

INDUSTRIAL TECHNICAL EDUCATION, TECHNOLOGY AND NATIONAL TRANSFORMATION

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ABSTRACT

Education, especially Vocational and Technical Education, has been acknowledged as the lifeline of industrial development and national economic transformation globally, yet Nigeria as a developing country is still battling with poverty and unemployment problems despite its lofty policy on TVET. This paper looks at the concept and objectives of Vocational and Technical Education programme in Nigerian tertiary institutions and its history. The second section of this paper perceived Nigeria as a developing country that is battling with poverty and unemployment problems, the section therefore emphasized the need to use TVET as a national transformational tool to solve the problem of widespread poverty and unemployment, through giving priority to revitalizing technical and vocational education and training with the priority given to empowering the youths on vocational education. It was emphasized that the nation should focus on the contribution of a revitalized technical and vocational education and training with emphasis on youth empowerment to improve the economic status of the country and welfare of the people. The next section of the paper emphasized the role and importance TVET to rapid industrial development in the country by transforming and empowering the youths with skills, knowledge and attitudes to enable them become productive members of the society. In addition, it will basically combat unemployment and poverty in the society as well as improve the economic performance of the nation. The final section identified the challenges of TVET policies. In order to overcome the challenges of TVET education, the paper recommends among others that the federal government should create more awareness of its existence in Nigerian universities and other tertiary institutions, educate the public of the significance and potential role it plays towards national development and provides adequate funds for its planning, implementation and coordination which will make an impact in the community.

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INTRODUCTION

Technical education "is a planned program of courses and learning experiences that begins with exploration of career options, supports basic academic and life skills, and enables achievement of high academic standards, leadership, preparation for industry-defined work, and advanced and continuing education." And vocational education and training "prepares learners for careers that are based in manual or practical activities, traditionally non-academic and totally related to a specific trade, occupation or vocation." In other words, it is an "education designed to develop occupational skills." Vocational and technical education gives individuals the skills to "live, learn and work as a productive citizen in a global society."

The Meaning of Technical Education

Technical Education (TE) is the aspect of Education which prepares people academically to be engaged in the acquisition and application of science and modern

technology by focusing both on the theoretical and practical application of basic scientific principles. Nigeria's National Policy on Education (NPE) defines Technical Education as "that aspect of Education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge". Therefore, Technical Education has peculiarities and such should be taken cognisance of in order to enhance its effective acquisition. This could be why, Momoh (2005: 3) succinctly states that "Technical Education is not a general education".

Contributing to the meaning of Technical Education, UNESCO/ ILO (2001: 10-11) posit that it includes:

- a. An integral part of general Education.
- b. A means of preparing people for occupational fields and for effective participation in the world of work.
- c. An aspect of life long learning and a preparation for responsible citizenship.

- d. An instrument for promoting sound sustainable development.
- e. A method of facilitating poverty alleviation.

Jean (2003:17) adds that:

Technical Education designates the aspects of the Technical process which in addition to a general instruction, imply the study of a closely related science and the acquisition of practical capacities, attitudes, understanding and knowledge related to trades of a different section of economic and social life. It is not necessarily "Vocational" in the sense of preparing directly for the exercise of a trade or job. This teaching can be part of a study programme in progress with the purpose of graduating to a higher level of studies.

In Momoh (2005:2) clarifies that Technical and Vocational Education (TVE) is a programme of Education organised to prepare the learners for entrance into a particular chosen vocational or upgrade employed workers. It includes such divisions as trade and industrial Education, Technical Education, agricultural Education, distributive Education and home Ed

Hence, Technical Education is broad based and could be relevant to people by training them to be skilled in a way that enables them to be in government or be self-employed as well as teaching them the technological skills which would transform their national economy. On the whole, the benefits of Technical Education are limitless including the lowering of unemployment and enhancing national economic growth.

According to the Federal government of Nigeria (2004), technical and vocational education is a comprehensive term referring to 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, understandings, and knowledge relating to occupations in various sectors of economic life.

In summary, technical and vocational education could be described as:

- (a) An integral part of general education
- (b) A means of preparing for occupational fields and effective participation in the world of work.
- (c) An aspect of life long learning and preparation for responsible citizenship.
- (d) An instrument for promoting environmentally sound sustainable development.
- (e) A method of alleviating poverty.

