

Competency Based Education and Technical Vocational Education and Training: Implication for Sustainable Industries and Development in Nigeria

by

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Abstract

It has been the earnest desire of Federal and State government to overcome the problem of unemployment in Nigeria which is one of their paramount goal. This paper tries to see how that could be overcome through the use of competency Based Education and Training into teaching and learning of TVET in Nigeria. This paper highlights concepts of Technical Vocational Education and Training (TVET) and Competence Based Education and Training, objectives of CBET, TVET Curriculum Design and Delivery to Meet the Labour Market, Programme Delivery using the Competence Based Education and Training (CBET) Approach, advantages of its to workers and Implications of Competence Based Education and Training (CBET) in Technical Vocational Education and Training (TVET) for Industry and Development in Nigeria. Recommendations are proffer among which was that CBET should be introduced into TVET curriculum in order produce competent graduates who will be able to face the challenges of the workforce.

Keywords: *Technical Vocational Education and Training; Competency Based Education; Competence Based Education and Training, industries and development.*

Introduction

Technical Vocational Education and Training (TVET) is an aspect of educational programme offered at the Nigeria tertiary institutions of learning which prepares students for careers in business, carpentry, food and nutrition, building and crafts. The main aim of TVET is to offer training to its students who willable to acquire adequate knowledge, skills, and attitude to develop understanding for growth. This is to equip its students who will be work-ready and who are capable of creating employment for themselves and be the employers of labour but the revise is the case since most of our graduates are unemployed as a result of not properly rooted in their areas of specialization. It is high time for our educational curriculum to be rearranged towards competency based education in order to produce competent and reliable youths who will be able to fit in with the challenges in the industrial settings. This paper highlights some concepts such as TVET, Competency Based Education, objectives of TVET, TVET curriculum design and delivery to meet labour market,

Technical Vocational Education and Training

TVET has been pinned down to be education mainly for practical acquisition programme. Many authors have viewed it differently. Okwelle (2008) sees TVET as a means of adding to technical skills and job oriented behaviours for individual's sustainable life; it increases a nation's productivity through ensuring efficient and effective use of resources thus, helping in raising the standard of living of the citizenry. Ajokporise (2010) opines that Technical Vocational Education and Training focuses on specific trades such as automobile repairs, welding and fabrication, plumbing and pipefitting, electrical craftsmanship, hair dressing, tailoring, barbing among others. Furthermore, Ojimba (2012) states that the contributions of Technical Vocational Education and Training range from mechanical/automobile technology, electrical and electronic technology, building, woodwork technology, metalwork technology and others.

Technical Vocational Education and Training is a fundamental element in the development equation because it allows

individuals and societies to unlock their potentials, expand their horizons and adapt to the changes in the dynamic world (Nsiah-Gyabaah, 2009). In essence, the purpose of technical and vocational education is to equip young men and women with the technical and professional skills needed for sustainable industries and development of the country. The emphasis is on training people for self-employment. Anaele, Adelokun, Dem-Isaiah and Barfa (2014) maintained that Technical Vocational Education and Training is a type of education that provides trainees with relevant skills, knowledge and attitudes that is necessary for employment. Also, Nwachukwu (2014) defined Technical Vocational Education and Training as “a comprehensive term referring to those aspects of the educational process including, in addition to general education, the study of technologies and related sciences, and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life”.

With all its importance to the industries and economics of a nation, Ayonmike, (2013), stated that the underlining challenges of TVET sector include; low societal recognition, which translate to low enrolment and inadequate skilled workforce, obsolete instructional facility, inadequate funding, poor staffing, poor linkages with industry and general deficiency in quality. Similarly, several studies (Nwogu and Nwanoruo, 2011; Yusuf and Soyemi, 2012) reported that the challenges of TVET are numerous, which include among others, inadequate human and material resources in terms of quality and quantity; poor funding of TVET, inadequacies in infrastructural facilities; poor quality preparation of lesson by TVET teachers; and social vices. Notably, a very serious challenge of TVET in Nigeria is the lack of employable skills among TVET graduates from Nigeria institutions. Though several approaches have been adopted to improve on quality of skills of TVET graduates, the problem seems to remain unabated. This is therefore a need to seek more pragmatic approach to tackle this problem of unskilled TVET products. Competency Based Education and Training (CBET) is one training approach which is not yet fully explored in TVET delivery in Nigeria.

