

# TECHNICAL VOCATIONAL EDUCATION AND TRAINING (TVET) AND ENTREPRENEURSHIP FOR SUSTAINABLE INDUSTRIALIZATION IN NIGERIA

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## ABSTRACT

*Technical Vocational Education and Training (TVET) deals with development of skills, knowledge and attitude for the design, construction, installations, operations, repairs and maintenance needed in the industrialization process. Most industries in Nigeria often become moribund because of over-dependent on expatriate skills to carry out the foregoing tasks in the industrialization processes. Entrepreneurial services, such as competence in management are as well a challenge to the survival of industries. Therefore, TEVET and entrepreneurship have critical roles in sustainable industrialization. To actualize sustainable industrialization, Nigeria TVET and entrepreneurship must be firmly dovetailed in the industrialization process through human resource development and training.*

**Key Words:** Technical Vocational Education and Training (TVET), entrepreneurship, industrialization, sustainable industrialization and entrepreneurial skills.

## Introduction

Technical Vocational Education and Training (TVET) and Entrepreneurship are inseparable in socio-economic activities of human society. The two concepts have economic orientation directed towards sustainable development and self-reliance.

Accordingly, TVET deals with development of skills knowledge and attitudes that would enable individuals to engage in gainful employment or become self-employed, create wealth and reduce poverty. Entrepreneurship on the other hand is concerned with the individuals' creativity or creative skills and innovative skills that enable an individual to respond to the environment or to harness the available resources in the immediate surrounding for (economic benefits) production of goods and services that would satisfy human needs and wants.

The success of entrepreneurship relies on the technical and other skills developed in TVET programmes. Therefore, development in TVET would be directly proportional to the entrepreneurship activities in any society. It can also be deduced in the foregoing that TVET is an entrepreneurial education; hence, TVET and entrepreneurship are the bedrock of sustainable industrialization.

## Overview of Technical Vocational Education and Training (TVET)

Technical Vocational Education and Training (TVET) is the oldest form of education in the human race that has direct link with industrial activities. This is sequel to the fact that from the early beginning of human race, all the efforts of man to conquer the physical environment, the dangers and rigours of external world, boil down to manual skills and knowledge pertinent to specific tasks. These have been in one way or the other transmitted from one man to another and from generation to generations. It can therefore be concluded based on this premise that the history of TVET is the history of man's effort to learn to work (Essien and Usoro, 2011). The concern of TVET is learning to do through acquisition of skills on how to handle tools to accomplish specific task skillfully.

According to Usoro (2013), TVET has been an education concerned with work especially in its traditional stage. Today its concern has extended to include man, man's vocational development and education about work and what work involves. Hence, the author made assumptions about the world of work in respect to TVET.

These assumptions are:

1. Technical Vocational Education and Training (TVET) is economic education as it is geared to contribute to national economic strength.

This assumption implies that:

- a. Education improvement leads to a better standard of living for the individual and this in turn becomes a gain for society as a whole. TVET has therefore been thought as a wise business investment both for the individual and for the society.
  - b. The realization that investment in education contributes to national economic strength and has led to a new look at interdependence of educational system and the occupational structure of the labour force.
  - c. The needs of individuals must be primary when determining the allocation of resources of TVET is to be consistent with democratic principles.
2. Technical Vocational Education and Training (TVET) can develop a marketable man by developing man's ability to perform skills that extend this ability as a tool of production. This assumption is regarded as the basic justification for TVET which has been linked with economic theory throughout human history. Thus, inventions and discoveries are continually creating new devices and processes. This in turn make necessary for their development and efficient use of new tools, new appliances, new operations and new methods to which both workers and leaders must continually adopt.
  3. Technical Vocational Education and Training (TVET) is education for production to serve the ends of the economic system and is said to have social utility. The main emphasis of this assumption is on production and social utility of TVET, this is a narrow concept of TVET. It is more important to develop man as an individual who is important to himself and who can apply his unique talents to earn a living.

