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Provision of Workshop Tools and Equipment: Necessity for Technical Vocational Education Graduates Skills Acquisition

Abdullahi A. I., Adekunle Adenuga Samuel¹, Wale Olufemi² and Muhammad Ali³ (Corresponding Author)

¹ Federal Institute of Technical Education, Lagos, Nigeria

Abstract

Technical Vocational Education (TVE) is recognized as that aspect of education which leads to the acquisition of practical and applied skills that will enable its recipients to secure employment in a particular occupation. These skills cannot be acquired in a classroom but rather in a well established and fully functional workshop with the right tools, equipment and machines for effective implementation of the program. This paper discussed extensively on the provision of workshop tools and equipment as a necessity for TVE graduates skills acquisition that will enable them to be gainfully employed. The paper highlights on the concept and importance of TVE, issues concerning workshop tools and equipment in TVE in Nigeria and the constraints to effective implementation of TVE with respect to workshop tools and equipment were discussed, conclusions were drawn and recommendations made amongst which are: that special intervention funds should be set aside by government for procurement of workshop facilities to TVE institutions, such

channels may include tertiary Education Trust Fund (TETFund) as practiced in Nigeria and a specific percentage of income tax generated annually by government should be utilized for the provision of workshop facilities to TVE institutions.

Keywords

Workshop tools and Equipment, Technical Vocational Education, Graduates Skills Acquisition.

1. Introduction

Technical vocational education in Nigeria is designed to training individuals to become craftsmen, technicians and technologist in different occupational areas. The training qualifies them for jobs in both public and private sectors of the economy. Both sectors, according to Ndumu (2005) require the services of well framed and competent personnel who can operate and maintain the available technical equipment and machines. Therefore, there is a need for qualitative TVE and training in order to produce graduates that can perform competently in

¹ Federal Institute of Technical Education Department, Federal University of Technology Akoka, Lagos State, Nigeria
² Department of Technical & Engineering Education, University of Technology Akoka

their chosen vocation without a need for pre-employment training. The major goal of TVE is to prepare students for successful employment in the labor market (Finch and Crunkilton, 1999). This condition can be met through a curriculum that is relevant and comprehensive and a well-equipped workshop with relevant training facilities.

However, school workshops offer opportunities for practical training of students in skills acquisition in their technical trade areas for future development of the key sectors of the economy in order to meet the basic needs of electricity, roads and machinery, among others. Student's practical projects are an important part of the curriculum in TVE, but a supportive school environment is a fundamental requirement for the successful implementation of curriculum (Bybee and Loucks-Horsely, 2000; Penney and Fox, 1997). This aspect of the curriculum can only be implemented where workshop facilities, tools, equipment and machines are adequate and relevant. Availability of appropriate workshop facilities enhances student learning by allowing them to be involved in demonstrations, and practice which will help them to continue to build their skills. However, one of the issues of great controversy among TVE educators today is the issue of the poor state of workshop tools and equipment in TVE institutions in Nigeria (Umunadi, 2011). Umar and Ma'aji (2010) stated that most of the TVE institutions in Nigeria have been forced to perform below standard due to purported non-availability, poor management or utter neglect of the required facilities in the workshops for effective skills acquisition of the students. Therefore, there is the need to provide adequate workshop tools,

equipment and machines for effective implementation of TVE programs in Nigeria

2. Conceptual Definition and the Importance of Technical Vocational Education

Technical Vocational Education is defined according to Akerele (2007) as that aspect of education that exposes the learner to the acquisition of demonstrable skills that could be transformed into economic benefits and sustainable livelihood. The Federal Republic of Nigeria (FRN) in the National Policy on Education has placed a premium on TVE in view of its important role in technological and industrial development of Nigeria. It is recognized as that aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge (FRN, 2004). Oni (2007) described TVE as that type of education which fits the individual for gainful employment in recognized career as semi-skilled workers or technicians or sub-professionals. According to Audu, *eta'l.*, (2013) any form of education that is geared towards teaching technical skills and attitudes suitable to such skills can be regarded as TVE. Tilak (2002) emphasized that quality TVE if well planned and coordinated will guarantee; graduates with varied skills, because of changes in production processes resulting from technological advances, the nature of the demand for skills, both in terms of quantity and quality changes. Modern technology requires fewer highly qualified middle and lower level skilled manpower. TVE can produce exactly this kind of skilled personnel

- TVE would contribute to such progress, both by reducing unemployment,

through creating employment in the fields of pre-vocational specialization and self-employment. It can improve productivity and correspondingly resulting in higher graduate earnings. TVE can establish a closer relationship between school and work.

