

QUALITATIVE TECHNOLOGY EDUCATION AS A PANACEA FOR ECONOMIC REHABILITATION AND RELIANCE

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Abstract

Nigeria is a developing nation that has urgent need of scientific and technological development. This is so because technological attainment is the yardstick of measuring the level of development of nations of the world. Those with high technological achievement are classified as developed while those with low technological attainment are classified as under-developed. Technology education is a *sine qua non* for any country that strives for development. Technology education builds in school graduates practical skills that enable them to be self-reliance. It brings about economic rehabilitation as it makes individuals, productive and useful in the society. Government has made some commendable efforts towards the development of technology education, but much is still left to be done. The 6-3-3-4 system of education that has its main thrust of technology education has not been properly implemented. This paper examines some of these problems and suggested ways forward for technological education growth and development in Nigeria.

Introduction

How to make education functional has been the problem confronting educators, educational planners, parents, governments and the society at large. It was for this reason that the Federal Government of Nigeria changed the national educational system from the former 6-5-2-4 to the 6-3-3-4 system because of the utilitarian nature of the latter. The extent to which the implementation of the system has been carried out is not the kernel of this paper. Utilitarian educational system is that type of education that makes those who go through it to be self-employed or self-dependent at the end of schooling.

The number of graduates turned out from our institutions of higher learning in Nigeria today is so high that it becomes difficult for government to give automatic employment to them at the end of their NYSC programme. Employment opportunities are getting leaner by the day.,

Imparting the necessary skills in graduates to make them self-reliant and employable is the main focus of technology education. Technology education is that aspect of education assigned to equip men with scientific knowledge, as well as practical and applied skill for the service of the community. Since technology has been described as the way of doing things through application of knowledge derived from scientific investigation of natural forces and materials (Anyakoha and Osuala, 1994) and education has been defined by Ezeani and Sindiku (1994) as a life-long process through which individuals acquire skills, knowledge, competence necessary for effective functioning in the society.

Therefore, technology education also, the National Policy on Education defined as that process that helps to develop the whole man physically, mentally, morally, politically, socially and technologically to enable him function effectively in any environment in which he may find himself.

Technology education therefore according to Osuala (1995) is that aspect of education that brings the acquisition of practical skills and knowledge relating to occupation in various sectors of economic and social life. It is that aspect of education which leads to the acquisition of practical and applied skills as well as basic scientific knowledge.

The National Policy on Education gives the aims of technology education (1981.8)

as:

- i: To provide trained manpower in applied science, technology and commerce particularly at sub-professional grades.
- ii To provide technical knowledge and vocational skills necessary for agricultural, industrial, commercial and economic development,
- iii. To provide people who can apply scientific knowledge to the improvement and solution of environmental problems for the use and convenience of man.

- iv. To give an introduction of professional studies in engineering and technologies,
- v. To give training and impart the product of craftsmen, technicians and other skilful personnel who will be enterprising and self-reliant,
- vi. To enable our young men and women to have an intelligent understanding of the increasing complexity of technology.

The above aims are quite achievable in Nigeria if there is the determination to succeed. Today, countries like Japan, Korea, Taiwan, etc. popularly now referred to as the "Asian Tigers" have now become highly industrialized through their development of their local technology. Most modern cars, electronic gadgets, etc. that used in the world today are produced by these Asia technologists. In fact the rest of the world is now trying to catch up with these Asia technology wizards", the question then is "what has happened to Nigeria the country with the largest oil well in Africa?"

The thrust of this paper therefore is to look at the role qualitative technology education can play in enhancing the quality of the life of the people and the community, highlight some of the problems confronting the development and growth of technology education in Nigeria and recommendations are made.

Background Development of Technology Education in Nigeria

Technology education started in Nigeria with the establishment of the Yaba College in 1962 in Lagos with centers at Ibadan, Vom and Zaria. There was no other institution of higher learning before then in Nigeria. But due to lack of well articulated Technology curriculum, this institution lost its status to oilier institutions such as the University of Ibadan that was established in 1918.