From the foregoing, CBET is considered very suitable for Technical Vocational Education and Training (TVET). This is because TVET is oriented towards the world of work and equally based on curriculum for the acquisition of employable and lifelong skills. TVET delivery systems are therefore well placed to train the skilled and entrepreneurial workforce that Africa needs to create wealth, eliminate poverty and insecurity as well as improve the economy of a nation (Adebambo, 2007). Another important characteristic of TVET is that it can be delivered at different levels of acquisition. This implies that TVET using the CBET approach can boast, not only to the needs of different types of industries, but also to the different training needs of learners from different socio-economic and academic backgrounds, and prepare them for gainful employment and sustainable livelihoods (Adebambo, 2007). The little contribution of this paper therefore, is to examine the objectives of TVET, TVET curriculum design and delivery to meet the labour market, Competency Based Education and Training (CBET) mode and needs for the integration into Technical and Vocational Education (TVE) and implication on sustainable industries and development in Nigeria.

Objectives of TVET

The following are the general objective and specific objectives of TVET outlined by the Ministry of Education (2016). The main objective of TVET is to develop an effectively co-ordinated harmonized TVET system that is capable of producing quality skilled human resource with the right attitudes and values required for growth and prosperity of the various sectors of the economy.

Specific objectives are to:

- i) Provide trained manpower in the applied science and technology and business particularly at craft, advanced craft and technical level;
- ii) Provide the technical knowledge and vocational skills necessary for agriculture, commercial and economic development.
- iii) Give training and impart the necessary skills to individual who shall be self-reliant economically.

TVET Curriculum Design and Delivery to Meet the Labour Market

The TVET system has remained practically the same in content and delivery for decades with curriculum being institution-based. The curriculum is generally regarded as being out of date and not responding to the needs of trainees and demands of industry and the labour market. The mismatch between institutional training and the needs of industry has serious implications for the employability of graduates from the TVET institutions especially the Polytechnics and Technical Institutes. This condition, ultimately, has implications for the nation's economy (Afeti, Baffour-Awuah and Budu-Smith, 2003).

Competency Based Education and Training (CBET) is one training approach which is not yet fully explored in TVET delivery in Nigeria. This is what brought the idea of CBT education which is more of career-oriented and a more practical focus than traditional method of teaching. It moves education's focus from what academics believe graduates should know (Teacher-focused) to what students need to know and be able to do in varying and complex situations (Student focused/workplace focused). Some people use the terms Competency Based Education (CBE), and Competency Based Learning (CBL) to promote their approach to designing their curricula and to describe education that focuses on the acquisition of the competencies necessary to be able to perform professional tasks.

There is growing support for CBT because it enables people to acquire skills and competencies that meet the needs of industry and society (Norton, 1987). Foyster (1990) argues that using the traditional, time-based model for training is inefficient compared with CBT. The good thing about CBT is that when it is combined and integrated with traditional or old learning methods, students are able to learn what their future employers expect from them.

Competency-Based Education

The word competency can be referred to as a way of doing somethings successfully and efficiently. Olaitan, Alaribe & Eze (2010) refer to competency to be successful performance of a task through the use of knowledge, skills, attitude and judgment. ELTArticles (2012)

defines competency as a system of conceptual and procedural parts of knowledge organized into operating schemes that help identify a problem-task and its solution through an efficient action within a set of situation. According to Lasse (2015) competency is something someone needs to be able to do well in a specific job role. International Atomic Energy Agency (2019) sees competency as a combination of skills, knowledge, attributes and behaviours that enable an individual to perform a task or an activity successfully within a given job. Competency-Based Training has been defined in different ways by different authors. Agodzo, (2005) has defined competency-based learning simply as 'do-it-yourself' (DIY) learning. According to him, a graduate who has gone through CBT should be well equipped for hands-on, practical work that is demonstrated in the specific tasks he can do and must do. Competency is an integrated entity that is made up of knowledge (what you know), skills (being able to perform a task), values (what you want, feel and think) and personality (your being). The aggregate of these attributes leads to a desired professional attitude and behaviour that defines the competency of an individual.

Kaaya (2012) in Ayonmike, Okwelle, & Okeke, (2014) defined Competency Based Education and Training (CBET) as a programme of study with clearly defined, concrete and measurable objectives of which every student participating in the programme must have demonstrated mastery upon programme completion. Often these programmes also involve students working at their own rate and structuring their own methods of learning so as to meet these objectives. Deißinger and Hellwig (2011) see CBET as the specification of knowledge and skill and the application of that knowledge and skill to the standard of performance expected in the workplace. Similarly Anane (2013) described CBET as an industry and demand driven (outcomes-based) education and training programme based on well-defined industry generated standards (occupational standards). Anane further stated that these industry standards are the basis upon which the programme (curriculum), assessment and learning materials are designed and developed.

