

# ICT as a Tool for Promoting Distance Education in Nigerian Technical Vocational Education and Training (TVET)

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## Abstract

Learning is a lifelong process and for one to keep up to date with changes in the learning process, he must incorporate ICT to make it easier, convenient and accessible. In light of the above, this paper tends to review distance learning and the application of ICT in TVET in Nigeria. It then highlights the global view of distance learning as a vehicle for conveying TVET through ICT. It further gave a brief history of distance education in Nigeria and the problems of distance learning in conveying TVET programmes which include poor infrastructural development and insufficient knowledge by the instructors etc. The study, therefore, recommends that states should be given autonomy in generating energy, instructors in TVET institutions should be given adequate training and can collaborate with International TVET institutions through the distance learning programme. ICT as a tool for promoting distance learning delivery will create a big opportunity for secondary school graduates who are willing to attend higher institutions to be enrolled into distance learning programme as this also reduces the cost of running conventional institutions in the country. Distance learning will also help in giving learning opportunities to our youths moving to Asia and Europe for higher education.

**Keywords:** Distance learning, Information Communication Technology (ICT), Technical Vocational Education and Training (TVET), Nigeria

## I. Introduction

In the world nowadays, ICT is now playing the function as blood in the human body. Human being and communication gadgets are becoming inseparable. People now do a lot of things simultaneously without creating extra time for it because of the rate of growth witnessed in the use of technologies. For instance, a person can be learning while on transit through different gadgets like phones and laptops. Despite this upward trend in technology young people in the developing countries lack technology driven relevant skills and are therefore largely excluded from productive economic and social life (GeSci, 2018).

More so, policy makers are identifying the urgent need to develop policies that will help create employment for the youths and encourage self-employment. Such strategies are required to factor in the rapidly evolving labour market and the technological changes that have opened new frontiers, created new jobs, eliminated others and created new ways of working. ICT is now seen by many governments as an important parts of a reactive, demand-driven Technical and Vocational Education and Training (TVET)/Technical and Vocational Skills Development (TVSD) system aimed at meeting the demand for students in formal and other learning environments UNESCO (2003).

Despite the growing need for ICT in TVET, some countries government are gradually making a clear definition on how ICT can be integrated into their country's TVET program. While some countries in East Africa like Kenya, Rwanda, are embracing the ICT in TVET program their west African counter-part has not done much in that respect. ICT has become an integral part of a man which he will hardly do without, and effective use of ICT will help human in all works of life. One of the effective means of incorporating ICT into our education is

through distance learning. The World Bank has identified distance learning as the key to solving the problems facing skill development which includes lack of qualified instructors, the need to greatly increase the delivery of skills training on a wide scale and the need to deliver training at much lower unit cost owing to financial constraints (World Bank Africa, 2001). Many people will prefer normal class learning to online learning. But the question remains if we should invest more resources in improving the traditional education infrastructures like classroom buildings, laboratory equipment, classroom equipment and still convey the students to school? Or do we rather invest in sophisticated telecommunication systems? This work will tend to provide insight into ICT in TVET as well as providing possible suggestion that will help improve TVET through distance learning in Nigeria.

## **II. Global View of ICT as Vehicle for Distance Learning in TVET**

Information Communication Technology (ICT) is the use of technological equipment in storing, disseminating and retrieval of information. ICT is a broad term encompassing radio, television, the Internet and the Web, satellite and Wi-Fi systems, mobile telephone, computer hardware and software, audio- and video-conferencing, virtual reality, social media, wikis, 3D printers and so on. ICT has played a big role in uniting technological innovations and human being which has brought a big change in our society in terms of economic and social development.

Technical Vocational Education and Training (TVET) is a lifelong learning system. This implies that the acquisition of knowledge remains endless in as much as one still breath. The acquisition of knowledge includes both formal and informal, traditional and electronically. ICT in TVET will simply mean the integration of technological innovations into the lifelong learning. UNESCO in its Second International Congress on Technical and Vocational Education identified the following aims and objectives for TVET planned program for the new millennium thus: to introduce and use the new information and telecommunications technologies in the TVET teaching and Learning ways thereby keeping the value of the traditional teaching method safe; assisting member states in using information/communications technologies as a tool for teaching and learning both in direct contact and in distance learning mode; and implementing projects for developing sample modular materials and interactive packages for internet and internet use. ICT in TVET will help to unearth the potential of youths in lifelong learning by linking the developed countries and developing countries through electronic means and gadgets. The teachers will have better opportunities in obtaining training which will further equip them in guiding the students.