The Federal Republic of Nigeria (FRN) in realization of the relevance of TVET to the nation's economic strength outlines the goals of TVET as follows:

- a. Provide trained manpower in applied science technology and commerce particularly at sub-professional level
- b. Provide the technical knowledge and vocational skills necessary for agriculture, commercial and economic development.
- c. Give training and impart the necessary skills to individuals who shall be self-reliant economically (FRN, 2013).

The stated goals cannot be achieved by one single component of TVET. Hence, the TVET family is made up of the following members: agricultural education, business education, health occupations, distributive education, home economics education, technical education, trade and industrial education and computer education. These fields of academic discipline have unique curricula designed to provide job-oriented programmes with the primary purpose of providing the learners with skills and knowledge for specific occupation in related areas.

Because of the broad spectrum of TVET, International Labour Organisation (ILO) defined TVET as an activity which essentially aims at providing skills, knowledge and attitude required for employment in a particular occupation or a function in any field of economic activity including agriculture and industry, commerce, the hotel (catering and tourist industry), public and private services. This definition provides a link between TVET and industrialization.

The ILO's definition also relates to some philosophical concepts of TVET which include:

- The occupational choice of an individual should be based on the orientations (interest, aptitude, ability, attitude and value).
- All honourable and honest occupations are worthy of consideration in making the decision about life's work.
- Each individual should have the opportunity to select an occupation in harmony with his orientation and the opportunity for employment in or self-employment in the occupation.
- The worth of an individual to the society grows out of the individual's contribution of skills, knowledge and applied productive capacity to tasks that need to be completed rather than out of "artificial status connotation" attached to most glamorous jobs (Okorie, 1995 as cited by Essien, 2011).

The foregoing philosophical concepts also portray TVET as an entrepreneurial education. It is obvious that entrepreneurial activities require skill, knowledge and attitude among other orientations for success. Both TVET and entrepreneurship can be learnt.

### **Concept of Entrepreneurship**

Entrepreneurship has been conceptualized in a variety of ways; and has been given different shades of meaning. Barika (2007) conceptualizes entrepreneurship as the process of conceptualizing, organizing, launching and through innovation-nurturing a business opportunity into a potentially high growth venture in a complex and usable environment. Hisrich and Peters (2002) viewed entrepreneurship as the process of creating something new with value by devoting the necessary time and effort, assuming the accompanying financial, psychic, and social risks and receiving the resulting reward of the monetary and personal satisfaction and independence. Bassey (2005) defined entrepreneurship as the willingness and ability of an individual to seek out investment opportunities and to establish and run an enterprise successfully. Akpan (2004) equally described entrepreneurship as the behaviour of profit-making individuals and institutions who organize other factors of production with the view to produce goods or provide services for profit.

It can be understood from the above definitions that entrepreneurship is characterized by creativity, innovativeness, novelty, initiative, drive, resourcefulness, adventure resilience and pro-activeness. In addition, four key elements can be deduced from those definitions, first, it involves a process which is therefore manageable; second, it creates value in organization and market place where there was nothing before; third, it requires resources uniquely integrated to create value; and fourth, it is an outcome of identified opportunity (Morris & Kuratko, 2001, Ayo, 2011). In entrepreneurship, it is expected that a person or group of persons mobilize

resources to bring about products that have not existed, ex ante or bring about existing product using methods that have not been used previously.

Entrepreneurship requires some skills such as, technical skills, business management skills, creative thinking skills, innovative skills, communication skills, leadership skills, financial management skills and public relation skills. With application of these skills as may be appropriate entrepreneurship development would be accurate and sustained. Accordingly, the concept of entrepreneurship originated from the fact that the average individual wishes to experience the dignity of labour which is the pride of doing what one so much desires without obstruction what so ever from a third party. This involves one's ability to perceive opportunity and utilization of available human plus material resources innovatively for the benefit of the entrepreneur. It can also be referred to the use initiative, imaginative, flexibility, creativity, a willingness to think conceptually and the capacity to see change as an opportunity (Ayo, 2011; Frankie-Dolor, 2010). It is worthy of note that identification and exploration of opportunities to innovate for a new result is what entrepreneurship is all about.