Devex (2016) identifies some of the ways to enhance the relevance and quality of

the TVET system through curriculum development, capacity building and quality assurance to be as follows:

- i) Improve the quality of the TVET offers to students so as to compliment the labour market skills needs and private sector demanding starting from pilots focusing in selected key economic sectors (with emphasis on tourism).
- ii) Revising and improving the delivery of the technical secondary schools and of the technical colleges/institutes according to the labour market needs.
- iii) Also to improve the offer of the vocational training centers and other avenues delivering trainings to ensure higher quality and relevance for the labour market.
- iv) Dissemination of different well known and tested methodologies for curriculum development, design and/or update the TVET curricula in higher institutions to meet labour market needs through the direct involvement and support of the establishment of a sustainable mechanism for curriculum development within the framework of the established quality assurance system for TVET.
- v) Setting up a quality assurance system and policy disseminating the recent approaches on TVET quality assurance and provide capacity development.

Therefore, it is very important to understand the characteristics of competency based training approach as identified by Bashir, (2012) as follows:

- i) Competencies are carefully chosen.
- ii) Supporting theory is integrated with skill practice. Essential knowledge is learned to support the performance of skills.
- iii) Detailed training materials are keyed to the competencies to be achieved and are designed to support the acquisition of knowledge and skills.
- iv) Methods of instruction involve mastery learning, the premise that all participants can master the required

knowledge or skill, provided sufficient time and appropriate training methods are used.

- v) Participants' knowledge and skills are assessed as they enter the programme and those with satisfactory knowledge and skills may bypass training or competencies already attained.
- vi) Learning is self-paced.
- vii) Flexible training approaches including large group methods, small group activities and individual study are essential components
- viii) A variety of support materials including print, audiovisual and simulations (models) keyed to the skills being mastered is used.
- ix) Satisfactory completion of training is based on achievement of all specified competencies.
- x) It includes the recognition of acquired competencies as a result of labor experience i.e. workers are continuously assessed, gaps identified and eliminated.
- xi) It is a tool for the orientation of subsequent learning of the worker; as such, it plays an important role in the development of skills and abilities of the ones assessed.
- xii) It is the basis for the certification of labor competency of workers

Programme Delivery using the Competence Based Education and Training (CBET) Approach

As earlier on indicated, CBET is a programme whose curriculum development is based on occupational standards. This is to ensure that the problem of skills mismatch, which has been identified by industry as a major cause of unemployment, is addressed. Therefore, after institutions have consulted with industry and businesses to generate valid and quality occupational standards, what is known as Learning Unit Specification is developed for all the courses of the respective programmes. The standards set out in the Learning Unit Specification must also reflect national standards of achievement which must be appropriate to the target audience. The Learning Unit Specification according to Anane (2013)

has four key elements which set out the standards on which certification is based:

- Learning Outcomes: What is expected of the learner to know and be able to do at the end of the facilitation of the unit,
- Performance Criteria: What the learner should know and do in order to achieve the specific learning outcome,
- Range Statement: Parameters of learning the learner should cover in order to be able to perform,
- Evidence Requirement: This is the assessment criteria. In CBET assessment is the process of collecting evidence of learners' performance in order to judge whether or not, or the extent to which the learner has met the performance requirements.

The assessment process includes a variety of approaches:

- i) Observation: observing the learner while he/she is carrying out the activity,
- ii) Product: looking at something a learner has made or done,
- iii) Questioning: asking the learner questions which can be answered either verbally or in writing.
- iv) Learner-centered: Learning materials are then developed for the learners from the unit specification. These detailed training materials are keyed to the competencies to be achieved and are designed to support the acquisition of knowledge and skills. They are developed in a way that they encourage the learner to work as independently as possible both out of class and while in class. The content of these learning materials which includes self-assessment instruments and peer assessment/appraisal instrument for learners encourage active participation in learning through group, pair and whole class interaction (Anane, 2013).

Advantages of Competency Based Education & Training (CBET) for Workers

Some people considered CBET to be tedious and difficult to achieve. Applying Competency Based Education and Training (CBET) to workers has the following advantages according to Wahba (2019):

- i) CBET implies an advantage for workers since it recognizes acquired competencies even during their experience and it does not limit the description of their labour skills to whatever their academic life was.
- ii) CBET focuses on providing certification with the same value as academic degrees, thus destroying the concept of first-class and second-class education.
- iii) In CBET, workers know what is expected from them and accordingly they can be more efficient and motivated than those which are appointed to a position but are not made aware of the larger framework and the organisation's functions.
- iv) In CBET, workers will take part in training plans that are much more directed to the improvement of their performance and the assessments will be more meaningful since they will contribute to the organisation's objectives (Performance Based Training, Assessment & Verification).
- v) CBET develops wide-range of Core, Support, General and Interpersonal competencies that may be applied in a variety of labour situations. In this sense, CBET frameworks involve competencies common for different labour activities. These competencies are not exclusive of one job post but rather they can be owned and exercised in different job positions
- vi) CBET contributes to the fact that workers can take advantage of their skills in a wider range of employment options. This is how training and certification support employability. Additionally, CBET privileges the development of abilities associated with understanding, formulating of what is being done and, therefore, it facilitates learning and re-adaptation. Its focus is more open and inclusive in terms of application at work.
- vii) CBET goes beyond the enjoyable attention to the development of physical skills since it has a conceptual basis and particularly because it focuses on results and the competencies behind them.

