



## CHALLENGES FACING TECHNICAL AND VOCATIONAL EDUCATORS IN THE EMERGING FIELD OF E-LEARNING IN NIGERIA: THE WAY OUT

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### Abstract

*Continuous changes in communication technology has made e-learning to become very critical in teaching, learning and research in Technical, Vocational Education and Training (TVET). E-learning which is an online delivery of information can also be defined as integrating learning with technology. Education is the foundation of innovation and development. E-learning is one of the most efficient tools for advancing knowledge, skills and development in the nation. It is necessary for quality instructional delivery in TVET. In spite of the various advantages e-learning has over the traditional approach to teaching, learning and research, the diffusion of e-learning is rather slow due to some inherent challenges associated with it. The paper x-rays the challenges facing TVET educators in the emerging field of e-learning. This paper reviews the concept of e-learning, the concept of TVET, benefits of e-learning, the need for e-learning in TVET, challenges facing TVET educators in the face of e-learning and finally, the way out. The paper recommends among others that TVET educators should embark on radical training and re-training on ICT competency programmes with or without sponsorship by their institution managements to be able to fit into this modern technological era of e-world.*

**Keywords:** e- learning, challenges, technical vocational education and training, information and communication technology.

### Introduction

The emergence of Information and Communication Technology (ICT) has brought with it changes in the process of imparting and acquiring knowledge. Electronic learning (e-learning) which is one of the by-products of ICT has changed many aspects of life and opened a wide vista of opportunities for people. One challenge that faces the profession and practice of Technical Vocational Education and Training (TVET) and indeed the whole of mankind is the progress and innovation offered by technological developments since the 1990s (Enang & Okute, 2019). Globally, there is a paradigm shift from the traditional approach of teacher-centred learning to modern methods where ICT plays a significant role hence TVET cannot be exempted.

ICT has a great speed of providing flexibility, improvement in quality and quantity of learning instead of total dependence on textbooks and materials in prints as teaching and learning in the technical education has done in the past. The advantages of using the e-learning technology as an educational tool ranges from capacity of students to personally learn needed skills and information almost in any field imaginable. Web-based educational learning system is receiving more and more attention in this era of information and communication technology due to explosive expansion of the



World Wide Web and internet. The internet's magnitude is thousands of times what it was only three decades ago.

With the advancement in information technology in the 21<sup>st</sup> century, e-learning has become an invaluable technology for teaching, learning and research in TVET (Garba, Guga & Yusuf, 2016). E-learning involves the use of technology to enhance learning including digital collaboration, satellite broadcasting, CD-ROMs, amongst others. E-learning has so many advantages over the traditional method of teaching and learning. ICT drives the new economy and human capital is its fuel. In fact, the 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. Continuing education models that will meet worker's lifelong learning needs have to be relevant and flexible to provide just-in-time learning without distance.

Chukuedo and Omofonmwan (2013) believe that the acquisition of skills in TVET programmes should be supported with sufficient ICTs in order to widen the skill-horizon of both students and teachers. Ben and Shang (2013) show that the role of ICT in skilled manpower of development through TVET in our technical institutions cannot be overemphasized. In this technology-driven age, everyone needs ICT competence to survive. ICTs can play a crucial role in removing distance from education and develop a lifelong learning culture in TVET. Duru & Ozoji (2011) found that using ICT in teaching- learning process in TVET improves the quality of education. It is therefore concluded that ICTs are pillars of teaching and learning skills in the TVET.

TVET is faced with the challenge of keeping up with the changes taking place in the world of work due to the frequent technological changes. The role of ICT is one that is growing limitlessly. It becomes imperative for TVET students to focus on making technological learning part of their own lives so that it can be integrated into their instructional delivery competencies. They need to think, create, work and collaborate with new ideas and techniques in order to properly integrate the use of ICTs into the teaching and learning process to avoid being left behind.

### **Technical Vocational Education and Training (TVET)**

The term technical vocation education and training is the merger of both technical education and vocational education with the aim of training students in basic technical and scientific knowledge with the skill based vocational programmes. Technical education and vocational education are often used interchangeably but, they are separate and distinct terms. Vocational education refers to skill based programmes which are designed for skill acquisition at lower level of education. Vocational education programmes focus on specific vocations for entry into defined workplace. Technical education, on the other hand is not designed for any particular vocation but provides general technical knowledge. This type of education prepares people for entry into recognized occupation at a higher level but not usually lower than first degree.

