SUSTAINING TECHNICAL AND VOCATIONAL EDUCATION AND TRAINING (TVET) AS FUNDAMENTALS FOR SUSTAINBLE NATIONAL DEVELOPMENT IN NIGERIA

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Abstract
The social, economic and environmental objectives of Sustainable Development Goals (SDG) are in tandem with the provisions of effective Technical and Vocational Educational and Training (TVET) programmes. This makes the TVET programmes fundamental towards achieving national development goals and its sustenance in Nigeria. The impact of TVET is in every home in the globe because we can see, feel and touch the effect of technology in all the nooks and crannies of our environment. The present global discourse is on sustainability as man continues to conquer the environment to suit his dynamic needs. The paper appraised educational systems of both developed and developing countries indicating the integration of TVET in their dual systems, which could be learnt by Nigeria. Strategies that could facilitates the sustenance of TVET programmes in the country such as, creating harmony among stakeholders, integration of the formal and informal TVET programmes and entrepreneurial education were suggested among others. The paper further suggests that TVET goals should be integrated and domesticated to conquer our natural environment in harmony with our dynamic needs.

Introduction

Nations in the world have prioritized their development plans and educational objectives towards producing scientifically and technologically biased citizens, through effective Technical and Vocational Education and Training (TVET) programmes. Nigeria is not an exception; Universities of technology were established, Polytechnics sprang up in all the nooks and crannies of the country owned by federal, states and private organizations. Colleges of technology education and technical colleges were equally established amongst others. The National Policy on Education (2007), grouped Polytechnics, Monotechnics and Colleges of Technology Education under one umbrella as:

> " those aspects of the educational process involving 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 sector of the economic and social life".

This has placed all TVET educational programmes at tertiary level under one platform which could facilitate sustainable development.

The impact of TVET is almost in every home in the world, because we can see, feel and touch the effect of technology in all the nooks and crannies of our environment. The present global discourse is on sustainability of both our local and imported technology, as man continues to conquer the environment to suit his dynamic needs. The future of Nigeria will be bright as long as current efforts to massively train technology teachers, technicians and craftsmen are sustained through effective TVET programmes. This will facilitate our National development. This paper therefore revolves on how we can sustain both our formal and informal TVET programmes to fast track national development through the adoption of certain strategies such as; harmonization of stakeholders, bridging the gap between training institutions and industries, encouraging of entrepreneurial education and practice of ideal democracy among other factors.

TVET/Sustainable Development

Sustainability of projects and programmes have become booze words in human development cycles. Academic discussions are still ongoing on what sustainability is all about. But, it is categorically

clear that, there is a paradigm shift from achieving national development goals to sustaining national development goals. Rikoto (2011) cited Bruntland Commission (1987) to have defined sustainable development as programmes/projects "that meet the need of the present without compromising that of the future" The World Bank classified three objectives of sustainable development as, social objectives which include:

- Provision of full employment equity in resource distribution,
- security of life and properties,
- all inclusive education facilities,
- accessible health facilities and Cultural identity.

Economic objectives, referring to;

- Growth in different sectors,
- Efficiency and Stability.

The document further outlined the Environmental objectives to include:

- healthy environment,
- rational use of renewable energy,
- conservation of non re-usable resources,
- reducing greenhouse effect and environmentally friendly engineering design.

Similarly, the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2009) defined TVET; as a comprehensive term referring to those aspects of the educational processes involving, 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. In accordance with this definition, the National Policy on Education (2007) revised, also refers to TVET as a range of learning experiences which are relevant to the world of work. Sharma (2008), viewed TVET as a concept that encompasses a diverse array of programmes and activities. It emphasizes both education and training, and extends beyond schools, post-school institute, hands-on and work place enterprises to community-based.

It is glaring from the views above that, sustainable TVET programme is fundamental towards the achievements of sustainable development goals. Therefore, sustainable TVET programmes (formal and informal) should embark on innovations, and projects that are locally relevant, culturally appropriate, fully based on local needs and contents but acknowledges international effects and consequences, the programmes should accommodate the evolving nature of the concept of sustainability, taking into account global best practices and local priorities.

National Development

The concept of Development remains an issue of discussion among scholars. Hence, the following rhetorical questions are raised on the concept of national development;

- Is the goal of development to increase National wealth?
- Is it improving the general wellbeing of the population?
- Or is it increasing economic security?

World Bank is of the view that there cannot be any meaningful development without human development which depends on variables such as; life expectancy of the citizens, degree of adult literacy, access to all the three levels of education and the strength of the average income of the people. However, Lukpata (2013), defined national development as; the state of maturity which characterizes a Nation State as a result of the interplay of modern political, economic and social forces and processes, which also have a skilled citizenry that exercises its capacity to create a highly industrial society and manipulates its environment to obtain high quality of life for the generality of the population. In addition, Lawal, & Oluwatoyin, (2011), while reviewing issues on national development in Nigeria cited Gboyega (2003), Naomi (1995) and Charisma (1984) who all viewed national development as the overall improvement in the well-being of the people generated through economic, social and political activities of the people.

