AN ASSESSMENT OF NIGERIA'S GOALS ON TECHNICAL EDUCATION: THE JOURNEY SO FAR AND THE WAY FORWARD

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ABSTRACT.

Nigeria is presently concerned with developing educational policies that will transform her status from a developing to a developed economy. The acquisition of technical education is possible from secondary to tertiary levels of the country's 6-3-3-4 education system. At tertiary levels, Universities, Polytechnics and Monotechnics have been in place for the intended technical growth. However, at the end of 2006, the Nigerian Federal Government announced the conversion of all Polytechnics to Universities. Following this development, this paper explains the goals of technical education in Nigeria as well as strategies for the implementation of these goals and its constraints. This paper welcomes the development of the conversion of the Nation's Polytechnics to Universities but cautions that the change may not be smooth because, naturally, some of the people affected may resist it and therefore, some recommendations are proffered that would aid a smooth conversion of Polytechnics to Universities.

Introduction

Many countries around the globe are concerned with developing and improving their technical expertise through a suitable national education policy. The situation of Nigeria is not different. Infact, it could be said that Nigeria is now desperate in her bid to change her status from that of an underdeveloped to a developed economy. To achieve this stride, Nigeria has in place a supposedly enabling education policy. The secondary and tertiary levels of the nation's 6-3-3-4 education policy have the particular mandate of effecting the change in Nigeria's economic status. Universities, Polytechnics and Monotechnics have been the institutional structures meant to enhance Nigeria's Technical growth at the tertiary level.

The Polytechnics became strengthened in 1985 by a decree and enrolments into them were specified to be 70% for science and technology related courses and 30% for business related courses for students' acquisition of middle level technological manpower.

However, between then and now, much has happened and at the end of the year 2006, the federal government of Nigeria made a pronouncement scrapping all the Polytechnics nationwide irrespective of whether they are federal or state government owned, or even private. The pronouncement stated precisely that two of the Polytechnics, namely Yaba and Kaduna Polytechnics would transform

into autonomous Universities of Technology while all the other Polytechnics would become University campuses of existing Universities that are closest to them.

This development has been received with mixed feelings and this paper has the objective of re-examining the status quo vis avis the incoming change with a view to seeing how the change could be enhanced towards the achievement of the much desired Technical advancement. This paper enlists the objective to:

- Explain Technical Education.
- Highlight the goals of Technical Education in Nigeria.
- Discuss the strategies for implementing the goals
- Discuss some of the constraints in the implementation of Technical Education.
- Examine the way forward for Technical Education in Nigeria.
- Conclude.
- Make some recommendations

1.0 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.

The above quotation brings out the claim that Technical Education is not necessarily vocational and this seems to be the situation in Nigeria sometimes. However, both Technical and Vocational Education are closely related as one leads to the other. Concerning this Bjorkquist as cited 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 Education

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.

2.0 The Goals of Technical Education in Nigeria.

Apart from the Universities, the Polytechnics or Colleges of Technology and Monotechnics are the post secondary/ tertiary level institutions for the training of technicians/ technologists. The Polytechnics operate a two-tier programme of studies broken into the National Diploma (ND) and Higher National Diploma (HND) levels. Students that have completed an ND programme compulsorily undergo a minimum period of one year industrial experience as a pre-requisite for entry into HND programmes. The Polytechnics or similar institutions are many in Nigeria. Yakubu (2003) reports one hundred and six (106) Polytechnics/Monotechnics recognised by the National Board for Technical Education (NBTE). The NBTE was established in 1977 as an outcome of Nigeria's third national development plan to coordinate and advise on the aspects of Technical Education falling outside the Universities.

