

Technical vocational education and training for national industrial development and economic growth

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Abstract

Technical and Vocational Education and Training (TVET) play a vital role in human resources development of the country by creating skilled manpower, enhancing industrial productivity and improving the quality of life. TVET is instrumental in making remarkable contributions to national industrialisation and economic growth of the developing country like Nigeria by way of suitable manpower production according to the needs of the Industry and the nation as a whole. This paper looked at various parameters, problems indicators and strategies necessary for the improvement of TVET in Nigeria. It finally make the recommendations among which are flexibility of course design using modularity in line with the need of industry and society, develop business plans to support training activities, establish strong linkages and collaboration with employers and industry and provide opportunities in industry for TVET teachers to regularly update their workplace experience.

Keywords: Technical Education, Industrial Development, Economic Growth, Manpower

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Introduction

Technical and Vocational Education and Training (TVET) Programmes are the acquisition of relevant knowledge, practical skills and attitudes for gainful employment in a particular trade or occupational area either self or paid employment. The training must be flexible, adaptable, and life-long. TVET in short terms is education and training for work. TVET is taken to encompass all educational and/or instructional experiences which might be formal or informal, pre-employment related, outside the job or on the job, in schools or in industries. The training is designed to directly enhance the skills, knowledge, attitudes, competencies and capabilities of individuals, required in undertaking gainful employment. The major challenge in the world today is to find ways of living and working sustainably, so that the reasonable needs and wants of people from all walks of life and in all countries can be satisfied without over-exploiting the

natural resources upon which all life depends. TVET takes on a complex and distinctive character with regard to sustainable industrial development and economic growth. This is because TVET produces and consumes resources, as well as affects attitudes towards sustainability held by future workers in all nations. The historical antecedents of TVET give it a foundation upon which to build future commitments on national industrialisation and economic growth. During the process of TVET, the greater the exposure of trainees to sustainable concepts, practices and examples, the more likely the desired workplace culture change will take place in the future. Moreover, the delivery of sustainable practices must be universal; that is, including not only pre-service TVET, but also on-the-job learning and worker upgrading and retraining. Continuing TVET will continue to predominate in the future, in order to accommodate both technological and job change for the success of the transformation agenda. The problems of unemployment youth of the Nigeria state require our educational systems to be re-oriented towards TVET. The current senior secondary school curriculum making a trade course compulsory for all learners at that level of education is a welcome idea for national transformation. The required re-orientation from education should be tailored for socialisation into the national culture, with the aim being the development of a common polity, to the preparation of learners to live and work in a market-oriented state. TVET plays a vital role in human resource development of the country by creating skilled manpower, enhancing industrial productivity and improving the quality of life.

TVET is instrumental in making remarkable contributions to national industrialisation and economic growth of the developing countries by way of suitable manpower production according to the needs of the Industry and the nation as a whole. To produce fully skilled manpower/knowledgeable technocrats in the present era of national transformation is the need of the hour. Avis, (1997) argued that the days of job stability (which some would argue never existed) are over for many, and are being replaced by a context where flexibility, adaptability, and transferability of skills are essential. A lot researcher has argued that the cost of TVET was too high compared with the returns to the economy, that the quality of training was poor and that there was considerable mismatch between training and the needs of industry. However, since the beginning of the new millennium, a fresh awareness of the critical role that TVET can play in economic growth and national industrialisation has dawned among policy makers. The increasing importance that Nigeria governments now attach to TVET is reflected in the various Poverty Reduction Strategy Papers. One of the most important features of TVET is its orientation towards the world of work and the emphasis of the curriculum on the acquisition of employable skills. TVET delivery systems will therefore, if well placed train the skilled and entrepreneurial workforce that Nigeria needs to create wealth and emerge out of poverty. This means that TVET can respond, 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. A skilled workforce is a basic requirement for driving the engine of industrialisation and economic growth, and TVET holds the key to building this type of industrialisation transformation. If we are to understand National Industrialisation as a form of development that enhances the economic well-being of all individuals in Nigeria in a way that contributes to social cohesion and democratic values, it is clear that TVET is a crucial tool for attaining it. TVET is a branch of education that can give its young graduates the skills to do productive work using levels of technology that suit their communities. In this way they can generate incomes for themselves and add to the prosperity in their communities.

