVET in Nigeria

Nigerian Educational Reforms

The term reform is etymologically derived from the Latin root *reformare* which means "to reform". It is a verb that refers to improvement by correction, a correction of error or removal of defects (Bello, 2007). Similarly, Young and Carnoy (1999) defined educational reforms as programmatic changes that are government directed and initiated based on an overtly political analysis. It is, one driven by the political apparatus of the government rather than by educators or bureaucrats), and is justified on the basis of the need for a very substantial break from current practice. The civilian administration of President Olusegun Obasanjo (29th May, 1999 to 28th of May, 2007) embarked on significant educational reforms particularly at the tail end of the tenure of the administration. These reforms were primed to bring about significant changes in the structure of the Nigerian education system. The reforms cover every aspect of the Nigerian education system (grade levels, educational agencies, administration, curriculum, etc.). Over the years educational reforms have been brought about by the need to tailor education towards changing the economic, social, and political situations in Nigeria. Global changes in the social and economic context coupled with the economic situation of the country, led to the adoption of National Economic Empowerment and Development Strategy (NEEDS) 2004. NEEDS, according to Obioma and Ajagun (2006) have the major targets of value reorientation, cost reduction, job creation, and wealth creation. This led to the need to re-define the country's education system, as exemplified in the reforms which are meant to move Nigerian education from the theoretical orientation to practical and skills based orientation.

In addition, educational reforms have been undertaken upon by the developed, the developing, and the less developed nations of the world. Bello (2007) highlighted some of the major reasons for reforms in education to include the need to: have education relevant to the need of the country, equip students with the relevant knowledge to change their economic and professional lives, make education accessible to more people, and pay more attention to science and technology. Others include the desire to: expose students with contemporary information and communication technology skills equip schools with adequate resources, improve teaching methods and pedagogical practices, improve financing and

management of education, assessment system, and prepare the country to face the challenges of the major influence of globalization emphasized by Carnoy (1999). Globalization has affected education system indirectly which led to:

- changes in both the labour market and the education systems due to the increasing demand for skilled labour.
- the increase in cross-national measurement of education system.
- the adoption of information and communication technology for increased access to education and also for quality in education.

The transformation of culture and cultural values, thereby resulting in what Carnoy (1999) called "struggle over the meaning and value of knowledge". Carnoy went further to highlight specific aspects of the impact on globalization as bringing about competitiveness driven reforms (decentralization, standards, improved management of educational resources, improved teacher recruitment and training), finance driven reforms (shifting public funding from higher to lower levels of education, the privatization of secondary and higher education, the reduction of cost per student at all schooling levels), and equity driven reforms (to reach those who are not accommodated by the contemporary education system - lowest income group, women and rural population, minorities, etc).

Major changes from earlier educational policies are enunciated as follows. First, the nine-year basic education eliminates disconnection between the primary and the junior secondary school thereby ensuring a continuous curriculum. The level is structured into three levels: Lower Basic (Primary 1 - 3), where eight core subjects and a maximum of two electives are offered; Middle Basic (Primary 4 - 6), where nine core subjects and a maximum of three electives are offered; Upper Basic (Junior Secondary 1 - 3), where ten core subjects and a maximum of three electives are offered. Secondly, the need to reform secondary school education is supported by several UNESCO researches which emphasized the need to take secondary school education beyond the General Secondary School Education (GSE). It is to incorporate TVET which is called the convergence of knowledge and practical skills (UNESCO and ILO, 2002). Thirdly, the consolidation of tertiary institutions and merging of tertiary institutions, that is, the merging of Colleges of Education and Polytechnics with Universities was envisaged. Other basic areas included the merging of educational commissions and agencies from over 30 to 11,

as a tool for organization and management. This relates to ICT being used to handle school records like time tabling, attendance register, fees collection, and examination registration and examination results.