The discussions by these scholars on national development centered on the people. The concept of TVET revolves around education and training, and extends beyond schools, post-school institute, hands-on

and work place enterprises to community-based. Sustainability is equally about encouraging the people to develop technologies relevant to the environment. We can therefore conclude here that sustainable TVET programmes are fundamental to our National development.

Sustainable TVET Programme in other Countries

Different countries have different policies on the training of Engineering Technicians and Craftsmen with various outcomes but a common feature in most countries is that training in TVET education system is demand-driven and market controlled with interaction between Trainees, Trainers and the labor market. Oseni (2012), appraised the situations obtained in some countries and reported as follows:

Brazil

Brazil runs a dual education system comprising post-secondary undergraduate and sequential programmes. Structural change in the economy is from low productivity agricultural economy to higher-productivity industry and services economy under national services for industrial apprenticeship. TVET is a sequential program and it involves general education and the study of technologies and related sciences as well as the acquisition of special skills, attitudes, understanding and knowledge in related occupations in various sectors of economic and social life. The TVET programme is funded through 1% levy from the industries in Brazil.

Malaysia

Malaysia equally runs a dual educational system. Vocational study starts from upper primary school level to lower secondary school level and is broad based and non-terminal. Most technical secondary schools have been converted to vocational secondary schools to meet the demands of National Dual Training System. The system stresses the combination and interrelation of hands-on training at the industry workplace with classroom training in specialized training institutions established by Government. Its progress is attributed to the aggressive drive towards industrial skill acquisition for its population of 27 million people.

China

Vocational education is carried out respectively by elementary and secondary vocational schools and tertiary vocational schools or schools of higher education. A subsisting law mandates that all types of vocational schools must have qualified teachers, teaching venues that meet the standards and installation of equipment consistent with vocational training needs of industries. Funds for operating the schools are stable and personnel who are compatible with the task of vocational training are highly motivated. Vocational schools of all kinds can also collect tuition fees from students.

Japan

A quarter of upper secondary school students take specialized or vocational courses, usually within the school setting. Vocational skills training is delivered in wide variety of settings including formal educational institutions, workplaces, distance learning or in self directed setting. Activities can include learning for qualifications, training for specific skills, training for 'softer' management skills, leadership and development skills, certifications, professional training, etc.

Germany

Technical vocational training is enshrined in the dual educational system. After graduation from lower secondary education, two-thirds of Germans entering the upper secondary education enter the vocational education system. In the Dual System Students spend some of their time in a vocational school; where students spend one- two days per week at the vocational school and three-four days doing the apprenticeship at the host company. Approximately 51% of all young people under 22 have completed an apprenticeship and vocational training. This has enabled Germany to maintain its position among the industrialized nations.

Australia

Technicians and Craftsmen are trained Australian TVET system mostly at post-secondary school level by registered training organizations. The system includes public, Technical and Further Education (TAFE), and private providers. Assessment of standards for different vocational qualifications is done under a national frame work comprising Australian Quality Training.

United Kingdom

The UK runs the tripartite system of grammar schools, secondary technical schools and secondary modern schools introduced in 1944 with bodies such as Royal Society for the encouragement of Arts (RSA) and City and Guilds setting examination for technical subjects. Training of Engineering Technicians and Craftsmen boosted by the establishment of bodies such as British and Technology Education Council, Youth Training Scheme, National Vocational Qualifications and General National Vocational Qualifications.

United States of America

Technicians and Craftsmen are trained mostly in postsecondary technical and vocational training schools provided by proprietary (privately owned) career schools and military technical training and government-operated adult education centers coordinated by Association for Career and Technical Education (ACTE). ACTE is the largest private association dedicated to the advancement of education of Engineering Technicians and Craftsmen and prepares youth and adults for careers.

Canada

Engineering Technicians and Craftsmen are trained by TVET institutions such as community colleges, polytechnics and universities owned by provincial governments. Curricula of Technicians and Craftsmen training are provincial and demand-driven. TVET institutions are equipped and run by provincial governments under the national regulatory laws and coordination by Association of Canadian Community Colleges (ACCC).

Nigeria

A review of the educational programmes of the above countries indicates concern and integration of TVET programmes in their systems at various level depending on their needs. Nigeria could learn from such experiences towards building sustainable TVET programmes.