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From the foregoing, technical and TVE education is a skill development programme which is highly required for the country's quest to be one of the 20st

economic nations of the world by the year 2020. Therefore, the significance of this study is to use technical and vocational education and training as a veritable tool in solving the problems of poverty and unemployment in Nigeria

To enhance technology education in Nigeria, a new system of education known as the 6-3-3-4 was introduced with emphasis on technology and functional education. The ultimate aim of the new education system is to build up a technology culture among Nigerians, an indication that technology has become an instrument for national development.

Historical Development of Vocational and Technical Education

In the course of history, according to Holrnes (2004) "most education came about through participation, preparation for work and adult life happened by interaction, not through training in separate specific institutions". The reason, according to him was that young people took on the tasks of their parents when production remained stable over generations. All they needed to know was what their parents knew i.e. how to till and irrigate the soil, how to stitch a dress, where to fish and hunt, how to feed the herd. He stressed further that in every society, knowledge is power, but as long as the knowledge needed remained local and specific, it could be transferred directly from parent to child. In many countries, the so called "on the job" training is still predominant method for educating the young.

The fundamental change in mode of education has come about as a result of fundamental changes in modes of production. As population diversity increased further, division of labour became beneficial. Rather than inheriting skills, it became more valuable to specialize and learn a particular trade. Such skills could only be learned from masters of that trade, who were not always parents.

Craftsmen and artisans gained professional control through the mastery of their trade, which they could then translate into a form of social control. Holrnes (2004) stated that in Europe, guilds were the results of such re-organization. They also provide the modes for academic institutions – schools and later university. In this process, training for work became increasingly separated from work and often took place in institutions specialized in vocational and technical education. The instruction began to take the form of preparation rather than of participation. ..

Technical Education and National Transformation

Every facet of the economy has been affected by lack of skilled technicians. The financial sector lacks technicians to regulate the banks and to develop financial software to properly tackle the rising fraudulent activities in the banking sector. Without

security development is impossible in a society; no nation can sustain its democracy if the citizens lack confidence in the police. The police violate the citizens' human and civil rights and lack forensic laboratory and fingerprint technicians to conduct criminal investigations. And because of lack of tools to track down criminals there was a shameful episode recently in the society where the police paraded a goat/sheep as a thief. It is only in Nigeria that a human being could transform into an animal. And due to poor training military officers are known to beat up the citizens who challenge their powers; the case of Miss Uzoma Okere and some naval officers is a case in point. The danger posed by environmental pollution and fake drugs is alarming; the less educated in the society lack the skill to manage AIDS, cancer and diabetes among other serious health problems. One wonders what the nation's health minister and the 36 state health commissioners are doing to tackle these issues. Any person who still thinks that leadership is not a major cause of Nigeria's under-developed status is on the wrong side of history.

The neglect of technical education is socially and economically injurious because it is robbing the nation the contributions the graduates would make on national development. For that Nigeria is today wearing the toga of a poor state. Although technical and vocational education seem deficient in 'citizenship or leadership training' (Friedman 1982) it provides students with "life skills" (Alwasilah, February 11, 2002) to become productive entrepreneurs as it engenders creative and innovative ideas, enlarge the economic pie, and increase personal freedom. Most of the so-called "expatriate engineers" who are being paid millions of dollars to build Nigeria's roads and bridges are graduates of technical and vocational colleges. Yet the leaders do not take technical institutions seriously.

Nigeria's current preoccupation with university education reduces economic opportunities of those who are more oriented toward work than academe. Not everyone needs a university education. Awarding licenses to greedy organizations and individuals to establish private universities that are not even as equipped as some of the technical and vocational schools in the United States and other advanced nations cannot develop the society. Because of the sorry state of the nation's tertiary institutions many of the graduates lack "employability" skills, which would easily be acquired from technical and vocational colleges. But who would employ them if everyone is a university graduate?

The federal government recently acknowledged that about 80 per cent of Nigeria's youths are unemployed and 10 per cent underemployed and the Minister of Education, recently noted that the poor quality of graduates is worrisome. Others have urged the youths

to become entrepreneurs and good citizens. But it is not enough to ask the youths to become "entrepreneurs" and reject "social vices" or to be "patriotic" without providing them with skills and financial resources for self-employment or for the public servants to lead by good examples.