Consequently, ICT is the technology of creating, processing, storage, retrieval and transmission of data and information. This includes combining telecommunications, satellite technologies, electrical and electronic (hardware) and electronic computing (software). ICTs also include all forms of computer mediated communication that researchers can benefit from and eventually will be able to teach their pupils/students at any level. Examples are: Computer appreciation, computer application, e-mail, Audio-video conferencing, e-learning, multi-user etc.

Importance of ICT to TVET

Many countries in the world (Nigeria inclusive) recognize the importance of ICT. According to Mudasiru and Hamdallat (2009), Nigeria, as a nation, has recognized the potentials of ICT in the school system. This is evidenced in the educational reform policies aimed at integrating the use of ICT, particularly the computer, in the Nigerian school system. They are training teachers to use technology as tools for the enhancement of teaching and learning in TVET. The training is to improve the use of ICT skills, design and pedagogical strategies. ICT is used to facilitate professional development and networking. Examples abound in relation to on-going professional development and networking, for example, internet, web-based communication technologies. ICT is set to reposition TVET and as such learners are equally expected to move with the evolution so as to be able to compete with other technology teachers outside the country. Through ICT, learners will have access to e-learning capable instant updating, storage/retrieval, distribution and sharing of instruction and information. ICT provides necessary exposure to the internet for on-line search for information that will further help to develop competence in one's area of specialization – this will further improve student's achievement in schools. This use of on-line search will allow an individual to cope with the challenges of knowledge explosion.

TVET students are not expected to be second rate citizens. They should move with the change in education, so ICT will avail them the opportunities of updating their knowledge which will enable them compare favorably with other students in the globe. Once a classroom/learning environment is supported by ICT, teachers will be able to present complex materials. The following are the importance of ICT as

enumerated by Nigeria Teacher Institute (NTI) (2004):

- It can be used to support conventional classroom works. The teacher can ask his student at the primary, secondary schools and tertiary institutions to use ICTs facilities in school works.
- The teacher can use ICTs to design and develop learning materials. Such materials can be downloaded from the internet. Also, materials designed can be adopted to meet specific instructional objectives.
- Students can exchange electronic materials like journals, books, newspapers, magazines etc through ICTs among themselves.
- Some libraries stock electronic versions of books, journals etc. Through ICTs, students and teachers can have access, store, and analyze information in electronic form.
- ICTs are also very important in Research activities. This is because it gives access to a world of resources in electronic form.
- ICTs make learning more vivid and engaging.
- It also provides a two way channel of communication for exchange between teachers and students with their peers for feedback or for learning problem-solving advice, debate and support.

Through ICT, teaching will be simplified and learning experiences will be more effective. It is essential for TVET teachers to take advantage of ICT to enhance their skills and keep abreast with global development. Nigerian teachers would be able to compare well with their colleagues in advanced nations if they expose themselves to knowledge areas available in ICT as well as the internet. A teacher can benefit from the dynamism of ICT to demonstrate some difficult concepts, theories and principles thereby giving meaning to classroom instruction and making class presentation an exciting one. Also with the use of ICT, the teacher will be able to have personal competence with the application and programmes to be used and also possessing necessary mastery in teaching strategies, management and other related issues. ICT will afford school teachers opportunities to develop, evaluate and manage learning and instruction with students in small and large groups.

Problems of ICT usage in TVET in Nigeria

Technology-enhanced education has great promise; its widespread implementation also poses some immediate challenges with respect to: capital outlays in hardware and software, equal access to eliminate technological "haves and "have-nots", appropriate strategies for integrating technology.

cross curricula, copyright issues, and availability of pedagogically sound materials. Teacher development is a major challenge for the implementation of technology-enhanced learning since for most teachers information technologies are both exhilarating in their possibilities and daunting in the uncertainty created by the speed of change (Council of Ministers Education, 1997). Oguzor (2011) opined that recently, due to technological innovation, the use of information has intensified in industry. Information processing and electrical communication using computers have progressed remarkably, as office computers and word-processors are introduced at offices and industrial robotics at factories.

