

VOCATIONAL AND TECHNICAL EDUCATION FOR NATIONAL RECONSTRUCTION

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Abstract

The paper reviews the concepts of Vocational and Technical Education, the historical backgrounds both in Nigeria and abroad and the broad areas covered by Vocational Technical Education (VTE). The major role of Vocational Technical Education (VTE) towards National Reconstruction is identified as manpower training in related Technical and Vocational fields. These include Agricultural Science, Mineral sector, Utilization of wastes and other by-products, conservation of natural resources and entrepreneurship in small-scale industries and business.

Introduction

The system that needs reconstruction is the one that was previously constructed and now requires maintenance/change after a long period of time. Nigeria as a nation needs reconstruction because all aspects of the national foundations are in state of dilapidation following several years of neglect and exploitation. Aspects of national existence that need reconstruction include national unity, political maturity, agricultural, industrial and technological development, national values, functional education and all that have contributed in making the nation under-developed.

Vocational and Technical Education (VTE) will go a long way in improving some of the above mentioned aspects such as agriculture, industry, technology and education. The educational foundation laid down by colonial masters was based on the liberal and cultural education, and the nation was constructed, so to speak based on this educational system. The consequence of this system is perpetual dependence of the nation on other countries for basic goods and services.

Consequent to the above, Nigeria is branded a consumer nation, importer of finished goods and a nation that gives preference to anything foreign to the detriment of locally produced/manufactured ones. This attitude was built over time under the colonial administration. It was to the advantage of colonial masters too who then advocated household dependency theory', for their colonies (Lenski, 1970) which means that colonial capitalism depended on the backwardness of those they colonized. The British colonial masters introduced liberal education and placed less emphasis on Vocational Technical Education (VTE). In their home country, they had and utilized Vocational and Technical Education but in their colonies, they played the card too close to their chests that our people couldn't learn much directly from them.

It is necessary to proceed with a clarification of the key concepts in Vocational and Technical Education before stating its usefulness for national reconstruction. According to Phipps (1980) Vocational Education cultivates the attitude, the spirit of enquiry and problem-solving skills in integrated science programme, while Technical Education on the other hand utilizes scientific knowledge in the acquisition of practical and applied skills in the solution of technical problems. Education is therefore Vocational and Technical when it is designed specifically to improve the efficiency of an individual in a specific occupation either as a preparation for employment or supplementary to improvement on his/her employment. Vocational and Technical Education incorporates in its curriculum both general education (with emphasis on intellectual development) and technical training (emphasis on skills.)

In ignorance, some educators, individuals, policy makers etc. give different derogatory interpretation to Vocational and Technical Education. Akerejola (2002) refers to Vocational and Technical Education as professional training for production of low-level manpower i.e. artisans, craftsmen and master craftsmen for the labour market. Some people view it as education meant only for perfection of skills for those with low education attainment and for school dropouts. Others still view it as special education for the physically and mentally handicapped individuals or the disadvantaged (Olaitan, 1982). These are all misconceptions that must be corrected.

Arts and Crafts (AC) Versus modern Vocational and Technical Education

S/N	Local Arts and Crafts	Voc. And Tech. Edu. (VTE)
1	Herbal medicine including bone setting and midwifery	Modern medicine and pharmacy
2	Weaving and Craft-Cloth, Loin cloth, Baskets, Mats, e.t.c.	Textile industries, producing all modern fabrics
3	Blacksmithing - for production of hoes, cutlasses, spear heads, diggers, Dane-guns, beads necklaces and hand bangles.	Iron and steel industries
4	Wood carving - Mortar and pestle, doors, stools, statuettes, spirit symbols, calabash decorations, etc.	Carpentry or woodwork
5	Pottery - water pots, cooking pots, plates, cups and musical instruments, etc.	Modern ceramics, electric insulators etc
6	Building - Local bricks, mud making, roofing mats, etc.	Architecture
7	Brewing - palm-wine, burukutu etc.	Modern breweries.
8	Subsistence farming - slash and burn shifting cultivation	Commercial farming and Complete farm

One would be amazed comparing the above skills with the corresponding developed countries' Vocational and Technical Education attainment as shown.