Like unemployment, poverty is ravaging the society. It has vastly been documented that more than 80 per cent of Nigerians live on less than one dollar per day. There should be some form of school-work-based learning incorporated in schools in Nigeria as integral part of national development strategy (Dike, July-September 2006). Empowering the people with technical skills would enhance their productivity and national development. Nigeria's poverty alleviation programs have been ineffective because of lack of skills training facilities and social services. In today's knowledge-derived and crisis-ridden global economy one of the ways to spur the economy is to empower the people to tackle the developmental challenges facing the nation.

How Can Revitalizing Technical and Vocational Education and Training (TVET) in Nigeria Help National Transformation?

Skill training enhances productivity and sustains competitiveness in the global economy. Worldwide countries are renewing efforts to promote technical and vocational education and training, this is because it is the only way to prepare young people for world of work, which reaches out to the marginalized and excluded groups to engage them in income-generating livelihoods. High unemployment has been leading to increasing poverty and serious social problems in Nigeria: coincidentally there has been a decline in TVET enrolments (EFA, 2000). Less than 1 percent of secondary schools was oriented towards technical and vocational skills. Therefore there is the need to revitalise TVET as the best means to improve economic opportunities for the teaming youths of Nigeria. It is in recognition of this, that government has gone into agreement with the UNESCO's section for technical and vocational education through the National Board for Technical Education (NBTE). Currently NBTE is implementing a project that aims to better equip large numbers of young Nigerians for a world of work. A cost sharing agreement was therefore signed in 2000, between UNESCO and Nigerian Federal Ministry of Education to revise the curricula for secondary technical colleges and post secondary polytechnics and established a new system of continuing technical staff development and training, (EFA Reports,200). But still the Nigerian government need to do more in view of the enormity of the problem

Technical and Vocational Education for Sustainable Development

Education in whatever form, is aimed at modelling a child or the individual into a better person relevant to

his immediate environment. Sustainable development cannot be achieved without education. Development is a process where an economy undergoes social and economic transformation leading to a rise in the standard of living, access to basic amenities for all through knowledge. Sachs (2004).

It is in recognition of the above concept of development that TVET in empowering youth for poverty alleviation should be given utmost priority by government, having in mind the future consequence and task ahead for sustainable development. The future prospect and success of TVET would depend on the continuation and expansion of the existing training programmes, and strengthening the existing cooperation both national and international, as well as by starting non-formal training programmes for the unemployed youth and the community at large as part of government poverty alleviation efforts toward sustained welfare of the youth and development.

Youth Empowerment and Sustainable Development

Though TVET can be a decisive instrument for youth to participate in the work force and to improve their living conditions and social status, yet the current preoccupation with the university education in Nigeria reduces economic opportunities of those who are more oriented towards work than academe, not everyone needs a university education, but who would employ them if everyone became a university graduate?

Graduates of vocational and technical institutions are the empowered youths, they are highly skilled entrepreneurs, many of the so called "expatriate engineers" who are being paid huge sum of money in dollars to build roads and bridges in Nigeria are graduates of vocational colleges, yet Nigeria is not taking this sector seriously. Youth empowerment by TVET education is therefore a sure means to aid sustainable development if utmost consideration is given to the sector.

TVET Education and Poverty Eradication

The way the production forces in the economy are organised, determines the development process of any country, for most countries, the development of industry depend greatly on the private sector, with entrepreneurship playing a major role. Entrepreneurship is the capacity and attitude of a person to undertake venture, with a risk or failure. It demands that the individual be prepared to assume a reasonable degree of risk and a good leader in addition to being highly innovative. Since entrepreneurship involves leadership, leadership abilities determines a person's or organisation's effectiveness, the entrepreneurship could become a major avenue to accelerate economic growth create job opportunities, many youths aspire to become a successful entrepreneurs, but their ability to make use

of their skills remain constrained if they are not empowered.

At the policy level, TVET plays a critical access and equity role in achieving employment for youth, managing work/life balance, and providing citizenship and parental skills for youth. Therefore, expanding TVET is integral for youth in crisis or post conflict situations, tackling poverty, and promulgating cultural inclusion for tolerant peaceful society.