- TVE is also seen as an equity measure. As an antidote to urban-biased elite education, TVE will promote equity with a rural bias and serve the needs of relatively poor people. More specifically, it is believed to be an effective answer to rural problems, "to alleviate unemployment; to reorient students attitude towards rural society", to halt urban migration; to transmit skills and attitudes useful in employment; and as an important measure of development for disadvantaged youths in rural and urban areas.
- TVE is considered helpful in developing what can be termed as skilled-culture and attitude towards manual work, in contrast to pure academic culture and preference for white collar jobs; and to serve simultaneously the "hand and the mind", the practical and the abstract Grubb (Atsumbe, *eta'l.*, 2012).

3. Issues on Workshop Tools and Equipment in Technical Vocational Education in Nigeria

The school workshops offer chances for practical training of students in the acquisition of skills in different trade areas. According to Puyate (Umar and Ma'aji, 2010) the present state of facilities in TVE institutions is very poor, there is no planned measures of maintenance of the already

broken down equipment or means of acquiring new ones, there is hardly or no concern on the part of government, teachers and students for the development of the present state of the facilities. This pathetic condition needs to be reverted in order to meet the goals of TVE as stipulated by the Federal republic of Nigeria (FRN) in the National Policy on Education of Nigeria (FRN, 2004:30). According to the policy, the goals of TVE; shall be to provide trained manpower in the applied sciences, technology and business particularly at the craft (equivalent of high schools), advanced craft and technical levels; provide the technical knowledge and vocational skills necessary for agricultural, commercial and economic development; to give training and impart the necessary skills to individuals who shall be self-reliant economically. These laudable objectives can only be achieved through a curriculum that is relevant and comprehensive and a well-equipped workshop with relevant tools, equipment and other training facilities. Afeti (2007) stated that, the quality of training in TVE institutions in Nigeria is low with undue emphasis on theory and certification rather than on skills acquisition and proficiency testing. Inadequate instructor training, obsolete training equipment, and lack of instructional materials are some of the factors that combine to reduce the effectiveness of training in meeting the required knowledge and skills objectives. High quality skill training requires qualified instructors, appropriate workshop equipment, adequate supply of training materials, and practice by learners.

In a related development Uwaifo (2010) stated that most TVE institutions in Nigeria

do not have laboratories or workshop space and where they exist, they are totally inadequate, as the laboratories only have the tools and equipment that were provided when the departments were set-up. It is however most surprising to realize that most TVE institutions in Nigeria still rely on engineering workshop and teachers or lecturers to teach technical educational concepts in this 21st century. This is a complete shame and a high degree of irresponsibility on the part of the operators of this program. The available workshop facilities in the program as of today are insufficient quantitatively and qualitatively and besides most of them are out-dated. The shortage of teaching, laboratory and workshop facilities has contributed to the decrease in the quality of technical education graduates in Nigeria. Reyes-Guerra (Uwaiifo, 2010) categorized students into three, namely: Verbalizers, Visualizers and Doers. The Verbalizers are those who learn easily if the information is in written or spoken form. They learn from lectures, tutorials and hand-outs faster. Visualizers learn easily when data is presented in pictorial or diagrammatic form while the Doers learn more easily when information is presented by practical demonstration by the instructor. The inadequacy of the workshop facilities both qualitatively and quantitatively has placed the visualizers and the doers at a disadvantage. The verbalizers may also have problem in a class where there is large population. The implication of this set-up is that only a small proportion of the students benefit from the current pedagogical system.

In a study conducted by Onyene, *eta'l.*,

(2007) on the production of skill-oriented graduates for the labor market the study revealed that the available physical and material resources used in teaching TVE is grossly inadequate. In the same vein Ayua (2006) in a study on consolidating and sustaining industrial performance of school product in TVE for national development revealed some findings on the availability of teaching equipment and material resources thus; there were no standard workshops with adequate facilities for carpentry and joinery in four out of five technical colleges under the study. Many workshop tools like plough planes, rebate planes, compass planes, tenon saws, bench vices etc that are pre-requisite for use in National Business and Technical Examination Board (NABTEB) practical examination are not available (Ayua, 2006:37).

Regular supply of electricity is one other major resource input that is essential in all facets of the economy to boost the much required technological advancement of the nation. Adebisin (2006) remarked on the importance of power supply in technological development when he stated that there is no technological and vocational subject that can be offered at any level without regular electricity supply. These unpleasant conditions are usually blamed on lack of adequate funding. Adebisin opined that government pronouncement of free tuition at all levels of public education has affected all other main sources of revenue for the institutions. He observed that government is yet to provide adequate funds from its annual budgetary allocation for capital and recurrent appropriations to institutions to run effectively. He further stressed that there is the need for all TVE institutions think of

other ways of generating revenue to add to their subvention in order to be able to meet up with their needs for improved efficiency. However, in most developing countries especially Nigeria, TVE is limited in scale, scope, quality and importance. The programs are not relevant to the needs of the indigenous labor market, the curricula and syllabi are out-of-date and the institutions lack the tools and equipment necessary for a practical education (NICHE, 2010). Where present, the equipment in the workshops and laboratories is often out-dated, having little resemblance to the technologies currently used by industry. Insufficient training equipment leads to trainee overcrowding during practical demonstrations, with most of the students only watching the demonstration and not having the opportunity to get some hands-on practice (NICHE, 2010). Due to the fact that the institutions are inadequately resourced, the education and training remain theoretical and the graduates are not considered more skilled than their academic counterparts by the labor market. Uzoagulu (1993) asserted that where equipment and tools are not functional or adequately provided, technical training programs will suffer and will lead to the production of highly unskilled personnel who are unemployable and unproductive.

