

## **Wealth Creation in Nigeria: The Need for Science, Vocational - Technical and Technology Education**

**Dr. Ezekiel O. Akpan and Okon Akpakpan Udoh**

*DEPARTMENT OF VOCATIONAL EDUCATION  
UNIVERSITY OF UYO, UYO. 08084022510; drezakpan@yahoo.com  
DEPARTMENT OF SCIENCE EDUCATION  
UNIVERSITY OF UYO, UYO. 08028523214; oakpakpanudoh@gmail.com*

### **Abstract**

The paper believes that science, vocational technical and technology education are skill acquisition, self-sustaining and wealth – creation programmes for gainful self-employment opportunities. It observes that our polytechnics and technical colleges have failed in their vowed commitment to produce self-employed and employable graduates. It recommends an overhaul of vocational – technical education programmes in Nigeria in a direction that will guarantee preparation of students for the world of employment as a means of wealth creation.

### **Introduction**

The rising tide of unemployment in Nigeria has continued to haunt the youth and the labour force since Nigeria's economic fortunes changed for the worse in the late seventies. Unemployment rate in Nigeria stood at 23.9% in 2011. The National Bureau of Statistics (NBS) has put the figure of unemployed Nigerians in the first half of the year at 23.9%, up from 21.1% in 2010 and 19.7% in 2009.

Nigeria's unemployment rate is spiraling upwards, growing at 11% yearly; youth un-employment rate being over 50%. This translates to a state of lack or poverty in the country.

Poverty connotes social inequality and injustice which traumatize the poor. Over 70% of Nigeria people are in abject poverty, living below the poverty line, one-third surviving on less than one US dollar (\$1) a day, an amount that is often made in minutes in wealthier nations. A staging number of Nigerian youth/graduates live as squatters, setting up shacks wherever they can. Others are not that fortunate. They live on the street with probably only a piece of plastic between and the ground. In fact, an array of youths in urban centres in Nigeria struggle to earn a living by selling

telephone recharge cards under umbrellas by the road side, hawking chewing-sticks, “sachet” water, handkerchiefs, beets, and lots of other petty articles. Disillusioned, frustrated and defected, these youths (very many of whom are graduates who struggled to acquire formal education as a means of investing in their future) turned out to be kidnappers, armed robbers, terrorists, militants and drug traffickers, passing the whole blame on unemployment as occasioned by the structure of the educational system in vogue.

The major reason for unemployment, and the attendant social vices, among Nigerian youths have been identified as lack of productive and marketable skills on the part of the unemployed which can be arrested through the combined application of science technology and vocational education. Many of the school leavers are not adequately prepared to fit into the productive sector of the economy and cannot therefore provide the services that can generate sustainable income (Yakubu, 2012). By way of preferring solution, others felt that the 6-3-3.4 system of education has failed to equip learners with significant functional skills and should therefore be altered in a way that will increase the productivity of school leavers and should be more in the direction of making them self-employed and self-sufficient.

The above outcry follows the backdrop of the regrettable reality that our polytechnics and technical colleges have failed in their vowed commitment to produce employment and self-employed graduates to drive the economic base of the nation. On the whole, today, our polytechnics can best pass for glorified secondary schools while our technical colleges are mere skeleton of themselves. Consequently, we do not have artisan anymore; neither do we have professionals in the areas of plumbing, carpentry, etc. So, we need to overhaul our educational approach in order to prepare our students for the world of employment.

In a bit to make for enmeshed self-employment and self-sufficient, the Nigerian Educational Research and Development Council has designed a new secondary, education curriculum structure, which came into effect in 2011. One unique feature of the new curriculum is clear emphasis on: Senior Secondary Science (Biology, Chemistry, Physic, etc) and Senior Secondary Technology (general metal work, basic electricity, auto mechanics, building construction, etc) central to the strategy to accomplish the mission (employment generation, poverty eradication and self-reliance) of the new curriculum structure is the passionate recommendation of one trade (vocational – technical) subject with entrepreneurial studies as a compulsory cross-cutting core subject that must be chosen from the pretty long list of trade subjects: auto body repaid and spray painting, auto electrical work, auto mechanical work, welding and fabrication, engineering craft practice, electrical installation and maintenance work. Other include: radio, TV and electrical work, block laying, brick laying and concrete work, GSM maintenance, carpentry and joinery.