The Polytechnics/Monotechnics fall under varying proprietorship. They are either federal government, state owned or privately owned and the expectation from the federal government is for all of them to enjoy NBTE accreditation. Being NBTE accredited ensures uniformity of practice and the maintenance of quality assurance with regards to ensuring institutional relevance of curriculum and maintaining an acceptable standard of practices. Accreditation is usually subjected to renewal after a period of five years. Also, regardless of the status of the technical colleges, for instance, whether a Poly or Monotechnic, and

proprietorship they are saddled with the achievement of the same goals as spelt out by Decree No 16 of 1985 and as captured by Momoh (2005: 3-4) to be:

a. The provision of trained manpower in engineering, applied science, technology and commerce at all professional grades.
b. The provision of technical knowledge and vocational skilled necessary for agriculture, industrial, commercial and economic development.
c. The provision of qualified and and well equipped personnel to apply scientific knowledge to the improvement and solution of environmental problems for use and convenience of man
d. The introduction of professional studies in engineering and other technologies.
e. The provision of training to impart the necessary skills leading to the production of craftsmen, technicians, technologists, engineers and other skilled personnel who will be enterprising and self reliant.
f. Enable men and women to have an intellectual understanding of the increasing complexity of technology and the role technology plays in the world around them.

Commenting on the goals of technical education, Momoh (2005: 4) opines that the goals could aid to raise the development and dignity of people irrespective of their deferring degrees of educability in these ways:

- Helping them to enter and find rewarding places in the world or work.

- § Enabling them to advance economically and socially by virtue of their capability, and
- § Enhancing their sense of individual adequacy through release and exercise of creative impulses latest within them.

The foregoing, no doubt, lends claim to the relevance of technical education to societal and individual lives.

3.0 Issues and Strategies for Implementing the Goals of Technical Education.

Constitutionally, the Universities and Polytechnics/Monotechnics in Nigeria are at par; they are all tertiary level institutions of learning. The Bachelor of Science degree (Bsc) earned from Universities and Higher National Diploma (HND) earned from the Polytechnics are equivalents. Both Bsc and HND holders spend at least five years in school and undertake the National Youth Service Corps (NYSC); a compulsory one year service to the federal government of Nigeria.

However, this parity does not go further than the aspects mentioned above. HND graduates for instance, are not admitted into a Masters of Science (Msc) programme until they have acquired an additional qualification to their HND. Also, graduates of Polytechnics are not placed on the same salary level and step

even in the Nigerian Federal and State civil services. The Bsc holder's salary is always higher. Furthermore, the HND holder is discriminated against by some professional bodies in their registration. At this point, one wonders if all these disparity could be the result of the difference in the entry qualification into the Polytechnics which is four Credits instead of the five credits for the Universities and the different examinations taken to gain entry into the University or Polytechnic.

Similarly the lecturers in the Polytechnics have an equally fair share of discrimination, they cannot rise above the level 14 of their own salary structure which is different from those of their University counterparts and who can rise to level 15 of their salary structure. The senior lecturer cadre of Polytechnics is paid a salary of level 12, while his counterpart in the University is paid the salary of level13. The Polytechnic lecturer can not earn the title of professor and he only grows to the rank of chief lecturer.

As a result, both graduates of Polytechnics and their lecturers are accorded a low esteem both by individuals and society so that schooling and working in the Polytechnic is considered secondary, after attempts to gain admission into or employment in Universities have failed.

Such a situation was unacceptable and hence necessitated several outbursts from stakeholders who from time to time suggested strategies to address the

situation. Suggestions like the harmonisation of Polytechnic and University entry qualification, adoption of a single matriculation examination for students seeking admission into all tertiary institutions in the country, call on government to approve HATISS 15 for Polytechnic staff, the correction of the anomaly of the non registration of Polytechnic graduates by some professional bodies, a call for parity in career progression for HND and first degree holders, the removal of the disparity in the designation of Polytechnic graduates form being called technicians or instructors but called lecturers like their University graduate counterparts, and the removal of any form of discrimination between Polytechnic graduates and lecturers and their University counterparts. (Yakubu, 2003; Onjewu, 2005 ; Momoh, 2005).

4.0 The Constraints in the Implementation of Technical Education.

Apart from the issues as aforementioned which 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, several other constraints have been identified.

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".

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 so that it is now a common sight to find students of architecture for instance sharing a table where each ideally should have one because of the technical nature of their course. 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: 8) 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.

The goal of technical education specified in 2f above is suggestive of equal opportunities for gender enrolment in technical education however what obtains is far from that. There is rather a general imbalance in students enrolment at all levels of technical education, including the Polytechnics. (See table 1 below)

TABLE 1: POLYTECHNIC ENROLMENT DISTRIBUTION BY SEX (2000/2001)

PRE-ND			ND			HND			GRAND TOTAL		
M	F	MF	M	F	MF	M	F	MF	M	F	MF
25,295	12,205	37,500	57,608	42,429	100,037	28,565	19,978	48,453	111,468	74,612	186,080

SOURCE: Federal Office of Statistics Annual Abstract of Statistics 2001 Edition.