TVET have several potentials for socioeconomic and technological development of the Nigerian economy in a number of ways. Ladipo, Akhuemonkhan and Raimi (2013) outlined some of the benefits of an effective implementation of TVET to national development as;

1. An effective implementation of TVET could boost the national policy, targeted at poverty reduction, economic recovery and will serve as catalyst for sustainable development.
2. TVET, unlike conventional courses, will provide learners with innovative, creative and hands-on education required for self-sufficiency and self-reliance consequently fast tracking National development.
3. TVET has the potential of tackling unemployment, joblessness, crime and hopelessness in Nigeria.

Looking at the above scenario and experiences from other countries when juxtaposed with national development in Nigeria, you will realize that (TVET) programmes in Universities, Polytechnics, Colleges of Technology Education, Monotechnics, Technical Colleges, Vocational Training Centers, Informal and Non formal technical Education outlets ought to be refocused towards consolidation and sustenance of the prograames adopting some of the following strategies;

1. Harmonizing all stakeholders in TVET programmes

Engineers, Technologist, Technicians, Craftsmen and Artisan should accept their relevance and complementary role to each other in product development, each cadre should value the role it has to

play without prejudice, there should be understanding and unity of purpose instead of mutual rivalry among stakeholders, and same should be extended to the student bodies.

2. Bridging gaps between Industries and society

There should be symbiotic relationship between our industries and our training institutions as a strategy for sustainability. Kudirat (2012), in an Economic Community for West African States (ECOWAS) Workshop on Technical and Vocational Education Teachers in the Region, expressed that the teachers will have to be re-trained periodically to bridge the gap between industry requirements and school training as the industrial requirements are the needs of the society. In addition Adamu, Abdullahi and Ahmed (2009) agitated the need for the review of the technical teacher education curriculum to incorporate the new educational trends that will match the rapidly changing society needs. There are therefore enough yearnings by scholars both within and outside the industrial sector on the technical proficiency of the TVET graduates. The industries should present in good time the details of the type of products the society wants so that relevant plan could be made by training institutions to achieve such requirements in terms of research and re-training of technical human resource.

3. Integrating Entrepreneurial Education at all levels

Entrepreneurship is now introduced in all tertiary institutions in the country. This will certainly empower our students irrespective of their areas of specialization to realize the value of the knowledge and skills they have acquired while in school and such values could be exchanged for money and becoming self reliant in the process. The ability to sale the values acquired is the bottom line in entrepreneurship which one of the objectives of sustainable development.

4. Decentralizing TVET curriculum to accommodate local contents

Equity and access to education could be achieved if the school curriculum which is the live wire for growth and technological development is made flexible to accommodate our different ideological orientations, our technological endowments and our levels of exposure. The philosophy and objectives of our education system should properly capture issues revolving around sustainable national development goals and objectives, and encourage the development of local contents in science and technology curriculum with relevant scientific proof and present the products of such document to the global village, which will make us more relevant as a people.

5. Involving Stakeholders in Curriculum Reviews and Renewals

The dynamics of human society necessitates the need for periodic reviews of the guidelines use in TVET institutions. The essence is to inject sustainable development paradigm and make up in the inadequacies of the document. This should be done by relevant stakeholders after a defined period. The practice of submitting fresh documents for implementation without involving relevant stakeholders in the review process should be discouraged.

6. Integrating the Informal Sector in Training in TVET Institutions.

The informal TVET sector which includes privately owned workshops and other related training outlets, in different field of technical trades could be standardized and be involved in training by our schools as part of the strategies for sustainable development. Arrangements could be made to engage them at specified time. Learners could be periodically attached to them and most importantly they will have the opportunity of being involved in decision making pertaining skill development strategies.

7. Making (SIWES) training Effective

Industries are always reluctant to accept students for Students' Industrial Work Experience Scheme (SIWES), the few Government works departments seem to be out of work. Students posted to such areas end up developing poor attitude to work instead of enhancing their skills, the students end up not learning the required technical competency and other objectives of the exercise this should be seriously addressed to complement our quest for sustainable National Development..

8. Practicing Ideal Democracy

Ideal Democracy is one of the strategies to reduce poverty, Shehu (2013) is of the view that; the key to ending poverty in Africa and by extension Nigeria, is to improve the quality of human resource through responsive democracy and good governance, he also stressed that Africa, Nigeria inclusive cannot

develop without democracy, and democracy in Africa ultimately cannot be sustained without development. Ideal democracies in world always pay attention to education budgets, because they believe that National development hinges on citizens education.

Conclusion

Human beings are at the centre of concern for sustainable development. We are entitled to a healthy and productive life in harmony with nature. The essence of technology and TVET is simply to solve the immediate and anticipated problems of man. Therefore, we should sustain our TVET to conquer our natural environment in harmony with our dynamic needs and consequently facilitating our National Development.

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