### **Vocational-Technical Education for (Wealth Creation, Employment-Generation, Poverty-Eradication and Self-Reliance)**

Vocational education in defined as education for living, being an education that learners are provided with knowledge, skills and competences needed for an

occupation (Ekpenyong, 2005; NTI, 2000). To Out (2012), vocational education is any programme of specialized education designed to prepare interested individuals for entrance into specific occupations. It is usually conducted to prepare students for semi-skilled and skilled employment in recognized occupation or prepare them for enrollment in advanced technical education programmes.

Urama and Ndidi (2012) averred that vocational education and training prepares learners for jobs that are based on manual or practical activities, traditionally non-theoretical and totally related to a specific trade, occupation or vocation. According to Ekpenyong (2006):

*Course that are meant to prepare artisans are classified as vocational as in technical colleges. When the offering is at the lower tertiary level, the course offering is to prepare middle-level personnels (technicians and middle management personnels), and at the university level to prepare engineers and top management personnels, and at the polytechnics to prepare technologists and their management equivalent.*

From the foregoing discussion, technical and vocational education (often written Technical-Vocational Education or Vocational – Technical Education) is said (UNESCO, 2002) to be a comprehensive term referring to those aspects of educational process involving, in addition to general education, the study of technologies and related sciences and acquisition of practical skills, attitudes, understanding and knowledge relating to occupations in various sectors of economic and social life. Technical and vocational education is further understood (FRN, 2004) to be a means of preparing for occupational fields and for effective participation in the world of work; an instrument for promoting environmentally social sustainable development; an aspect of lifelong learning and a preparation for responsible citizenship, as well as a method of alleviating poverty.

The goals of vocational – technical education, are enshrined in the National Policy on Education (FRN, 2004) are to

- provide trained manpower in applied sciences, technology and business, particularly at craft, advanced craft and technical levels
- provide technical knowledge and vocational skills necessary for agricultural, commercial and economic development
- give training and impart the necessary skills to individuals who should be self-reliant economically.

The central objectives of vocational – technical education revolves on the advancement of socio-economic, industrialized and technological objectives that will eventually manifest themselves in improved standards of living for the citizen as well as an economic stability, industrial harmony and technological advancement. Vocational – technical education and manpower development are inseparable (Osioima (1993). Unarguably, functional vocational-technical education will be an effective antidote to unemployment, poverty and reliance on others.

At the primary school level, the teacher or school counsellor is obliged to identify areas of interest of the pupils and to nurture same. He should advise the pupils to

study at a higher level only those subjects in which they are interested and good.

At the junior secondary level, the teacher/school counselors should encourage the vocational-oriented students to go for vocational education rather than compel them to switch to academic secondary schools. The teacher/counselor should enlighten the students as to the fact that today, sectors that have opportunities for employment are not necessarily those that require university education but those that call for skills in vocational areas; and that vocational-technical students can be as great, prominent and famous as professional medical doctors, barristers at law and construction engineers, who are generally self-employed, if they take vocational studies very seriously. "In this regard, students at the secondary school level should be caught young early enough so that they could imbibe the culture of self-employment before they grow into adulthood" (Onnoh-Onajise and Ugbekite, 2012). This is why the polytechnics and technical colleges must as well be seen as very important learning institutions.

Availability of resources (material and human) stands out clearly as a factor that either makes or mar vocational-technical education. This implies a need to match the respective vocational subjects with appropriate and sufficient functional tools, gadgets, equipments or machines, as well as ensure adequate number of professionally trained vocational-technical teachers and support staff to anchor and drive the system. The goal is to motivate interest, ensure practicality and competence and to generate and sustain entrepreneurial skills such as self-employment initiatives.

### **Science and Technology Education for Wealth Creation**

Science is a systematic study of nature (Ameh-Anegbe, 2008) it is the process and product of investigation and research. The process involves research: the product is a set of ideas, theories and principles which make up the various bodies of knowledge (Akaneme, 2004).