- viii) Compensation mechanisms may be easily related at the level of competency within CBET and therefore be clear for the worker and the enterprise. The chances of labor mobility may be better judged when the competencies required by other departments in the enterprise are known. It is possible that some of the competencies associated with certain areas of performance be completely transferable to other areas. If such competencies are recognized and certified, promotion decisions can be sped up and it may motivate others who wish to carry out training actions in order to become eligible for those new positions.
- ix) The methodology of CBET is a very powerful, efficient, and innovative approach to job/occupational analysis and produces superior results for all occupational levels. It has proven to be a very effective method of quickly determining, at relatively low cost, the competencies or tasks that must be performed by persons employed in a given job or occupational area.
- x) It enables changes to be rapidly introduced into programmes to meet emerging technological and other work requirements – new modules can be introduced and existing modules can be changed;
- xi) Modules are more effective in meeting the needs of adult learners who may not have the time or motivation to engage in a long period of full time education;
- xii) Modules can be taken separately at students' preferred time and pace to enable them to 'accumulate' a qualification;
- xiii) Modules can be used flexibly to update employed people as new demands emerge.
- xiv) Overall, modules provide a more flexible base for curriculum design and can also be combined with the competence based standards approach in which the standard is converted into a learning module.

Meanwhile the competency Based Education is also of benefits to the employers since they maximize their profits as a result of

standardized output of employees which is very good. It saves cost of the employers and time.

Implications of Competency Based Education and Training (CBET) in Technical Vocational Education and Training (TVET) for Industry and Development in Nigeria.

It is obvious that the rate of unemployment and development is on the increase as a result of the neglect of Technical and Vocational Education (TVE) in Nigeria. With a lot of cumbersome problems relating to youth unemployment, there is enormous evidence that the adoption of a Competency Based Education and Training (CBET) system would improve quality and relevance of Technical and Vocational Education because of the numerous benefits. Furthermore, CBET enable employees not only to increase their knowledge and skills at the workplace but also to gain nationally accredited certificates for workplace-based learning (Deißinger and Hellwig, 2011). Benefits of CBET identified by Norton cited in Ayonmike, Okwelle and Okeke (2014) include:

- Participants will achieve competencies required in the performance of their jobs,
- Participants build confidence as they succeed in mastering specific competencies,
- Participants receive a transcript or list of the competencies they have achieved,
- Training time is used more efficiently and effectively as the trainer is a facilitator of learning as opposed to a provider of information,
- More training time is devoted to working with participants individually or in small groups as opposed to presenting lectures, and
- More training time is devoted to evaluating each participant's ability to perform essential job skills.

Competence Based Education Training (CBET) is an industry and demand driven education and training programme; its products have a high demand on the job market (Anane, 2013). Therefore, unemployment which is other graduates are facing is not a problem to CBET graduates. Having gone through CBET, they either go into self-employment because they have acquired the competences to set up their

own businesses or are absorbed by the industries whose skills requirement they have met by nature of their training. There is no doubt that having gone through CBET, graduates do not simply provide service in the working environment; they accomplish results and this is what the world of work expects from its work force and which the CBET graduates have exhibited. We are in an era where emerging industries are in dire need of expertise to run their industries. There is no doubt that to get competent graduates with employable skills to run our emerging industries, the CBET approach should be introduced in TVE system.

Conclusion

This is a must for the Nigeria system of education to be piloted toward Competency Based Education and Training in order to curb the rate of unemployment in Nigeria and also our industries will not be left out because they will be able to produce standardized products which will improve our economy and bring about development in our nation. It is high time for TVET curriculum to be patterned toward competency rather than certification basis. CBET has a lot of benefits to the workers and employers.

Recommendations

The following recommendations were proffered for this paper as follows:

- 1) In order to reduce the rate of unemployment in Nigeria, CBET should be introduced into the teaching and learning of TVET programme in all tertiary institutions of learning.
- 2) For Nigeria to be developed, there is need to include CBET in our school curriculum of TVET.
- 3) In order to reduce the rate of half-baked graduates of TVET, CBET must be included in learning of TVET.
- 4) The Nigerian curriculum planners should ensure that the curriculum of TVET is tailored towards competency rather than certification.
- 5) The federal and state governments should provide adequate facilities needed for the programme in order to succeed and be effective.

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