The essential role of Technical Vocational Education and Training (TVET) in facilitating skills development for the socio-economic and technological development of countries globally account for the increasing importance that is being attached to this type of education. TVET provides individuals with skills, knowledge and attitudes for effective employment in specific occupation. According to Chukwunwendu (2016), TVET is a comprehensive term referring to those aspects of the educational process in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupation in various sectors of the economic and social life. Similarly, Okoye, Otuka and Iheonunekwu (2010) define TVET as all forms and aspects of education that are technical and vocational in nature, provided in either in educational institutions or under their authority, either by public authorities, the private sector or through other forms of organized education, formal or non- formal, aiming to ensure that all members of the community have access to the pathways of life -long learning. According to the National policy on education (FRN, 2016), the objectives of TVET are to:



- i. Provide the trained manpower in applied science, technology and commerce particularly at sub-professional level;
- ii. Provide the technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development;
- iii. Provide people who can apply scientific knowledge to the improvement and solution of environmental problems for the use and convenience of man;
- iv. Introduce professional studies in engineering and other technologies;
- v. Give training and impart the necessary skills leading to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant; and
- vi. Enable our young men and women to have an intelligent understanding of the increasing complexity of technology.

TVET contributes so much in courses ranging from electrical/electronics technology, mechanical/automobile technology, woodwork technology, building technology etc., and as it was stated earlier, it is practical oriented education which makes it unique in its content and approach thereby demanding special attention.

Unfortunately, despite all the glaring contributions of TVET, Nigeria is yet to accord this type of education the attention it deserves. Oviawe, Uwameiye and Uddin (2017), described TVET in Nigeria as a 'disaster' due to inadequate funding, chronic dearth of qualified teachers, inadequate facilities, inappropriate curriculum and students' population explosion. With the alarming of advancement in technology and the clarion call by experts for a change in TVET curriculum, there seems to be some attempts to remedy the ugly situation. What is urgently needed now is a replacement of the existing structure and a summit to reposition TVET delivery system. According to Agbo, Onaga and Omeje (2018), the already fast deteriorating state of TVET by unprecedented advances in technology is worrisome. TVET in almost all the institutions in Nigeria is indisputably challenging due to its capital-intensive nature. The need thus arises for a change in the pattern of delivery of instruction in that form of educational programme. The resources and methods chosen for instruction will bring about the intended learning outcomes in students (Polit, 2015). Such instructional resources are ICTs which is currently a driving force economically, scientifically and technologically all over the world. Understanding the concept of TVET and what it entails makes it easier for a TVET educator to design a suitable e-learning material for a particular course in order to face the inherent challenges of e-learning.

### **The Concept of E-learning**

There are many terms used to describe learning that is delivered online, via the internet, ranging from distance education, to computerized electronic learning, online learning, internet learning and many others. E-learning means electronic learning. It is learning utilizing electronic technologies to access educational curriculum outside of the traditional classroom. It is not confined to online learning but it includes computer-based learning, web-based learning, virtual classrooms and digital collaboration. In most cases, it refers to a course, programme or degree delivered completely online.

Okoye, Otuka and Ihoenunekwu (2010) see e-learning as all forms of electronically supported teaching and learning which are procedural in character and aimed to affect the construction of knowledge with reference to individual experience, practice and knowledge to the learner. E-learning which has to do with ICT tools and internet facilities can make teaching, especially in TVET more efficient and productive by engendering a variety of tools to enhance and facilitate teachers' professional activities through the effective use of internet, intranet, video tape, power point, overhead projectors, interactive boards and a host of others. In the same vein Chinwendu (2015) opined that e-learning is all about learning that occurs at the computer. According to him, the convergence of the internet and learning, or internet-enabled learning is called e-learning. The uses of network



technologies to create, foster, deliver and facilitate learning, anytime and anywhere. It is also the delivery of individualized, comprehensive, dynamic learning content in real time, aiding the development of communities of learning, linking learners and practitioners with experts.

Oluwalola and Awodiji, (2019) defines e- learning as an innovative approach for delivery electronically mediated, well designed, learner centred and interactive learning environments to anyone, anyplace, anytime by utilizing the internet and digital technologies in the instructional design principles. It is concerned with learning through any electronic medium that may or may not be connected to the internet. E-learning facilities provide the learners with exciting opportunities to search for more educational facilities. The implementation of e-learning in TVET will help to change the old pedagogical approach of the learning and changes the teachers from a knowledge transmitter to a knowledge facilitator.

Agbamuche (2015) presents e-learning as incorporating “all educational activities that are carried out by individuals or groups working online or offline, synchronously or asynchronously via networked or stand- alone computers and other electronic devices”. This makes them to develop inquiry mind, creativity and good study habits. It provides people with a flexible and personalized way to learn. In other words, e-learning is a computerized and digital type of education in which text, audio or sound, pictures, images, graphics and videos can be simultaneously presented online to students. It can also be seen as individual customized learning that allows learners to choose and review material at their own pace which can be delivered via numerous electronic mediums, including the internet, intranets, extranet, satellite broadcast, audio/video tape, interactive television/board and CD-ROM.