The youths through TVET education are encouraged to assume entrepreneurial position, as there is nothing that can surpass the effectiveness of hands on training. (Alwasi, 2002) Through TVET the youths who are full of fresh ideas ingenuity can build up confidence resourcefulness and experience early in life, so that these youths can begin to change the society into a bloomy economy thereby eradicating poverty

Challenges in Implementation of Technical Education

Many issues affect the full achievement of the goals of implementing technical education in Nigeria in terms of the man-power (Students/Staff) input to the system, Vocational and Technical Education programme in Nigerian universities would have been more than what it is today, but due to some challenges it faces, it has not attained the height its desires as compared to its counterpart in other countries of the world. Among the challenges it faces are:-

According to Mohammed (2005), one of the problems of Technical and Vocational Education in Nigeria is the lack of motivated teachers and the reason for this lack of motivation could easily be traced to the low esteem of the lecturers. Indeed, many lecturers in Polytechnics have developed a sort of apathy towards their work that is appalling. Some of them have accepted to remain second place so that it is not strange to find a good number of them who have failed to enjoy routine promotion for about fifteen years because they lack the additional qualification of a related Master's degree and or the requisite number of journal publications needed to forge ahead.

Nonetheless, the lecturers with low self esteem may not be completely to blame considering that Yakubu (2003:13) succinctly says "very few personnel in the sector are able to interact either nationally, regionally or internationally with others because of the paucity of funds and sponsors".

Federal Government of Nigerian has not come to appreciate the contribution of Vocational and Technical Education programme to national economic development even though it is a tool to

combat unemployment and poverty in our societies. This is because successful governments have not found it necessary to adequately finance both the planning and implementation of standard and sustainable vocational and technical education programme in Nigerian universities. In support of this statement, Okorie (2001) said that insufficient finance is a realistic and practical factor inhibiting the implementation of vocational and technical education programme in Nigeria. The priority of the Federal Government of Nigerian in education sector is holistically on science education. Too much noise is made on the pages of papers and television about vocational and technical education, but little is done to improve the teaching/learning of vocational and technical education programme in Nigerian universities.

The lack of funds on the other hand affects other essentials needed in the implementation of technical education like the provision of teaching aids, furnishing of offices, laboratories, and workshops and even basic infrastructure like classroom, seats and tables. One might wonder at this claim considering that the Polytechnics undergo accreditation in order to ensure that they comply with the minimum acceptable standards of the NBTE. Nevertheless, anyone opportuned to encounter another assertion of Yakubu (2002) that Polytechnics are bedeviled by another factor identified as lack of internal self evaluation or internal quality assurance mechanism that would have been responsible to monitor compliance with minimum standards requirement on continuous basis.

He therefore claims that standards often tend to decline after the accreditation visits rather than be "maintained or improved upon" as expected. It is not an exaggeration to say that in order to meet the accreditation requirements, institutions and departments sometimes stage manage their facilities and even personnel all of which disappear to the rightful owners as soon as accreditation is over..

CONCLUSION

Improved industrial efficiency and productivity are important topics of a country's development strategy. To achieve these, the government, industry, and education sector must work together and develop an industrial system with a modern technological base and a world class workforce.

The promotion of technical and vocational education and training for industrialization, economic development, wealth creation and poverty eradication demands policies and strategies that address the cross-cutting issues of quality and relevance of training, employability, collaboration between training institutions and employers, accreditation of training providers (in the formal, non-formal and informal sectors), assessment, certification, internal

and external quality assurance of training programmes, funding, and instructor training. This calls for a TVET system that is competency-based and employment led, with proficiency testing of learners and s as proof of competence. TVET should also be seen and acknowledged by all stakeholders as a valid passport to a well-paid job or self-employment or higher education and not as an alternative educational opportunity fit only for early school leavers, the less academically endowed or the poor.

Finally, the point has to be made that technical and vocational education and training alone by itself does not lead to rapid industrialization, or provision of jobs or eradication of poverty. Good government policies do all three. National governments therefore, need to create an economic environment that promotes the growth of enterprises and generally stimulates the economy. When businesses develop and expand, additional labour-market demands for technical and vocational training emerge, and new job and further training opportunities are created to trace and light the path of industrialisation. For this to happen on a sustainable basis, however, the TVET system must be labour-market relevant, equitable, efficient, and of high quality. This is the challenge that African governments and training institutions must rise up to.

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