

## TECHNICAL EDUCATION AND ITS CHALLENGES IN NIGERIAN TERTIARY INSTITUTIONS: THE WAY FORWARD

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### Abstract

*It is obvious that the technical education deals with the training of technical personnel for the purposes of initiating, facilitating and implementing the technological development of a nation and also to create the basic awareness of technological literacy to our youths. In Nigeria, the training of technical personnel has witnessed formidable challenges ranging from poor funding to inadequate facilities both quantitatively and qualitatively, non-availability of adequate human resources, brain drain and poor staff training and retention profiles. Others include weak university/industry partnership, defective curricula, traditional approach to teaching, poorly equipped laboratories, poorly monitoring standards for the training of prospective technologists and an inadequate ICT environment. This paper critically, examined how Nigeria has not attained the desired standard of technological literacy and suggests ways of improving the teaching and learning of technical education programme with enhanced enthusiasm and vibrancy.*

### Introduction

Technical and vocational education (TVE) has been an integral part of national development strategies in many societies because of its impact on productivity and economic development' Uwaifo, (2010). Despite its contributions to the nation, the leaders of Nigeria have not given this aspect of education the attention it deserves. And that it is one of the reasons for the nation's underdevelopment. This article focuses on the dearth of skilled technical manpower in Nigeria and maintains that technical education holds the key to national development.

Technical education is the training of technically oriented personnel who are to be the initiators, facilitators and implementers of technological development of a nation by adequately training its citizenry on the need to be technologically literate, leading to self-reliance and sustainability. Technical education, more than any other profession, has more direct impact on national welfare. Technical education contributions are widespread and visible ranging from metalwork technology, automobile technology, electrical and electronic technology, building and woodwork technology etc. Consequently, Uwaifo, (2010) concluded that 'Technical education can serve as change agent, not only for technical systems, but also for many other societal changes'.

The practical nature of Technical education makes it unique in content and approach, thereby requiring special care and attention. The inputs of Technical education are so visible to the extent that even an illiterate could see when 'failures' occur. It is observed by De Miranda, (2004) and Coffield,

(2008) said that 'Technologists are supposed to solve societal problems in sustainable ways'. For them to do so, they need to be sufficiently informed in technical education concepts and the application of its theoretical principles to practical problems. The desire of the stakeholders to achieve this has been met by lots of challenges. The inability to tackle the challenges over the years in Nigeria has put the citizenry at a low level in technology and has perpetually made Nigeria a developing nation. Based on this assertion, Coffield, (2008) also lamented that 'The difference between developed, developing and undeveloped countries rests on the ability of the developed countries to convert scientific ideas to useable technology while the developing and underdeveloped countries are yet to effectively do so', these suggest the need to overhaul technical education curricula in the Nigeria.

### Major Challenges in Technical Education

The challenges mitigating the training of technical education are many but a few of the major ones are highlighted below:

### Funding of Vocational Education

As has already been maintained, the funding of education generally is supposed to be the responsibility of the various tiers of government. However, because of the enormous cost implications, the blue print on education (2004) states that: 'The financing of education is a joint responsibility of the Federal, State and Local Governments and the private sector'. In this connection, government welcomes and

encourages the participation of local communities, individuals and other organizations.

This is particularly true for vocational education. Nigeria as a nation generally needs to actually invest more on vocational education; not just on paper but in practice.

Tertiary institutions in Nigeria are mostly owned by the Federal and State governments and recently by Private individuals. The Federal and State governments' tertiary institutions rely predominantly on the governments for funding while the private universities obtain their incomes from the fees they charge the students. Uwaifo, (2010) observed that 'Other sources of revenue of tertiary institutions are endowments, investment income, grant and gifts'. Over the years, governments' subventions to tertiary institutions have never been adequate but at the same time governments maintain the policy that tertiary institutions should not charge fees it deemed adequate to complement the financial effort of the Government.

The African Human Development Department, (2006) categorically stated that:

*In Nigeria, the allocation to education as a share of Gross Domestic Products (GDP) has drastically increased since the inception of a democratic government in 1999. Then, the Federal Ministry of Education's recurrent budget was 38.3 billion Naira in 2006; the Ministry was authorized to spend 129.2 billion Naira. The real value of the 1999 budget expressed in 2006, the purchasing power was approximately 84.6 billion Naira. With this therefore, the purchasing power of the Federal Ministry of Education increased by about 53% over eight years.*

Also in 2010 The Education Rights Campaign (ERC) rejected the 2010 appropriation bill passed by both houses of the National Assembly as it failed to address funding of vital social services most especially education. Therefore, it called on the then Acting President Good luck Jonathan not to sign the 2010 appropriation bill into law until the allocation to education was increased by 26% as recommended by UNESCO. According to a breakdown of the budget, the sum of N295.3 billion representing about 6.4% of the budget has been allocated to education. It is recognized that the sum was slightly bigger than President Umaru Musa Yar' Adua's initial proposal, which was N249 billion (6%), it was still not enough. However, because of the increase in the demand for technical education and existing high decadence in

the infrastructure, the little effect of the increase in funding could not be noticed substantially. Till date, Government funding of technical education programme has not been impressive as this is a reflection of the nonchalant attitude of the government towards the programme.