Science education emphasizes the teaching and learning of science processes and principles. This will lead to fundamental and applied research in the sciences at all levels of education. The goals of science education, as enshrined in the National Policy on Education (FRN, 2004) are to

- cultivate inquiring, knowing and rational mind for the conduct of a good life and democracy
- produce scientists for national development
- service studies in technology and course of technological development; and
- provide knowledge and understanding of the complexity of the physical world, the forms and the conduct of life.

A highly developed (functional) education and research programme in the basic sciences is needed by any country (including Nigeria) that would want a secure and stable society. Knowledge of the basic science, such as physics, chemistry and biology are of indispensable value because it is through their research effort that technological growth can take place. A stable society should be one where industrialization, public health care, advanced agriculture, etc, can flourish (Akaneme, 2004).

The term technology is mostly used in three different contexts, viz, where referring to a tool or machine, a technique, a cultural artifact or a combination of the three. According to the National Teachers Institute (NTI, 2000), technology could simply be referred to as things people device to accomplish particular ends. It also refers to different categories of human productive effort and the processes people use to change various aspects of their world. Technology, therefore, has economic, social, ethical and aesthetic dimensions which depend on the use to which it is put, where it is used and the circumstance that prevails at the time it is used. Technology is therefore defined (Akaneme, 2004) as the application of scientific knowledge and research with the aim of developing products or processes for the use of man. It consists of practical knowledge of what can be done and how. It is not a body of theoretically related law and principles. It is characterized by techniques, devices, procedures, processes and materials. It is more of a collection of particular information that can be used to do something.

Unarguable, the by-products of science and technology are littered everywhere, around us. The most easily recognizable ones are the material ones: hospitals, industrial firms, electricity, refrigerators, radio and television, banks, transport system, computer and the Global System of Mobile Telecommunication (GSM).

Inyang (1997) observed that many materials which are products of science and technology are widely used in everyday life. These materials include, plastics, biro, paper, glass, dyes, detergents, petrochemicals and ceramics. Plastics, for instance, are widely used in medicine for plastic implants and for housing. They largely replace metals for pupils; and they provide sheeting for electrical cables, as well as polythene bags for packaging.

### **Recommendations**

Several problems beset the delivery system of vocational-technical education in Nigeria, militating against the fight against poverty and unemployment in the country. These problems include paucity of (material and human) resources, paltry funding, falling short of threshold encouragement and motivation, thereby making the programme of vocational-technical education an unattractive venture. Among the several steps that should be taken in order to resolve these problems are:

1. Our polytechnics and technical colleges should, as a matter of urgency, be rebranded with adequate human resources and state of the art machines and equipment. Vocational-technical education programmes should be overhauled in a direction that will guarantee preparation of students for the world of employment.
2. The technical profession should be made more attractive by improving the status of the technicians and by giving them better pay.
3. Financial assistance should be given to our technical colleges to enable them participate in the production of basic hand tools now bring imported for the teaching of introductory technology in our secondary schools (Otu, 2012). Vocational-technical education should receive a greater share of educational budget than it is getting now.
4. There should be significant improvement in the funding of all technologically

driven courses in our educational institutions. Relevant books, well equipped laboratories and workshops for practical teaching-learning purposes should be provided.

5. Awareness campaign should be intensified to enlighten the parents and the society on the need to encourage their wards to pursue courses that will lead to acquisition of vocational-technical and entrepreneurial skills. To this end, government should promote and popularize the study of science and production of adequate number of scientists to inspire and support technology and self-reliance.
6. The Nigerian economy is largely dependents on small scale industries especially in the rural areas. The training of tradesmen and technicians for these small industries should be taken cognisance of in drawing up technical education programmes.
7. Vocational-technical education is provided to drive (private and public) industries. Therefore, commerce and industry should be closely associated with the programmes of vocational-technical education by actively participating in policy making and the provision of opportunities for industrial experience in order to create the required environment for the production of capable workforce who will be largely self-employed and self-reliant.

### **Conclusion**

Science, vocational and technical education revolve around the advancement of technological, industrial and entrepreneurial objectives that will eventually manifest in employment generation, poverty eradication and self reliance. No nation can make any meaningful socioeconomic stride without functional vocational-technical institutions. What is required now is to begin to empower our students for self-employment through vocational-technical education. Until science and vocational-technical generation, poverty eradication, and self-reliance will remain illusive for Nigeria.