Current status of TVET in Nigeria

TVET system in Nigeria is practised under the following sub-sections prevocational and vocational schools at post primary level: the technical colleges, the polytechnics and the colleges of education (technical) at the post-secondary level established to provide a base for technological take off of the country. The programme at each level was developed to enable individual to acquire practical skill, basic and scientific knowledge and attitude required as craftsmen and technicians and sub-professional level and the universities of technology. These according to Ekpenyong (1995) are being crippled by lack of funds and inadequate infrastructures. The goals of vocational education according to World Bank, (1994) shall be to:

1. Provide the trained manpower in the applied sciences and business particularly at craft, advanced and technical levels.
2. Provide the technical knowledge and vocational skills necessary for agricultural, commercial and economic development.
3. Give the necessary training and impart skills to individuals who shall be self-reliant

The Federal Ministry of Education report that in 2005, there were 159 recognise technical colleges offering trades in NTC/NBC level with a total enrolment of 92,216 students of whom 86.1% were male (Federal Republic of Nigeria, 2004). The main features of the curricular activities for these objectives to be achieved demand that the colleges shall be structured in foundation and trade modules. The curricular for each trade shall consists of four components namely: General Education, Theory and related courses, workshop practice, industrial training and small business management and entrepreneurial training. Though the curriculum is being implemented side-by-side with general education, whereas there has been sceptics' argument that TVET for employment is unlikely to be effective when delivered concurrently with general education in junior secondary schools. This is because employment-oriented training requires inputs in human and material resources that are not available or are too expensive to provide in all junior secondary schools in Nigeria or even in a cluster of secondary schools. The current vocationalisation of the junior and senior secondary school curriculum should therefore be viewed with caution.

Impediments against TVET for National Industrialisation and Economic Growth

1. *Inadequate Financing of TVET:* Nigeria is yet to appreciate the contribution of TVET to national industrialisation for economic development even though it has been asserted by many authors has a tool to combat unemployment and reduce poverty in our societies. Successful governments have not found it necessary to properly and adequately finance the planning and implementation of TVET in Nigeria. Okebukola, (2012) asserted that a less than 10% of Gross Domestic Product (GDP) will get nowhere yet the allocation over the last ten years has averaged 2%. Too much noise has been made on the pages of papers and television about TVET, but little is done to improve the programme in Nigeria.
2. *Crave for university education:* In Nigeria, large numbers of graduates coming out of the formal university education system are unemployed, although opportunities for skilled workers do exist in the economy. Salami, (2011) opined that youth unemployment has been attributed partly to a mismatch between inadequate educational outcomes and skill demands. He went further to state that educational system must provide the skills profiles required by the labour market to enhance the employability of young people. TVET is often regarded as inferior, or as a second choice after professional education in the university, regardless of the student's interests or abilities. Many people therefore dismiss promising and meaningful career paths in areas where employment demand is greater, simply because of the stigma attached to TVET. Education systems continue to be directed primarily towards preparation for university education, even though the majority of students move directly into the labour force (Heinz, Kelle, Witzel & Zinn, 1998). In Nigeria, prestige and status continue to be attached to university education, and young people seek career paths in these so-called professional occupations, even though in the country there are few employment opportunities in the profession for which they wish to train. The investment in training often goes unrealised, as young people drop out of training, or having completed it do not enter the occupational field for which they have been trained.
3. *Fragmented TVET delivery system:* TVET provision in Nigeria is spread over different ministries and organisations, including NGOs, religious-based organisations and informal sectors, with a multiplicity of testing and certification standards. The informal sector is the most unregulated and lacks government support and intervention. This situation has resulted into lack of standardisation of training and effective quality assurance in TVET management structures.
4. *Poor public image of TVET:* While the general attitudes of the public towards technical TVET have been found to be negative, the trainees themselves see TVET the same way instead of correcting the misconceptions that the public have about TVET. The general public must be made to recognize that TVET are the backbone of any nation for national industrialisation.