ICT in TVET has witnessed some level of development in the developed and developing countries in the past decade. Countries which have made the most progress with integrating ICT into technical and vocational training are those with the strongest national policy supported by funding resources and national programmes. These countries include Australia, South Korea and many of the European Union countries. For instance, in Australia, ICT in TVE has indicated a positive impact on learners outcome. The Australian 2011 e-Learning benchmarking Survey reported that 55% of students said e-learning helps them to do their current job better and 42% said it helped them to get a better job and 66% also said that they expected improved employment outcomes in the future as a result of the e-learning in their course (Austrian Government, 2011). In 2009 the United States Department of Education published a meta analysis and review of online learning studies and concluded that online learning students achieved better than traditional students because they tended to allocate more time to their studies. These studies build on and support previous research about the effectiveness of distance education (Michael, 2015).

Furthermore, ICT is needed in the business and organizations in on and off the field training. Pappas (2013) reports that around 42 per cent of the Fortune 500 companies in the United States now provide ICT - based

training to keep their managers and staff up to date, finding that this reduces training costs by 50 per cent, reduces training time by up to 60 per cent, and increases information retention rates by up to 60 per cent. From the research conducted by International Telecommunication Union (ITU) in 2018, on individuals with ICT skills in the various regions of the world, for the three skills categories ( low, high and advanced), the highest skill levels were reported in Europe, and the lowest in Africa.

Despite these innovations in TVET, West African countries has not shown significant progress in ICT in education policies unlike there East, South and Central African Counterparts like Angola, Botswana, South Africa, Uganda etc. Although recently the use of smart phone and other gadgets has spread like wild fire in Africa with the availability of internet services all over African countries but we are yet to fully utilize these ICT gadgets in our education and learning process. The availability of smart phone and internet means should be seen as a sure way of improving our education process particularly in TVET education as the use of smart phones will lessen the burden of government investing heavily in purchasing ICT equipment and channel it into providing ICT in TVET needed network services. Belaya (2018) Outlined the benefits of e-learning to include saving of time and space and cost reduction.

### **III. Distance learning, as a vehicle for conveying TVET programmes in Nigeria**

Distance learning can be seen as learning at the comfort of your zone. This can be seen as the provision of credible and sound education to people leaving off campus, rural areas or people due to one reason or the other may not be able to be in the physical classroom. This type of learning is mainly facilitated through the use of ICT and internet. Distance learning has been adopted by developed countries as one of the ways of delivering quality education in TVET. This is driven by its efficient and effective use in human resources development and in achieving the rapid growth in the economy. “The European Community in a quest to expand access to skills training in relation to the requirement of the labor market lunched The University for Industry (UFI) with a key focus on the use of information and telecommunication technologies to provide access to adult learners to a broad range of highly flexible training opportunities including those in the trades and technical areas. In addition to commissioning the development of media based learning materials, UFI aims to establish a network of over 1000 learning centers throughout Great Britain where learners can access the required technology and support services to participate in the UFI e-learning model par.63, p.5” (World bank, Africa, 2001). A result of a work carried out in Australia shows that students feel free to ask questions in an online class than in a conventional classroom, even when they know little about the privacy setting and other risk associated to the use of social media (The European Training Foundation, 2018).

The first African UNESCO-UNEVOC TVET Summit held in Nairobi Kenya in 2007, titled “Access to and Inclusion in TVET in Africa Through New ICT-based Solutions” animadvert that Africans make a priority to invest in the area of ICT during Africans second decade of education (UNESCO, 2007). This focuses on obtaining knowledge and skills for that will help increase opportunities for productive work,sustainable living, self empowerment and socio-economic development, in both urban and rural areas. Formal education can not be able to address the width and breath of the challenges of bringing TVET to millions of people in Africa. ICT-support open distance learning has created a new avenue and potential route in education and training in Africa. ICT will thus accelerate the administration of education and training and the provision of learning content. Online delivery of education and training (e-learning) is spreading like a wildfire and can make education and training available to many people around the world at their door steps.

Mishra (2002) noted that advances in education technology has made us believe that the gain from TVET through Open Distance Learning are far more bigger than from other types of courses. Hampton and Bartram

(2002) argues that if admission into technical and vocational education and training (TVET) is to be on the rise, new ways of developing and delivering courses must be followed. TVET courses must be taken beyond classroom and into the towns, workplaces and homes of the students. The conventional ways of thought about TVET must be kept aside and different ways of packaging and delivering knowledge and skills must be developed. This is very important in meeting the needs of countries with depressed economies and countries where people are separated by waters (in islands) by terrain or by distance.

Open Distance Learning can be used in TVET to create opportunities to disadvantaged people such as disabled, women and the unemployed ethnic minorities. ODL can also foster greater participation of people in technical and vocational education and training as those who can't afford to take time off their jobs but are interested in learning and improving their vertical mobility professionally can seize the opportunity to gain more knowledge. ODL can be supplemented by affiliating with schools, workshops, industries in a given area for more practical knowledge.