### **Concept of Industrialization**

Industrialization as a process involves building up a country's true capacity to process raw materials to a finished product for consumption and other productions. World Bank (1985) described industrial sector as comprising the manufacturing, mining, construction, electricity, water and gas sub-sectors or simply mining and quarrying (including petroleum, solid minerals and gas). Nicholas and Calhaum (2011) conceptualize industrialization as the application of inanimate sources of power to mechanize production. Initially, industrialization took the form of factory production, later spreading to agriculture and services. When compared with pre-industrial organization, it has involved division of labour, social/human relations of productions (between the owners of capital, managers and workers).

The importance of industrial sector in any economy need not be overemphasized. In fact, the future of any economy lies upon the industrial sector and can be described as the heartbeat of economic development. Industrialization as a process presupposes the provision of appropriate institution by the state; and the drive towards industrialization should be all embracing, leading to new social philosophy and consciousness towards innovation and entrepreneurship. To drive a stable economy, industrialization must be sustained by a number of factors in the local context.

### **Roles of TVET in Sustainable Industrialization**

Technical Vocational Education and Training (TVET) is a shop-based training. Hence, it has a direct relationship with industry to the extent that the TVET workshop or laboratories (environment) should be a miniature industry. Accordingly, the principles of TVET exposed inter alia that:

- Technical Vocational Education and Training (TVET) will be effective in proportion as the environment in which the learner is trained is replica of the environment of which the learner must subsequently work;
- Effective TVET can only be given where the training jobs are carried out in the same way, with the same operations, the same tools and the same machines as in the occupation itself.

The implication of these principles is that the products of TVET are those who will drive the individualization process to sustainable level. Furthermore, if these principles are strictly adhered to, the employers of TVET graduates would not require retraining those they have recruited before placing them on the positions or jobs recruited for.

The roles of TVET in sustainable industrialization cannot be compromised. Most Nigerian industries become moribund because of over dependent on expatriate skills. When all the craftsman and technicians in an industry are expatriates, there is every tendency of the industry to fall as soon as the expatriate technicians leave the industry.

Nigerian government from the colonial era has recognized this fact but was not proactive. For instance, Essien, Onyije and Ikpo (2011), citing Okoro, observed that the colonial government did not give attention to education nor participated effectively in the provision of education in Nigeria. It was only in 1925 that the British Government decided to adopt a new education policy for British African colonies. This was the first policy document on education issued by British colonial office. The policy reorganize some elements of TVET, although it must not have been adhere to. These include to:

- Adopt education to the aptitude and occupation of the various people.
- Improve agriculture, industries and health and prepare for self-government.

The National Development Plan of 1946 was a ten years plan for development and welfare for Nigeria. The policy recommended an expansion in technical Education to meet the demands for technicians and craftsman need in the developmental process via industrialization. This led to the establishment of Yaba Technical Institute in 1947 and several trade centres in the country.

The Second National Development Plan (1970 - 1974) was evolved to cater for the post war reconstruction and development. The plan recognized education as a capital good which is linked with the concept of human capital which attaches high premium to human skills as a factor of production in the development process (with great attention to industrialization).

On the basis of the foregoing, the plan emphasized that public policies in the field of education must therefore, take full account of the needs of the country in terms of development of manpower skills (FRN, 1974). Based on this premise, it should be understood that no development plan can be complete without development in TVET. It is because the development in TVET has always been paid a lip-service by government that industrialization process in Nigeria is not sustained from the colonial era till date.

Industrialization cannot strive without TVET in any country of the world. Because through TVET skilled manpower are produced for design, construction and maintenance of industries including petroleum, petrochemical, agriculture, forestry, mineral and water resources, power generation and distribution, construction of infrastructures, textile, iron and steel, automotive and plastics as well as health technology, environmental design, management and control, armament, commercial enterprises, hotel and tourism, communication and in teaching. In fact, there is no human activity today that has no technical orientation and complexities. Hence, TVET has essential roles to play in this direction. While reverence of TVET (Technology) in all sector of human society cannot be over-emphasized, Osita (2002) believed that it is the rock of industrialization and development and subsequently lamented the poor take off of TVET in Nigeria.