In the same vein Dasmani (2012) carried out a study on the challenges facing technical institute graduates in practical skills acquisition the study revealed that inadequate instructional materials, large number of students in the class, insufficient training facilities, lack of collaboration with the local industries for hands-on-experience for both trainers and trainees lead to

ineffective and inefficient training of students while undue emphasis is placed on passing examination. This inadequacy in preparation for the labor market brought workplace challenges to the graduates. The institutions thereby acquire a bad image, and produce graduates with lower employability

4. Constraints to the Effective Implementation of TVE in Nigeria with Respect to Workshop Tools and Equipment

Workshop tools and equipment are very important to the successful implementation of any type of TVE program. Uzoagulu (1993) affirmed that poor student performance in TVE in Nigeria was as a result of inadequate and non-functional training facilities. Fafunwa (Ogundu, 2009) indicated that what Africa needs today and indeed Nigeria is the problem solving and critical thinking approach that can be developed with the use of functional equipment in the workshop. Mbata (1990) revealed that some workshop tools and equipment were sub-standard and therefore cannot be easily maintained to bring it to life again. Akpan (1983) added that lack of equipment and workshop tools make it impossible for the students to receive training that meets the standards for employment in industries or related organizations. Also Barky (2005) reiterated that the availability of instructional resources has a major influence on the selection of teaching methods and materials. Without functional workshop tools and equipment, the technical teacher is handicapped and cannot go far in the use of demonstration method in his teaching, TVE has theory limit, if the teaching and learning exceed that limit, acquisition of skill is hampered and TVE will become "theoretical

... It is not surprising therefore, that Okeke (1994) lamented that graduates of TVE programs were being rejected by industries because they had the wrong kind of training in schools. The wrong kind of training implies that TVE graduates were seriously deficient in practical hence were unable to satisfy the industrial demands. The main problem therefore in developing TVE in Nigeria is the problem of inadequate and non-functional training facilities which includes workshop tools and equipment.

In line with the foregoing, Uzoagulu (1993) discovered that students were compelled to carry out practice exercise in groups due to lack of adequate tools and equipment. It was equally found out that the few tools and equipment available were seldom functional. Uzoagulu (1993) further pointed out that inadequate budget is widely acknowledged as a factor militating against effective implementation of TVE programs in Nigeria, as this has led to shortage of facilities and consumables with which to carry out effective practical work in the schools workshop. Hence, TVE institutions in Nigeria are bound to produce inadequately prepared skilled graduates. In any TVE program the use of workshop, tools, equipment and machines are essentials requirement for the smooth running of the program. Most of these equipment and machines are powered by electricity; therefore, electricity has to be available on continuous bases. However, Okala (2005) noted the epileptic nature of electric power supply in Nigeria and therefore recommended alternative sources of electricity in the workshop. Okala further highlighted the high cost of running a stand-

by generator and recommended that government should take up the issue of electric power supply seriously if the machines and equipment in the schools workshop are to be put into good use and to justify the huge millions of Naira expended on them.

5. Conclusion

Technical vocational education is recognized as that aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge that will enable an individual to secure employment in a particular occupation for sustainable livelihood. These skills cannot be acquired in a vacuum but rather in a well-established and functional workshop with the right tools, equipment and machines for effective implementation of TVE program. However, the desire to produce competent graduates of TVE programs can be achieved when the facilities in the workshops are relevant and adequate for the programs as demanded by the curriculum of the programs

6. Recommendations

In order to produce TVE graduates with the requisite skills needed for employment in industries or other related organizations the following recommendations are made:

- Government, communities, industries, religious organizations, labor unions Non-Governmental Organizations (NGOs), wealthy individuals in the society should be encouraged in the funding of TVE institutions for the smooth running of TVE in terms provision of and workshop facilities such as tools, equipment and machines so that TVE graduates will

acquire skills, knowledge and attitude for gainful employment to contribute to the socioeconomic development of the nation.

- Special intervention funds should be set aside by government for procurement of workshop facilities to TVE institutions, such channels may include Education Tax Fund (ETF) as practiced in Nigeria.
- A specific percentage of Income tax generated annually by Government should be utilized for the provision of workshop facilities to TVE institutions
- Government should provide adequate facilities to TVE institutions workshops using current strategies identified to ensure acquisition of relevant skills, and knowledge and experience that are relevant to the growth of the country.

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