#### **IV. The History of Distance Education in Nigeria**

Distance education is dated back in 1960 where it serves as a means of preparing students who wish to participate in General Certificate Examination which is one of the London Matriculation Examination requirements. The first Nigerian distance learning platform was through Radio Programme of Nigeria Broadcasting Corporation using English as its medium of transmission. This program is aimed at teaching primary and secondary school level students in science, mathematics and English. Then followed by the National Television of Nigeria Educational programmes. There came the establishment of school of educational broadcast of the Radio Nigeria with its head office in Lagos then transmitted throughout the nation. The state radio house are instructed to hook up to the Lagos broadcasting house during the time of broadcast.

The attempt to start Distance Education programme came in 1974 through Correspondence and Open Studies Unit (COSU) of University of Lagos which later change its name to Correspondence and Open Studies Institute (COSI) which is now known as Distance Learning Institute. Its initial program was offered in science education at first degree in Biology, Chemistry, mathematics, Physics and Post graduate Diploma in Education (PGDE) for degree holders to possess teaching qualifications.

The National Teachers' Institute (NTI) started as a distance education institution in 1976 (as the first dedicated distance education institution) with the support of UNESCO. It began by training Grade Two Teachers (TC II). In 1990, the Nigerian Certificate in Education (NCE) programme was introduced when the expectation was that the minimum teaching certificate in Nigeria was expected to be NCE. The Institute also introduced the PGDE programme in the year 2005. Ahmadu Bello University (ABU) also started its distance education through a training programme known as Teachers-in-Service Education Programme (TISEP) for Grades Three and Two teachers and later the Nigerian Certificate in Education (NCE). Also in November, 1972, the University also established a University of the Air Programme for teachers in secondary schools and teacher training colleges. The Distance Learning Institute of the University of Ibadan which started in 1979 as External Degree Programme of the university is another institution which adopted the distance learning mode.

The Act that saw the establishment of The National Open University of Nigeria (NOUN) was enacted by the National Assembly in July 1983 as the first institution given the authority to run distance level on a tertiary level to help as increase the chances of Nigerian students seeking admission in the universities as the traditional cannot admit all the students seeking admission into the academic year. The Act short lived as the institution was closed down few weeks after its as the Act establishing this institution was suspended by then Federal Military Government that saw the abrupt end of the then civilian government.

Many years after the closure, the compelling reasons that informed the earlier establishment of the university as well as the need to fill the gap created by the Federal Government clamped down on mushroom outreach study centres of many conventional universities all over the country and the need to take advantage of emerging developments in the field of ICT which have revolutionized the techniques and methods of instructional deliveries in the distance learning mode necessitated the reactivation of the suspended NOUN Act of 1983 in 2002. This paved the way for the resuscitation of the NOUN (Ajade *et al*, 2008). In the recent years the National Open University of Nigeria has opened up its study centre in the 36 states of the Federation with its headquarter situated at Abuja. Up-till this time there has not been any institution running TVET programme through Distance learning.

#### **V. Problems of ICT in TVET in Nigeria**

Africa like every other developing continents has its challenges with mitigate against the smooth adoption of ICT in TVET. We shall highlight these problems as follows:

**Poor Infrastructural Development:** One of the major challenges facing the growth of Africa as a continent with great potential both in human and natural resources is inadequate infrastructure e.g. inconsistent power supply. Kafka (2013) opine that lack of infrastructures, high initial cost and on-going cost, etc are among the challenges facing ICT in TVET. Overcoming technical infrastructures also constitute a problem for ICT in TVET (UNEVOC, 2015). Many countries in West Africa economy has suffered a stunted growth in technology as a result of this factor. Companies, schools, and individuals suffers breakdown in production and experimental process because the power supply at the point of production suffers from on and off situation. For ICT to be integrated in schools there should be a steady power supply (UNESCO, 2013; UNESCO, 2015). If ICT equipment and internet services are adequately provided and there is insufficient/inconsistent power supply, all these equipment will be directly or indirectly affected which will result to untimely damage of these facilities. No technological improvement occurs in this kind of situation, as it affects the overall productivity of the economy. Birshir & Hisyam (2016) Opines that institutions does not have technical expertise for enforce the ICT development in Nigeria. In Malawi the problem of ICT in ODL exacerbated by poor electricity in some part of the country which limits students access to learning materials (Chimpololo, 2013).