The Conference Board of Canada (2000) has identified nine of the most common problem faced by employers who have attempted to use ICTs for workplace learning. These are: lack of time, money and support; technological and systemic limitations; difficulty of using ICTs; no evaluation of outcomes; resistance to change; lack of planning; lack of communication; lack of leadership; and learner assistance. Stevens (2001) also identified five barriers related to the implementation of ICT-mediated learning in TVET, namely: content and curriculum, appropriateness and efficacy of technologies, quality and branding of programmes, stakeholders' resistance to innovations. Abidoye and Ayelaagbe (2006), summarizes that lack of teacher's confidence and lack of access to resources are problems of utilizing ICTs facilities in teaching and learning process in TVET.

Information and communication technology (ICT) on technical, vocational education and training (TVET) is so important with its developmental implications that no country can afford to abandon completely efforts to diffuse this technology within its socio-cultural structure. Though, Ogunsola (2005) stated that the diffusion of ICT into Nigeria is at a snail speed. This could be to the fact that learners may not have access to a computer either at work place or at home, as well as poor electricity supply in Nigeria. The problem of ICT on TVET in Nigeria hinges on funding, staffing and management. Nigeria is still in search of adequate solutions to these problem areas.

There is the realization that this type of education is capital intensive and that government alone cannot bear its funding. Yet it has not been possible to obtain significant cooperation in funding from the private business who utilizes the products from TVET. Nevertheless, efforts are on to generate the teaching staff for TVET schools, using local tertiary institutions that have the requisite training capacity. Also, the use of computer simulations to replace expensive equipment in vocational/technical

schools can be a cost effective application. The nation must design clear strategy for technological development and transfer of technology to suit the field of TVET:

Implications of ICT on education for the advancement of, TVET compel support and acceptance. The environment of rapid change is demanding higher priority to human resource development. Globalism and neoglobalism are advancing. Their implications in developing countries are legion. One important issue to note is that with their rapid pace, and the more they grow and expand, the less accommodating globalised corporations and economic interests are likely to be towards governments and their specific political needs.

Conclusions

Information and communication technologies offer veritable tool for ensuring the success of TVET reform programmes in Nigeria. The value of ICT is globally recognized. However, there is a big gap in ICT skills in TVET between average Nigeria teaching staff and students of comparable economies around the world. The government and individuals need to address this technology gap so that Nigerian citizens can compare globally with others. Nigerians, as citizens, are never in want of policy, but always go short of policy implementation. The result that the country remains largely as a high importer and consumer of foreign goods shall be a thing of the past. The concern for industrialization can only be achieved if skill development is encouraged through provision of adequate computer and information and communication technology facilities in teaching and learning of TVET in schools. The potentials for information and communication technologies should be exploited to ensure the success of technical and vocational education and training reforms in Nigeria.

Recommendations

On the basis of the position of this paper, the writers make the following recommendations:

1. Intervention programmes on ICTs capacity building as being currently done by the Education Trust Fund and the Digital Bridge Institute, Abuja, should be strengthened. In addition, academic and non-academic staff members at the lower levels of the Nigeria's education system should be involved in such capacity building.
2. The country has several needs for and reasons to design and implement viable computer and ICT education policies for TVET. It should be underscored that necessary stakeholders should

involved in the development of ICT software with local contents to ensure the domestication of ICT within the Nigerian schools. Government should provide infrastructure (cyber centres, classrooms building, offices, etc.), institutional network systems and applications (Internet, e-learning, education portals, etc.), capacity building, digital library, technical support in institutions, computer ownership scheme (for students, teaching and non-teaching staff), ICT content career development scheme, International Examination Digital Centre (IDEC) and continuous power supply. Finally, a certain percentage of the national budget should be set aside to the reform of TVET in Nigeria to meet Global challenges through ICT, as outlined in the 2001 Nigerian national policy on information technology.

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