### **The need for E-learning Skills through ICTs in TVET**

The conventional method of teaching in schools in many nations including Nigeria has failed to prepare recipients to adequately function and participate fully in this era of technologically driven society. The delivery system of implementing technical education programmes in our schools seems not to meet the required standard of today’s work place. To this end, Okafor & Ejiofor (2013) asserted that the inability of TVET to achieve its objectives is due to poor implementation. Collaborating this view, Enang and Okute (2019) posited that many programmes and policies including TVET have fallen short of expectation in meeting the realities of our working environment, in reducing unemployment and moving Nigeria forward. To this end, Okafor & Ejiofor (2013) described the current status of TVET programmes as appalling and disaster. This is as a result of the emergence of advancement in ICTs. In almost every aspect of life information processing is used to increase productivity and improve efficiency.

As new technology emerges, several skills are required to be successfully employed in the labour market for wealth creation. Such skills, according to Babafemi (2017), are technology related skills, interpersonal and communication skills. For instance, computer literacy is yardstick for employment opportunities in both public and private sectors of the economy. Technology related skills include: Keyboarding and document formatting, proofing reading, transcription, mechanical aptitude and computer knowledge. Interpersonal and communication skills include language, critical thinking and decision making, dependability, relating to others, maturity, ability to start and complete project, ability to keep an open mind and go with the flow. Chukwunwendu (2016) lamented that the present age the illiterates are no longer those who cannot read and write but those who cannot use computer and harness tools provided by ICT. In fact, TVET has been unmatched for the required technological breakthrough.

Therefore, there is urgent need for the effective inclusion of ICT related courses in the curriculum. This is important because according to Eze, Olumoko and Obi (2020), the power centres have shifted from land and capital to data, information, judgments and decision making. Therefore there is an urgent need for effective inclusion of ICT related courses in TVET curriculum. Also, there is the need to provide necessary equipment for the teaching and learning of such ICT related courses. The maximum use of ICT can foster the shift to a learner-centred environment. As the application of ICT



continuous to grow limitlessly, it becomes imperative for TVET teachers and students to focus on making this technological learning part of their lives so that it can be integrated into their instructional delivery competencies. They need to think, create, work and collaborate with new ideas and techniques in other to properly integrate the use of ICT into the teaching and learning process to avoid being left behind.

### **Benefits of Integrating E-learning into TVET programmes**

The integration of e-learning into TVET programmes will require a thorough training in the use of modern technology that will add new dimension to the equipment and facilities for TVET programmes. It is sad to note that most of the institutions that offer TVET programmes do not have equipment that could compete with those available in the world of work. For instance, Chuke (2003) posited that the computer remains the most widely used electronic device today. But surprisingly, this vital piece of instrument that has turned the world for better is still a luxury in most schools offering TVET programmes. As such, many TVET educators and their students are not abreast with the technological development of their profession. They are therefore ill-equipped to face the challenges of the world. As large numbers of data are created, processed, stored, retrieved and disseminated daily as a result of technological innovations, there is the need for new methods, new skills and concepts to be learned. Integrating ICT into TVET programmes will provide opportunity for individualized learning and instills confidence in the learners. According to Chuke (2003) the use of ICT in education and TVET particularly could be highly beneficial to students and the nation at large in the following ways:

- i. Records can be managed and accounting functions performed using electronic document. Information is now processed, stored, retrieved and outputted at a far greater speed than the manual method. The students are able to perform engineering drawing activities using AUTOCAD faster than in the usual classroom arrangement.
- ii. ICT creates opportunities for learner to have access to libraries and database of other universities, research institutions or government agencies to consult stored files of TVET papers, studies or reports. For example, users could subscribe to any electronic journals, newsletter and periodicals published on the internet.
- iii. It is used for communication between individuals. For example, through video conferencing, audio conferencing and other social media platforms such as; WhatsApp, Face book, YouTube, Skype, Gmail, Classmates, etc.
- iv. Time is saved running from one classroom to the other or from one institution to the other as distance is totally eliminated as educators and their students can share information and other teaching and learning materials without moving from one place to the other.
- v. It exposes TVET educators to new methodologies of subject delivery so as to improve qualities instruction and reposition the students to the current trends of globalization
- vi. Increases mastery of technical and workforce skills.
- vii. It encourages a network research among technical educators
- viii. Increases the preparation of students for most careers and vocations
- ix. Increases emphasis on individual instruction.
- x. Increases student's problem-solving skills.