### **References**

- [1] Akaneme, F. I. (2004). History and philosophy of science. Lagos: National Open University of Nigeria Press.
- [2] Ameh-Anegbe, C. O. (2008). Science, technology and society. Lagos: National Open University of Nigeria Press.
- [3] Ani, G. A. and Ani-Ofoegbu, P. (2011). Manpower development in TVET and the challenges of local content in industrial development. *A Paper Presented at the 24<sup>th</sup> Annual National Conference of the Nigeria Association of Teachers of Technology, Held at F.C.E (T). Umuze, 27<sup>th</sup> October.*
- [4] Ekpenyong, L. E. (2005). Foundations of technical and vocational education: New directions and approaches. Benin City: Supreme Ideal Publishers.
- [5] Ekpenyong, L. (2006). Technical and vocational education as a strategy for accelerated economic growth and development of Akwa Ibom State. *A Lead*

- Paper Presented at the First Akwa Ibom State Education Summit, Held at Ibom Hall, Uyo, March 14 – 16.*
- [6] Ibenema, O. T. (2009). Vocational education in the era of economic down-turn vis-a-vis vision 2020 in Nigeria. *Journal of Vocational and Technical Education*, 7(1)1-9
  - [7] Inyang, N. E. U. (1997). Relationship between science and society. In N.E.U. Inyang and M. E. Ekah (Eds). *Science and Society*. Uyo: Afangideh and Bros. Publishing Co.
  - [8] National Teachers Institute (NTI, 2000a). NCE/DLS Book on Education, Cycle 2, Modules 1, 2, 3. Kaduna: National Teachers Institute Press.
  - [9] National Teachers Institute (2000b). *Basic science and technology: A millenium development goals project*. Kaduna: National Teachers Institute Press.
  - [10] National Teachers Institute (2000c). *NCE/DLS Course Book on Social Studies, Cycle 4, Modules 1, 2, 3*. Kaduna: National Teacher Institute Press.
  - [11] Nwaokolo, P. O. E. (2003). New directions to quality technical and vocational education in Nigeria. Awka: Educational Research Publishers.
  - [12] Ochoga, A. E. (2011). Entrepreneurial and functional vocational and technical education as means of achieving the national objectives of vision 2020 in Nigeria. *Multidisciplinary Journal of Research Development*, 17(1)78-83.
  - [13] Onnoh-Onojite, G. and Ugbekite, G. I. (2012). Reappraising vocational subjects at the secondary school level for the promotion of self-reliance. *Journal of Qualitative Education*, 8(2)141-149.
  - [14] Osioma, C. U. (1993). Emerging issues and problems of vocational technical education and self-reliance. *Monograph Series*.
  - [15] Otu, E. S. (2012). Issues in vocational-technical education: Problems and prospects. *Multidisciplinary Journal of Research Development*, 20(2)53-60..
  - [16] UNESCO (2002). Technical vocational education and training for the 21<sup>st</sup> century. UNESCO and ILO Recommendations, Paris.
  - [17] Urama, M. S. and Ndidi, O. (2012). Manpower development in technical and vocational education (TVE): A Prerequisite for the technological development of Nigeria. *Knowledge Review: A Multidisciplinary Journal*, 26(4)129-135.
  - [18] Yakubu, E. J. (2012). Re-engineering vocational and technical education (VTE) for youths empowerment and sustainable development. *Knowledge Review: A Multidisciplinary Journal*, 26(3)45-48.





Vocational-Technical Education for (Wealth Creation, Employment-Generation, Poverty-Eradication and Self-Reliance) Vocational education is defined as education for living, being an education that learners are provided with knowledge, skills and competences needed for an occupation (Ekpenyong, 2005; NTI, 2000).<sup>3</sup> Wealth Creation in Nigeria 11 The term technology is mostly used in three different contexts, viz, where referring to a tool or machine, a technique, a cultural artifact or a combination of the three. According to the National Teachers Institute (NTI, 2000), technology could simply be referred to as things people device to accomplish particular ends.<sup>5</sup> Wealth Creation in Nigeria 13