### Facilities

Most technical education departments in Nigerian tertiary institutions do not have laboratories or workshop space let alone usable equipment and facilities and where they exist, they are grossly inadequate, as the laboratories, only have the equipment that were provided when the departments were established. It is however most surprising to know that most technical education departments still depends on engineering workshop and lecturers to teach technical education concepts in this century Rowh, (2008). This is a total shame and a high degree of irresponsibility on the part of the operators of this programme. The available facilities of programme as at today, are inadequate quantitatively and qualitatively and besides, they are obsolete. Rowh, (2008) indicated that 'only 40% of Institutions of Higher Education in Nigeria have laboratory or workshop space for technical education programmes. The laboratories only have the items or equipment that was provided when the tertiary institutions were established.

'The others, 60%' also observed 'do not have laboratory or workshop space and that this reflects the low quality of technology programmes in higher institutions'. He further noted that 'the few tertiary institutions that have laboratories experience acute shortage of laboratory equipment and supplies'. Rowh, (2008) concluded that

*'This situation is partly responsible for the reason why it has been increasingly difficult to run experiments effectively for students and made the teaching and research in science and technology difficult and therefore the country was producing insufficient and ill-prepared technical education graduates necessary for driving the technological and socio-economic development of this nation'.*

The inadequacy in teaching materials, laboratory and workshop facilities have contributed to the diminution of the quality of technical education graduates in Nigeria.

There is also the dearth of ICT facilities for the training of students. The high cost of computer and teaching aids ownership is a major constraint to acquisition of the items. Access to affordable and reliable internet connectivity is only available in a

few institutions, faculties and offices, even then, power fluctuations have considerably reduced the reliability of the access and inadequate bandwidth also makes access difficult.

### Brain Drain

In the context of this paper, brain drain refers to the movement of lecturers of technical education which are needed for the socio-economic and technological advancement of Nigeria from one tertiary institution to other tertiary institutions or to other profession (including politics) calling for better conditions of service. Lauglo, & Maclean, (2005) identified five different components of brain drain:

- (i). Experts in academics who moved to the industry where they get better pay for their services.
- (ii). Lecturers and students who leave the country to acquire more knowledge and skill but later refused to return.
- (iii). Lecturers who moved to one country for better conditions of service.
- (iv). Skill professionals who abandon the practice of technical education in favour of other more lucrative economic activities and political appointments which are not related to their training.

v). Skilled professionals, although in their field of training, who do not devote their full attention to their job because of their efforts to supplement their earnings through other unrelated economic activities. In the 1970s, Nigerian tertiary institutions were able to attract experts from other countries e.g. India because; the economic conditions then were favorable. But with down turn of the economy and consequences of the ineffective efforts of the government to resuscitate it, this resulted in the return of the foreigners to their countries and exodus of their Nigerian counterparts from the shores of Nigeria in order to earn a better living. Bassi (2004) reported that:

*'About 45% of all Nigerian Professionals including technical educators have left the Nigerian shores over the decades since colonization and between 1997 and 2007 alone, Nigeria lost over 10,000 middle level and high-level managers to the western economies, about 500 Lecturers from Nigerian universities continue to emigrate each year, particularly to Europe, America and other African countries where the condition of service is relatively better. These Nigerian in diaspora contribute 35 times more wealth to Europe, American and other African economy'.*

### Staff Training and Retention

The training of academic staff is ordinarily a continuous exercise to ensure consistent improvement in the quality of their outputs. The training is in two-fold: training to acquire minimum qualification to teach and continued professional training. Both types of training can be acquired either locally or overseas. Usually, local training within the nation is cheaper than overseas training but more strenuous because of the inadequate facilities, literature and distractions arising from the need to meet the necessary demands Uwaifo (2010).