In addition to the above, other areas of technological achievement in developed countries worth mentioning" are mining, construction, communication, transportation and electronics. In comparison, the superiority of modern technology is so overwhelming that the local skills look fetish.

Vocational and Technical Education in Developed Countries.

So many good attributes are accorded to Vocational and Technical Education in developed countries such as USA, Sweden, France, Russia, Israel, Germany, China and Japan. Other fast developing countries like India, South Korea, Taiwan etc. have recently joined the developed countries in reaping the benefits of Vocational and Technical Education and this has accounted for their technological take-off and improved economy.

In some of the mentioned countries youths are made to develop Vocational skills in any one occupational area while in school without jeopardizing their interest in the study of other subjects like mathematics, physics, social studies and English (Okorie, 1982). In this process and during the formative stages, individuals are able to discover their talents and therefore pursue them as education for life. These countries encourage mass education (liberal/cultural as well as education for specific purpose (Vocational and Technical Education)

The impact of acquisition of skills by youths of these nations has been shown in their supremacy in the fields of technology. Some examples are in the areas of hardwares and electronics in Japan, rural development and advanced crafts in China, agriculture and all aspects of technologies in USA, general industrial development in Russia and small-scale industries in Malaysia.

Occupational Areas of Training in Vocational and Technical Education

- 1) **Agriculture-** Vocational and Technical Education provides educational training which prepares skilled workers in the following ten broad agricultural areas - Agricultural supply, Processing, Equipment technology, Ornamental agriculture, Agrochemical technology, animal product technology, fertilizer production technology, etc.
- 2) **Business Education-** Skilled training is given to individuals in the fields of Accounting, Commerce, Typing and Shorthand, Business Communication, Secretarial Studies,

entrepreneurship education etc to enable them occupy appropriate positions and manage various businesses.

- 3) **Fine and Applied Arts-** From National Commission for Colleges of Education (NCCE) publication (2002) Vocational and Technical Education provides occupational training in different specific jobs, e.g. *Ceramics*: For production of bowls, pots, tiles, bricks, water closets and toilet facilities, water coolers, electrical insulators, containers, floor and wall tiles, **Graphics-** Printing and publishing, advertising, photography, etc. *Painting*: **Textiles-** Skills are provided in textile and fabrics, cloth designs, weaving or cloth dyeing. **Sculpture-** Wood carving, ceramic and clay sculpture skills are provided. **Home Economics-** Skill training are given in nutrition, Applied nutrition, food preservation, Textile designs, Clothing designs and construction, Personal and Community Health, etc.
- 4) **Industrial Technical-** Areas of specific skill training include Metal work, Wood work, Electronics, brick-laying, mechanical, Building construction technology, Automobile technology and Forging etc.

Vocational and Technical Education for National Reconstruction

1. Training of Manpower

The most important aspect of Vocational and Technical Education towards national reconstruction is in the area of manpower training and development, most occupations are becoming more complex and technical and to "be successful in them, one requires considerable technical knowledge, skills and understanding of the job and clusters of jobs involved.

Vocational and Technical Education trains manpower in all occupational areas requiring skills and also provides supplements to the old apprenticeship system and may eventually replace it in future as long as the nation countries to embrace technologies.

2. Agricultural Sector

The sector is very vital for the existence of any nation, although Nigeria, it is the most neglected occupation. A nation can only boast of food security and self-sufficiency in agricultural raw materials for industries and nation building when agricultural sector is properly taken care of. Agricultural has passed the stage of slash-sufficiency, which is a prerequisite for national reconstruction, now involves high level of technology in cultivation, harvesting, processing and storage. Vocational and Technical Education provides specific skilled training for technicians and technologists, needed in these major processes involved in crop production.

In agricultural mechanics alone, the activities that required specific technical training cover wide areas such as:

- (i.) Shop-work activities- Carpentry, painting, glazing> home shop work sheet metal work, forge work and welding,
- (ii.) Farm power and machinery- Transmission of power motors, trucks, tractors and agricultural machinery
- (iii.) Building and conveniences- concrete works, buildings, water systems and lighting,
- (iv.) Electrification- Selection of materials and equipment "and care and maintenance of electrical equipment,
- (v.) Solid and Water management- terracing, contouring, drainage and irrigation.