### **Challenges of E-learning facing TVET Educators**

The digital divide between advance and developing countries, particularly in Africa, is well established. Like most African countries, Nigeria as a nation came late and is still slow in the use of ICT in almost all sectors of the nation's life (Terande, 2012). Accordingly, there are common problems



associated with the implementation of e-learning in TVET and despite the fact that so many e-learning tools are available for teaching and learning coupled with the numerous advantages associated with them, a careful look at the Nigerian educational system shows that the use of e-learning is still rather slow and in the field of education is not exempted (Adeoye, 2013). Some of these challenges facing TVET educators in using e-learning for teaching and learning are:

- i. Lack of qualified ICT personnel. Most TVET institutions lack computer literate teachers and ICT experts that would support and manage the internet connectivity and/or application of computing in the e-learning process (Garba, Guga & Yusuf, 2016)
- ii. Cost of equipment. The cost of equipment in the country like Nigeria with battered economy and seriously devalued currency is enormous. However, it should be noted that the problem might not be the funds nor the technology but rather the will on the part of government (Ilegboje & Okubote, 2002).
- iii. Management's attitudes. The attitude of various managements in and outside the TVET institutions towards the development of e-learning facilities such as the internet and procurement of computers is rather slow in some instance, and others there are no aids or support by government at all (Albirini, 2006)
- iv. Inconsistent electric power supply in most parts of the country and also inadequate internet connectivity particularly in the rural areas (Duru & Ozoji, 2011)
- v. Non-inclusion of ICT programmes in teacher's training curricular at the basic level of education. There seems to be no clear and definite policy or curriculum for ICT in TVET programmes in all levels (Terande, 2016)
- vi. Resistance to change from traditional pedagogical methods of teaching TVET to more innovative and technology-based teaching and learning methods.

#### **Implications of e-learning for TVET: The way out.**

Despite the challenges facing the introduction of e-learning into TVET through the ICT in Nigeria, there is copious room for improvement, as TVET is the surest way for sustainable economic emancipation and development. The production of employable and skilled human resources for the world of work is essential to sound economic development and growth. The following suggestions if duly implemented will foster the future of TVET programmes through the e-learning in Nigeria:

- i. **Funding:** funding is fundamental if the use of ICTs in all ramifications and in the real sense of it, is to succeed (Adomi & Kpangban, 2010). Thus, there should be adequate and sustainable funding in a holistic manner of TVET programmes.
- ii. **Policies:** The three tiers of government should adopt policies that would avail TVET teachers and students easy and cheap access to ICT tools, packages and equipment. To this end, Thom-Otuya and Ubulom (2007) opined that the curriculum has to be redesigned to incorporate e-learning and e-teaching.
- iii. **Infrastructure and facilities:** ICT tools, facilities, packages and equipment should be provided in sufficient number and quantity. Vin-Mbah (2016) insists that government should ensure that there is regular supply of electricity in schools, offices, and residential buildings to foster teaching, learning, administration and research in TVET.



- iv. TVET teachers should be motivated and encouraged to develop and use multimedia courseware and software relevant to teaching and learning. The government should motivate teachers through provision of adequate funds for courseware development.
- v. The government should provide digital libraries in every TVET institution. The library is the highest reservoir of knowledge and no educational institution can do without it. Ensure that each library has a server for storage, retrieval, uploading and downloading of information
- vii. The accreditation team of National Commission for Colleges of Education (NCCE) and the National Board for Technical Education (NBTE) and other accreditation agents of TVET in Nigeria should revise the curricula of all TVET courses to include virtual courses that will be internet-based

**Training:** The use of ICTs in all spheres of life, TVET inclusive, can only be possible if there are available and sufficient human resources in the right number, quantity and mix, and they have to be trained and retrained to keep them abreast with current trends and technologies in TVET. It is for this reason that Oso (2015) recommended that TVET students and teachers alike should be trained on the use of ICT resources to enable them keep abreast of the new innovation in the field of TVET.

### **Conclusion**

It is evident from the foregoing discussion that ICT is today a force that has changed many aspects of the way we live. It is also clear that a lot of challenges are facing the application of ICT for e-learning in teaching TVET courses in our academic institution today. It is pertinent for all stakeholders and government to work together and to alleviate these challenges.

### **Recommendations**

1. There should be early introduction of ICT through the e-teaching and e-learning to students in the first stages of education to enable them have access to the computer early in life like their counterparts in the developed world.
2. There should be adequate provision of infrastructure that supports ICT e.g. electricity supply should be of top priority. If possible, a standby generator set should be provided to cater for frequent power shortage.
3. The government of Nigeria should embark on a massive computer literacy training programmed nation-wide particularly for teachers and learners at all levels. This should be accomplished through in-service training of teachers, workshops, seminars and conferences. For students, computer education should be a compulsory subject at all levels and the introduction of e-teaching and e-learning be encouraged in TVET institutions.
4. All classrooms, halls and workshops in TVET institutions should be connected to the internet in order to enhance web-based instruction. The government should do this by paying internet connection fees in the schools.
5. Videophone, teleconferencing and multimedia systems e.g. multimedia computers and multimedia projectors should be provided in adequate quantities by the government for effective e-learning in the TVET institutions.

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