Overseas training requires a lot of foreign exchange but the enabling environment exists to achieve success in a record time. However, over time it has always been difficult to get the trainees back to their respective countries after the completion of their study (Olunloyo, 2002). In the 70s the Nigerian universities were able to recruit foreigners and retain them and the indigenous academic staff because of the low exchange rate. Then, one US dollar (\$1.00) was equivalent of seventy kobo (70k). But now that a dollar (\$1.00) exchanges for one hundred and sixty two naira (N162.00) or there about provides good attraction to move out (Olunloyo, 2002). This is not to say that salary is the only issue, self fulfillment in terms of output via research efforts is also part of the driving force. The salary and service benefits paid to technical education teachers in Nigeria is about the lowest in the world and because of this, they migrate to other countries especially the United States of America, or local industries (NNPC etc) for better pay. Academics from within and outside Nigerian also migrate to Botswana and South Africa and some Asian countries because of high wages they pay to the academics and the relatively better equipped laboratories (Uwaifo, 2010).

### Staff situation

Many tertiary institutions across the country are inadequately staffed both qualitatively and quantitatively. In most departments especially in technical education programme, the proportion of staff without requisite qualifications out numbers those with requisite qualifications. Uwaifo (2005) asserted that it is rare to get people trained to the level of PhD because academic is not as attractive in commensurate to the effort, commitment and finances put in to acquiring it, whereas a first degree graduate can function well in the industry and politics etc and earn good money.

In order to spur locally needed Science and Technology activities, it is imperative that Nigerian governments should seriously consider proper retention schemes for their best talents by providing special working conditions including income

supplements and adequate research supports to stem this problem of brain drain.

### The Curriculum of Technical Education

Camenson (2008) observed that 'Vocational education curricula in most cases have been criticized as being either too academic, certificate-crazy or theory based with very little proportion of the content given to practice or field works'. From the observation, the quality and quantity of indigenous textbooks in vocational education courses are rather poor. Some of the said textbooks do not have accompanying workbooks to facilitate practical work. Some of the books are sub-standard and poorly written. Foreign textbooks are very scarce and even when they are available; they are not only expensive but not very relevant to the Nigerian situation.

The curriculum of a subject with practical content is generally organized into an average of 67% for the theoretical classes and 33% for laboratory. Students also use the laboratory to develop case examples on their own time. Olunloyo (2002) noted that 'one of the issues confronting the design of appropriate curriculum for technical education is preparing students for the shift from the fordist to ICT paradigm in technology practice'. The slow pace of industrialization and technological growth in Nigeria may be attributed to the widening gap between Science and Technology as a result of inability of technical education programme to adequately utilize the scientific-ideas to promote technology.

The overhauling of the curricula may not necessarily translate to the production of highly literate technical education experts or ready-made graduates for the industry which may result in rapid industrialization or growth in the economy of a nation unless solutions are proffered to some constraints that may militate against positive outcomes, but will adequately equip our youths with the relevant skills needed for their day to day living. Olunloyo (2002) pointed out that the problems associated with the current curricula can be seen as follows:

- i. They are based on a foreign model which has evolved under ideal conditions (staff, equipment, infrastructure, training opportunities, etc) that are not easily replicated in developing countries.
- ii. There is usually a shortage of highly competent indigenous teaching and support staff with sufficiently wide practical experience of technology.
- iii. There is basically lack of textbooks in this area and most of the available textbooks are often illustrated with examples from outside the local environment and which are irrelevant to the particular country.

- iv. The curricula are adjudged to be too academic and overloaded with intellectual content in pure science and mathematics at the expense of basic engineering and technology.
- v. Inadequate provision for humanities, social sciences, business management concepts and entrepreneurship skills development, because of the inadequate preparation of the students for the industry, some employers retrain the graduate to make them productive in their organizations.

The teaching approach follows the conventional method of transferring knowledge across through the lecturer reading out to students, who would then take down notes. The educational system continues to place considerable value on this method of teaching. Lauglo & Maclean, (2005) indicated that in Nigeria 'there is need for a total overhauling of the educational system and that in many fields course work available only lead to rising unemployment, poverty and misery'. He concluded that 'the situation could only be curbed if syllabuses were innovated, re-engineered or re-designed to include disciplines that build up the fighter-spirit needed for today's ineluctable battles of life'.

### Conclusion

Based on what we have discussed the Technical education deals with the training of technical personnel for the purposes of initiating, facilitating and implementing the technological development in a nation and also to create the basic awareness of technological literacy to our youths. But in Nigeria, such training has witnessed challenges that prevent Nigeria from attained the desired standard of technological literacy and skills by improving the teaching and learning of technical education programme with enhanced enthusiasm and vibrancy.

### Recommendations

For progress to be made in Nigeria the challenges confronting technical education must be recognized and fought vigorously. Adequate resources should be allocated to the programme in order to achieve positive outcomes. A comprehensive reform toward technical education and a deliberate attempt to uplift the programme is the only panacea to technological ender ado in this country. It is pertinent that government remains the major financier of education. However there is need for philanthropic organizations, private company's non-governmental organizations (NGOs) and individuals to get more actively involved in vocational education if the nation is to make headway in this direction.

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