5. *Lack of effective monitoring and evaluation:* Many training institutions in Nigeria do not track the employment destination of their graduates. Consequently, feedback from past trainees on the quality of the training they have received and the opportunity for their experience-based inputs to be factored into the review of curricula and training packages are lost. In other words, the use of tracer studies to improve the market responsiveness of training programmes is currently absent in Nigeria.
6. *Low levels of education and skills mismatch:* Investments in TVET in Nigeria are critical for supplying skilled workers for the nation industries. The low level of education of young people is a significant factor in the longer unemployment spells they face. In Nigeria, secondary education as a meal ticket holds less attraction for young males in the Eastern part of the country where majority of the males prefer to go into apprenticeship in commercial ventures. To many of such males, the belief is that education is unproductive Salami, (2011). In Nigeria, training activities are offered in areas such as carpentry, auto mechanics, bricklaying, building, woodwork electrical/electronic among other. But Okebukola (2012) argued that because many of such training ignored labour market demand, they lead to unemployment and low returns on investment in training.
7. *TVET for national industrialisation and vocationalisation of secondary education:* TVET in a much broader sense cover education and skill development at all levels from post primary to tertiary education - both through formal and non-formal programmes. A centrally sponsored scheme on vocationalisation of secondary education provides for diversification of educational opportunities so as to enhance individual employability, reduce the mismatch between demand and supply of skilled manpower and an alternative for those pursuing higher education. The secondary education programmes should be restructured with industrial demand driven curriculum and a structured workplace hands on training. Emphasis should be on service sector with soft skills and computer literacy. Compulsory partnership with employers who provide trainers and internship, advice on curricula, participate in assessment and certification should be an integral part of the TVET in secondary schools.
8. *Programme mismatch:* TVET programmes need to be developed that focus clearly on locally and regionally evolving economic, social and cultural needs. This new structure should value each type of education and training for its contribution to the educational and vocational fulfilment of individuals and to the economic, social and cultural well-being of Nigeria. This paradigm would also need to allow movement across and within circles, and the process of movement should be clear and transparent. Given the orientation towards lifelong learning that will be needed by individuals in all educational and training settings, this paradigm may be much more useful in that it attaches value to all occupational roles and recognizes the contribution they make to society at large.

9. *Improvement of the quality, effectiveness and efficiency of public training:* Training for high-quality skills requires appropriate training equipment and tools, adequate supply of training materials, and practice by the learners. Other requirements include relevant textbooks and training manuals and qualified instructors with experience in enterprises. Nigeria has more than 250 vocational technical institutions offering various technical programmes without adequate number of teachers. Recruitment of technical experts from abroad is no longer advisable as a solution to shortage of technical teachers. The few technical teachers in our technical institutions must be encouraged by their employers and be retained with adequate facilities and incentives Oni, (2006). Benson, (1989) stated that Vocational lending operations should seek to improve the effectiveness and efficiency of public training by building institutional capacity, generating resources needed to improve outcomes, and improving instructional practices. Options to be considered are:

1. Establishing or strengthening national training authorities by financing programs of staff development as well as the development of labour market and training monitoring and information systems.
2. Establishing training funds as a sources of targeted grant and loan assistance to employers, private and public training agencies to increase flexibility in responding to periodic training needs, such as to facilitate economic change.
3. Consolidating small and underused training facilities, financing the cost of conversion and staff retraining and redeployment, rehabilitating smaller systems, and supporting government efforts turn over excess institutions to NGOS or private training sectors

Development of 21st century TVET curriculum

The changing nature of the world of work, especially due to globalisation and technological changes, demands how these changes impact upon the quality of social, economic and environmental conditions. TVET can play an instrumental role in developing a new generation of individuals who will face the challenge of achieving sustainable national industrialisation. Knowledge and skill acquisition which education is all about cannot be over emphasised. According to the World Bank (1994), successful development entails more than investing in physical capital, or closing the gap in capital, it also entails acquiring and using knowledge as well as closing the gaps in knowledge. Thus, to successfully confront the challenges of national industrialisation, Nigeria must undertake three major tasks in TVET curriculum development:

- Acquired and adapt global knowledge and create knowledge locally
- Invest in human capital to increase the ability to absorb and use knowledge
- Invest in technologies to facilitate both acquisition and the absorption of knowledge.