3. Utilization of Agricultural Wastes and By-Products

Full utilization of agricultural by-products will push the nation forward to a higher level of development. What an average farmer harvests and utilizes from his crops are less than 15% of the weight of the components of maize are as follows:

The Foliage	25%	
The Stalk (stem)		45%
The Ear	┌ Sheaths	
	├ Spong axis 15%	
	└ [trains 12%	

Therefore, only 12% of the weight is utilized for food and feed and 88% wasted. With proper Vocational and Technical Education, the whole maize crop will be converted into useful products using appropriate technology. Meanwhile, what we reject here as waste products (by-products) are converted into animal feeds and news-print materials in developed countries (Maynard and Loosli 1969). When appropriate technology is in place, the money spent in importing such feeds and news prints can be saved and used for other developmental purposes.

4. Conservation of Natural Resources and Environmental Protection

Agricultural mechanics and horticulture provides skills on soil conservation and environmental protection. Soils are maintained following conservation rules during cultivation. The major conservation activities are checking water and wind erosions, installation of drainage system and terracing. These require skilled manpower in engineering. Erosion can be checked by relating vegetation cover, proper landscaping and afforestation. The environment can also be protected by allowing proper development of flora and fauna and appropriate use of herbicide and insecticide to avoid environmental pollution.

Furthermore, students offering courses in Agricultural mechanics and horticulture belong to Young Farmers¹ Club where they are taught how to perform various environmental friendly activities such as removal of environmental pollution/pollutants.

With appropriate technology offered through vocational and technical education, wastes from industrial areas in cities can be converted into manure or fertilizer to enrich the soil. Inorganic wastes on the other hand are separated and recycled into useful material thereby keeping the environment neat and healthy, all of which enhance national reconstruction.

5. Mineral Sector

This sector, currently dominated by mineral oil provides up to 80 percent of the national foreign exchange earnings. Foreign technology and technologists are used in the mining, refining and marketing of these crude, which lead to siphoning most of the national wealth outside the country because local technologists are few.

Closely related to petroleum is the natural gas, which is flared out continuously and wasted due to lack of technology. With appropriate vocational and technical education, both high and middle level, manpower can be trained to handle the technology for full utilization of our mineral resources, manpower can be trained to handle the technology for full utilization of our mineral resources. Similarly, appropriate vocational and technical education will help to exploit natural gas, limestone (for cement), iron ore, etc. for the reconstruction of the country. The importance of vocational and technical education in this sector can be seen from the emphasis placed on establishment of Vocational and Technical Centres to train workers in two major establishments in Kogi State. The establishments are National Iron ore Mining Company (NIOMCO) Itakpe and Ajaokuta Steel Company of Nigeria (ASCON). All have well established Vocational and Technical Education Centres.

6. Business Entrepreneurship

Nigeria businesses were characterized by small scale buying and selling of goods. There was no formal skill training except serving under a master's strict tutelage.

New businesses have increased tremendously in number and more sophisticated in practice, both nationally and internationally. To cope with the ever-increasing areas of business and technologies involved, good numbers of entrepreneurs, endowed with related skills, are needed to keep the nation in line with development. Entrepreneurship is more or less the same as self-reliance (Fatuyi, 2002) and a self-reliant nation is a developed nation. Vocational and technical education provides technical and entrepreneurial training to those who need them to manage these businesses.

Below are listed some small-scale industries/business which will help reconstruct the nation if properly harnessed:

Agricultural mechanic/Horticultural practices; food processing/feed or flour mills; agricultural equipment, fertilizer and agrochemical businesses; textile mills, synthetic industries; ceramic industries; printing and publishing technology, paper converter/mills; secretarial studies/accounting and related business; tailoring/fashion designing, cafeteria/catering, business/nutrition; wood work/carpentry/cabinet making and brick-laying/building construction.

Conclusion

Vocational and Technical Education will form the backbone to nation reconstruction. This will be possible only when vocational and technical education entrepreneurship education programme is seriously pursued and people with vocational technical entrepreneurial training, rather than politicians, are allowed to work and direct in the specific occupations where they are trained.

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