The detail in the table suggests the yearly trend in enrolment into the Polytechnics. It could be seen from the table that at all levels of the Polytechnics, males are more than females in enrolment.

Similarly, in response to a questionnaire item in a survey done by Onjewu (2003), most of the respondents who teach Technical and Vocational education were unanimous in their claim of having more males than females in their classes (see Table 2 below):

TABLE2: AVERAGE ANNUAL ENROLMENTS IN EDUCATIONAL INSTITUTIONS IN NIGERIA

S/NO	TYPE OF INSTITUTION	NUMBER	AVERAGE ANNUAL ENROLMENT
1	Primary Schools	40,000	16,000,000
2	General Secondary Schools	6,000	4,000,000
3	Technical Colleges	146	49,000
4	Colleges of Education (Technical)	46	62,640
5	Monotechnics	8	9,360
6	Polytechnics	57	169,591
7	Universities	46	315,850

SOURCE: Federal Office of Statistics Annual Abstract of Statistics 2001 Edition.

This problem may not be unconnected with the belief of most people that technical courses are reserved for males because they are labour intensive or simply viewed as too masculine in orientation for women to engage in.

Also, there is the constraint of inadequate lecturers to teach even the few students in the institutions so that the ratio of lecturers to students is as high as 1:41 and above sometimes (see Table 3 below).

TABLE 3: COMPARATIVE ANALYSIS OF ENROLMENTS IN POPULAR BUSINESS COURSES WITH CORE ENGENEERING COURSES, (Percentage of Total Enrolments in Polytechnics).

S/NO	PROGRAMME	1996/97	1997/98	1998/99	1999/00	2000/01
1	Accounting/Financial Studies/Banking and Finance	26.2	28.1	26.9	26.9	30.9
2	Business Administration and Management Studies	20.3	21.2	20.3	18.3	18.7
3	Marketing/Purchasing	3.9	4.0	4.0	5.7	6.3
4	Secretarial Studies	5.2	4.9	5.4	4.7	5.0
	Sub Total	55.6	58.2	56.6	55.5	60.9
5	Electrical Engineering Technology	5.2	4.9	5.9	5.6	6.3
6	Mechanical Engineering Technology	3.4	3.9	3.8	3.9	3.8
7	Civil Engineering Technology	2.1	1.9	2.4	2.2	2.6
8	Agricultural Engineering Technology	1.1	1.0	0.7	0.5	0.6
9	Chemical Engineering Technology	1.1	1.0	0.6	0.6	0.5
	Sub Total	12.9	12.7	13.4	12.8	13.8
	Total Enrolment	178,456	192,699	175,518	197,440	186,080

SOURCE: National Board for Technical Education

This ratio is unrealistic if the lecturers are to put in their best. This problem could be traced to the fact that even the products of technical education are unwilling to return to the sector because of the general imbalance in the working conditions of lecturers and their colleagues in the banking and oil sectors, for instance. Generally, many Nigerians who have qualifications in the sciences prefer to work in the industries where there are better working conditions and incentives like access to good medical facilities, a well furnished office/residence accommodation, official vehicles, access to different types of loans, special

packages like the provision of food stuff and even clothings at festive periods and lots more.

The system of admission into Polytechnics and Universities by quota according to states is another hindrance to the access of students to technical education. The quota system of admission into tertiary level of education in Nigeria was evolved in order to correct the imbalance in people's general access to education. It was thought that some states were disadvantaged compared to others in terms of their educated members. Conversely, the practice of quota according to states has brought about new sets of problems relating to inequity in access to education. Ideally, everyone is supposed to have equal rights to education where there is equity but what rather obtains is that one candidate is denied admission to study a course even though he has the qualification while the quota for another state remains unfilled or is given to people of that state who are not qualified and who may eventually either drop out or perform very poorly at the end of the day. This problem of inequity to access to education is significant because it now enjoys global attention and the moves to eradicate it.