Unfortunately, TVET in Nigeria remain locked into the role of being a mere supplier of skilled labour to industry and is thereby unable to respond effectively to the needs of the sustainable industrialisation. The TVET professionals need to be called upon to reorient the TVET curriculum towards sustainability while maintaining the principles of 6Rs that is Reduce, Reuse, Renew, Recycle, Repair and Rethink perspectives. Therefore TVET system needed to be aware of the concept and challenges of national industrialisation for applying in the work place urgently. Association for Career and Technical Education (2006) stated that new curriculum must engage students of TVET in specific career-related to learning experiences that equip them to make well-informed decisions about further education and training and employment opportunities and prepare trainings who may choose to enter the workforce directly after secondary school with levels of skill and knowledge in a particular career area that will be valued in the marketplace. For any sustainable TVET curriculum, Career Clusters model recommended by Federal Republic of Nigeria (2004) might be of good benefits to Nigeria. These skills have been identified as:

- Knowledge and skills in related academics,
- Communications,
- Problem solving and critical thinking,
- Information technology applications,
- Safety, health, and environmental.
- Leadership and teamwork,
- Ethics and legal responsibilities,
- Employability and career development,
- Technical skills.

Recommendations

A sound TVET should recognise the important and the relevant areas that generally pose problems of implementation for recommendation such as:

1. The introduction of mainstream TVET into the general education system
2. Introduction of Nanotechnology and ICT into TVET
3. Provide training within national policy framework
4. Flexibility of course design, modularity in line with the need of industry and society
5. Develop business plans to support training activities
6. Establish strong linkages and collaboration with employers and industry
7. Provide opportunities in industry for TVET teachers to regularly update their workplace experience
8. Primary and secondary school teachers should be more involved in the orientation of students towards the relevance of vocational education to their communities and they should be constantly informed of the nations manpower needs

Conclusion

Nigerians need to develop a new approach for the concept of TVET and its purpose to the society for national industrialisation. Oni, (2006) stated that for some decades now TVET has been perceived to mean the education for the mentally retarded, physically handicapped and socially maladjusted students. He regretted that many Nigerians (in 21st century) still believe that TVET is for students with low intelligence and dropouts from formal school system. Technical education is expensive but quality comes at a price. There is no substitute for adequate funding when it comes to delivering quality TVET. The rate and level of national industrialisation depends directly on the degree of competence, effectiveness and efficiency in the application of the knowledge, skills and competencies acquired from technological education. Therefore, to achieve the necessary national industrialisation and make people creative to live better life, Nigeria must increase her effort at cultivating TVET at all levels of education for nation industrialisation and economic growth.

References

- Association for Career and Technical Education (2006). *Reinventing the American high school for the 21st century*. Alexandria, VA: Author. Retrieved from http://www.acteonline.org/uploadedFiles/Issues_and_Advocacy/files
- Avis, J. (1997). "What's this got to do with what I do!" Contradictory views: Students in further education. *Journal of Vocational Education and Training*, 49, 81-105.
- Benson, C. (1989). *Taxonomy of skill development: A search for criteria to define the relative efficiency of alternative programmes of occupational training*. Washington D.C.: World Bank, Population and Human Resources Department,
- Ekpenyong, L. E. (1995) *Foundations of Technical and Vocational Education. Evolution and Practice*. Benin: Ambik Press Limited.
- Federal Republic of Nigeria (2004). *National policy on education (4 ed)*. Lagos: NERDC
- Heinz, W. R., Kelle, U., Witzel, A. & Zinn, J. (1998). Vocational training and career development in Germany: results from a longitudinal study. *International Journal of Behavioural Development*, 22(1), 77-101.
- Okebukola, P. A. O. (2012). *Breaking barriers to national development: Are we taking full advantage of Science and Technology?* 19th and 20th Convocation lecture Federal University of Technology, Minna, Nigeria.
- Oni, C. S. (2006) Vocationalism in Nigerian education. *Journal of Social Science*. 12(2), 147-150
- Salami, C.G.E (2011). Entrepreneurship and youth unemployment in Nigeria: The missing link. *Global Journal of Management and Business Research*. 11(5), 20-29.
- World Bank, (1994). *Higher Education: The Lessons of Experience*. Washington D.C: Author