### **Entrepreneurship for Sustainable Industrialization**

The basic concept and characteristic of entrepreneurship proves that entrepreneurship is the first step and the finishing point of industrialization. This is primarily based on the fact that entrepreneurship is a purposeful activity (including an integrated sequence of decisions) of an individual or group of associated individuals, undertaken to initiate, maintain or aggrandize a profit-oriented business unit for production or distribution of economic goods and services.

However, the production is done by harnessing the available resources (raw materials). What is required for entrepreneurship is also required for industrialization—skills, material and human resources alike.

Industrialization is concerned with the introduction, initiative, or building economic units for manufacturing or production of goods. These economic units can be referred to as industries. Sustainable industrialization involves, according to the World Commission on Environment in Masi, Ugorji and Owioke (2011), developments in industrialization practices which meet the need of the present day without compromising the ability of future generation to meet their needs. This implies that the use of technology, improve methods of production and the use of machines (industrializing) should not undermine or compromise the ability of generations even yet unborn in the use of whatever means (skills, knowledge, technology and resources) that may be deemed necessary in solving human problems.

From the time of industrial revolution, the basic idea behind industrialization is mass production by making use of machines and sophisticated technological equipment. However, there are still small industries and heavy industries depending on their production capacities and level of mechanization in the production or manufacturing processes. In whichever case, when an industry is built, there is initial conception of product idea based on research findings and technological breakthrough. But entrepreneurship remains the critical factor that translates these research finding and technological breakthrough into product and services that will meet social needs and promote economic development (Akpan, 2010).

For sustainable industrialization, entrepreneurship, according to Hisrich and Peters (2002), is critical in the product-evolution process – the process through which innovation develops and commercializes through entrepreneurship activities, which in turn stimulates economic growth. Hence, the critical role of entrepreneurship in the product-evolution process is at the point of intersection of knowledge and recognized social need which begins the product development process.

Penrose's theory of the growth of the firm (industry) as cited by Akpan (2010) gave an insight on how sustainable industrialization can be achieved through entrepreneurship. The theory postulates among others that: productive opportunity is a function of the quality of entrepreneurship services available to the industry and the efficiency with which existing operations are supervised and entrepreneurial ideas and proposals executed (that is the competence of management).

In other words, entrepreneurial skills and ideas are critical; to sustainable industrialization. Such skills include: managerial skills, financial management skills, communication skills, creative thinking skills, record keeping skills, marketing skills, business evaluation skills, technical skills and leadership.

## **Conclusion**

Industrialization has always been an indicator of economic growth of a nation. But sustainable industrialization would lead to a sound and stable economic development. Over dependent on expatriate skills has been identified as a factor responsible for most Nigerian industries going moribund after few years of operation. Hence, TVET should be seen as a key factor that can sustain industrialization by providing the manpower needed to drive the industries in areas of operation, repairs and maintenances of machine and equipments applicable to the respective industries.

Entrepreneurship skills and ideas are equally critical to sustainable industrialization. This is because entrepreneurship has a critical role in the industrialization process from the starting point to the finishing point in terms of product-evolution process. It is therefore observed that one of the challenges of sustainable industrialization in Nigeria is inadequate attention to TVET by government or lack of recognition by various stake holders in the industrialization process that TVET and entrepreneurship education have critical role to play for the actualization of sustainable industrialization.

### **Recommendations**

Based on the position of this paper, it is recommended that:

1. Industrialist should partner with government to develop skills which are specific to their industrial processes.
2. The industrial sectors should at regular interval visit technical colleges and other TVET institutions to assess facilities and other curriculum inputs to set the standard in line with the demands of their workforce.
3. Government at the Federal and State level should include training of manpower in the skills that are in vogue and specific to their industrial operations in the terms of agreement or memorandum of understanding with any investor coming into the country.
4. Technicians and craftsman should have entrepreneurship training in order to inculcate entrepreneurial spirit which is very essential for efficiency in occupational practice and career fulfillment.
5. The education policy and indeed academic institutions should encourage the production of more craftsmen and technicians when compared with engineers.

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