Another constraint faced in the education sector has to do with the lack of collaboration between learning institutions and related industries. The prevailing situation makes it impossible for the learning institutions to know the manpower needs of the industries with a view to meeting their manpower requirements to know their particular operations

so as to design appropriate course contents that would be relevant to meeting their specific technical know how and operations, establishing a kind of rapport that accords students easy access to industries for attachment programmes or to carry out practicals and for lecturers also to have an easy access to industries to update themselves with current developments in the industries to be better equipped to impart on the students, have places to go on sabbaticals rather than to other learning institutions and many more. The current practice of non collaboration between learning institutions and industries also makes it difficult for the industries to be relevant to their communities by way of sponsoring some projects in the institutions, the award of grants and scholarships to the students and lecturers among other things which could lead to academic excellence of both the students and lecturers on the one hand and accord fame and relevance to the industries on the other hand.

A further constraint experienced in the implementation of technical education is in the general non compliance of Polytechnics to the approved enrolment ratio of 70:30 between science/technology and business/management courses. Infact the reverse is the case for many reasons, including the need to raise more revenue internally, for which some Polytechnics triple their admissions into the business/management cluster under the disguise of consultancy admission.

Despite the plausible strategies that have often times been suggested to overcome these constraints, this paper is of the view that no set of suggestions

earlier proffered by any single stakeholder can make the anticipated adjustments to set Nigeria once and for all on the right footing to technological education as the recent pronouncement by the Federal Government of Nigeria that all Polytechnics nationwide would transform to either autonomous Universities or University campuses.

5.0 The Way Forward

After the pronouncement of the Federal Government, a decree followed and arrangements are ongoing for the transformation of all Polytechnics in Nigeria into Universities and University campuses. This paper welcomes the development and posits that it is the single development necessary to correct many of the anomalies that have been bedeviling the successful implementation of Technical Education. Even so, further home work must be undertaken so that the conversion is effected as soon as possible rather than the delay being experienced. In view of the fact that the University system is not perfect, solutions to the existing problems in the Polytechnics should be sought so that the problems in the Polytechnic sector do not again rear their ugly heads in the Universities. By the time we cease to have Polytechnics in Nigeria all the problems of non parity between Polytechnic and University lecturers and that between Polytechnic students and their university counterparts in terms of difference in rank, certification, status, designation and recognition would be

over. All the same, this may not mean that we would have a perfect education system thereafter.

6.0 Conclusion

The journey towards technological advancement has begun in Nigeria and must be sustained. The many constraints on the way are surmountable only that they may be difficult in the situation where there are many people involved having varying interests. At present, some achievements have been made which do not correspond with the time and financial investment. This, all the same, is not to discourage us, since Nigeria must continue the journey. She must increase her stride and aim to arrive soon because indeed, she has the potentials and resources for a successful arrival.

7.0 Recommendations.

The orientation of Polytechnics is not exactly the same as that of the Universities. Even, no two Universities or Polytechnics have the same orientation. The transformation/conversion of Polytechnics to Universities imply change and many people are not positively inclined to change, so the development itself may result to a new crop of problems at which we should begin to look. The following recommendations may also be helpful:

- New guidelines for staff development should be evolved and lecturers given a period of grace to improve themselves.

- The inadequacy of infrastructure and other essentials in learning are common to even existing Universities and would only be overcome with conscious efforts on the part of government through improved funding to all Universities and the institution of a machinery to ensure that such funds are judiciously used. The personnel who engage in monitoring the judicious use of funds should be thorough and disciplined enough to know when the situation on ground has been stage managed and should not compromise standards for any reason.
- Accreditation and re-accreditation of all programmes of studies must be routinely and thoroughly carried out apart from the institution of an internal, institutional mechanism to enhance compliance to NBTE standard in between formal accreditation visits.
- All Universities should put in place a general orientation of Nigerians to evolve a better maintenance of school facilities.
- Government should institute measures that will enhance gender balance in our Universities through public enlightenment and the giving of some incentives as encouragement.
- Compliance to the 70-30% ratio for admission should be enforced. The enrolment ratio of at least 70:30 between science/technology and business/management programmes should be ensured by institutional authorities with the supervision of their advisory body.
- Government should assist in the collaboration of Universities with some industries within their communities by giving very clear guidelines for such

collaboration and also setting a machinery in motion to ensure strict compliance.

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