**Insufficient Knowledge:** The instructors in TVET needs to be adequately trained with the new trends in technologies in TVET. Most TVET teachers are relatively low skilled or have an outdated skills due the fact that the government fails to assign adequate resources that will help them to maintain the level of innovation and development in the TVET teachers profession. The institutions given the responsibilities to train teachers has not been able to combine pedagogical training with practical training in the evolving technologies in our society these days as would be required by some industries in the labour market. There is a maxim that says “You don’t give what you don’t have” likewise the teachers. When the teachers and instructors are not adequately trained to brace the changes in technologies, they will end up producing half baked students who doesn’t have sufficient knowledge in the field. Mlungish & Dominique (2014) Are of the idea that insufficient ICT training has a direct relationship with the teachers ability and may compromise their teaching and learning.

**Misconception of ICT in TVET through Distance learning:** There is a general misconception that distance learning is not up to standard when measured with the traditional method of learning. Delivering TVET through ICT looks more unrealistic. Technical-level studies often comprise much greater cognitive and theoretical components that better lend themselves to distance learning methodology. Also, students at the technical level tend to have higher levels educational attainment and are better prepared to undertake self-study. The challenge of providing manual / psych-omotor skills can be overcome through blended program models that incorporate

practical workshop-based components. This misconception is evidenced in the number of ICT TVET based institutions in west Africa. Countries like Nigeria have no ICT TVET institution, Ghana 2 centre namely: Community Learning Centers and COL Agriculture Extension Training and one in Benin Republic. Zurina & Maizam (2014) says the lower focus on the affective learning goals is highly surprising as improvement in affective learning attributes is one of the strength of ICT.

**Stakeholders Resistance:** Stakeholders in Traditional learning institution opposes the introduction of distance learning due to fear of loss of jobs and the limit of students who may prefer distance learning against the traditional learning institutions. Distance learning can often entail a shift in job function and professional development of faculty, instructors and support staff to enable them to support new models of delivery is critical. Many instructors and faculty express concerns regarding technological change and potential job loss should distance learning models become more pervasive(World Bank, 2001).

## **VI. Conclusion and Recommendations**

Achieving sustainable development goals has becoming a global topic which amongst its goals is to eliminate poverty, foster gender equality and creation of jobs. These goals cannot be achieve if ICT is not included in facet of live including TVET. Muhammad Yunus, Nobel Peace Laureate and Founder of the Grameen Bank, famously said that “the quickest way to get out of poverty right now is to have one mobile telephone”. Ownership of mobile phones is also an important tool to reduce gender inequality. Empowering more women with mobile phones can accelerate social and economic development (GSMA Intelligence, 2010). This time we can do a lot of things with our mobile phone which normally will require extra time if we are to do them with our computer because of the functions in our mobile phones. Our mobile phones can also be used for distance learning as well. All these cannot be achieved in an environment that lack steady power supply. Our government should do their best in providing steady power supply by either granting states the right to generate power that will serve its citizens rather than the centralized system of power supply where the power generation is control by one central body within the country. Africa is blessed with natural resources(sun which can be converted into solar) which could help in solving the problem of power supply. Various government policies should encourage partnership and individuals investor in the power sector of the economy as this will help reduce the burden of government in generating power that will serve its citizens. States, local governments can also be granted autonomy in producing and managing energy within its jurisdiction as this could also help in maintaining steady supply. Furthermore, teachers and instructors in TVET should be adequately trained on the use of ICT in delivering TVET courses. TVET schools in Nigeria should establish an exchange programs with their counterparts in the developed countries in order to train the staff on the ICT TVET related courses. The staff can embark on online training and skill acquisitions as this will help the schools in Africa to lessen the cost of sending staff for training abroad. Seminars and workshop should be organized from time to time in other to help the teachers and instructors keep informed with the technological changes in the field.

Blended delivery strategies that combine distance learning with practical hands-on components can overcome the considerable challenge of providing manual or psycho-motor skills within distance learning models. Manual skills components can be provided within traditional institutional settings or, as in the case of models established in NewZealand, the U.K., Canada and Australia, within the workplace in partnership with employers and industry bodies. The primary benefits are increased flexibility and reduced opportunity costs for the trainees and employers and efficiency gains for technical / vocational training systems resulting from decreased institutional training time.

Despite the strong increase in the number of universities established in Nigeria in the past decade, universities represent just about a quarter of post-secondary institutions. It would be fair to infer that the proportion of enrolment of students follow the same pattern, perhaps even worse for university enrollees as statistics indicate that only 12% of students that graduated from secondary schools are admitted into Nigerian universities in 2015. Also in 2015, 76000 Nigerians were recorded to have enrolled in universities abroad (SEO Amsterdam Economics, 2019). From the ongoing statistics we should see clearly the reason why the stakeholders should see ICT in TVET through Distance learning delivery as a big opportunity for secondary school graduates who are willing to attend higher institutions and also reduce the outflow of youths moving to Asia and Europe for higher education. ODL will help increase the chances of student's entry into higher institutions who were not admitted by formal school system (Sambu & Simiyu, 2013).

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