According to Afe (1990) The Ashby Commission on post school certification and higher education of 1960 observed that the secondary school level curriculum of the Nigerian school system was devoid of vocational and technical education courses and therefore, recommended the creation of technical streams in many Nigerian Secondary Schools, from where the students would obtain technical knowledge up to the level of the City and Guilds certificate of London. The objective of these technical schools was to offer courses geared towards employment needs. According to Fogbein (1918) between 1960 and 1989 about 27 Polytechnics and Colleges of Technology with student population of over 40,000 were admitted to read the vocational courses. Today there are over 5 Universities of Technology, over 30 Polytechnics and Colleges of Technology and other numerous vocational and technology centers.

The new National Policy on Education was established because of its functional approach. The introduction of Introductory Technology in the curriculum was made in order to make our educational system functional.

Technology Education as Basis for Economic Rehabilitation and Self Reliance.

Longman Dictionary of Contemporary English (1987) defined rehabilitation as help to somebody to live a healthy, useful or active life again. Also self-reliance on the other hand is the ability to stand on one's own. The educational system that can bring about complete rehabilitation and self-reliance on school graduation is technology education. Educational rehabilitation and self-reliance is therefore a process of making those who go to school to live useful and productive lives.

The ultimate aim of technology education as a basis for economic rehabilitation and self-reliance is to bring about sustained improvement in the well being of the individual and bestow benefits to all. Nigeria has been, laying emphasis on self-reliance and mobilization of domestic resources, the transformation of the structure of rural production, the development of small-scale industries and the acquisition of technological and scientific skills. These objectives are development oriented and generally suitable, but well conceived, planned and directed policies and programmes are required for their realization (Umaru 1988). This means that development is about self-reliance in every aspect of national life. The citizen must be involved (almost 100%) in the exploitation of the national natural/mineral resources. Hence it is necessary to develop the individuals to be in a position to develop the society in which he lives.

As soon as the individuals are made to acquire specialized skills that will enable them to help

develop the society, then that society becomes developed. 'This accounts for the difference between the developed countries and the under-developed countries. In developed countries the individuals have scientific and technological skills that enable the countries to develop as against the less developed nations. According to Alabi (1998) the major factor responsible for the wide gap in the level of development between the so called developed and the developing nations is the level of development of pure and applied science in these nations. A country cannot be self sufficient if it cannot tap its raw materials and process them into finished goods for its basic needs. Achievement of excellence is determined mainly by the quality of input and the process which transforms the input into output.

There is no doubt that for any nation to develop, such a country must embrace the development of its indigenous technology. According to Udofot (1994) in the present-day Nigeria, there is an abundance of the products of Western and other foreign technology which require intelligent daily utilization. There is also a strong need for Nigerians to evolve a truly Nigerian technology for production and consumption of their goods and services. At this age of Nigerian independence, she should be able to export not only the products of her own technology but also sell her technological know-how to other developed nations. The nation is blessed with vast agricultural and extensive forest resources which could be scientifically and technologically tapped to enhance the nation's wealth. The mineral resources are copious and are at present exploited by foreign experts using foreign technology.

As a matter of fact, Nigeria is not at present doing well in its economic, scientific and technological sectors. In this 21st century, Nigerians cannot get electricity as and when due. Many industries have been shut-up because of lack of energy. NEPA is not performing well; we still depend on foreign countries for transportation. Nigeria health centers are now mere "consulting clinics". According to Aghenta (1988) quoting, Napier Nigeria is producer of predominantly primary products; her minerals are not sufficiently tapped by her citizens because of shortage of capital or as a result of primitive method of processing; she is externally indebted - importing expensive consumer and capital goods including agricultural products; her labour productivity is low whereas, the costs of production are very high; she is capita poor which affects investments in much needed capital good; the personal incomes of the citizens are low while the masses are near subsistence living hence their high propensity to spend rather than save and she has a large difference between required employment and available labour. Alele - Williams (1990) stresses that progress in science and technology has reached very advanced stages in the developed world such as Britain, America and Japan. Their achievements

in science and technology are clearly reflected in social stability and economic well being of their society. They have advanced in recent times from the atomic era to the jet age and from the simple calculating machines to the powerful all purpose computers. Health care, communications and leisure have improved tremendously with them that they have made the world much smaller, improved living standings and increased personal well-being of their citizens. Without science and technology the society cannot develop and grow effectively. According to Ogbaha (1990) our contemporary society owes much to science and technology because these two disciplines have helped to alter man's system of living in more ways than can be described. Over the years, man has gained much control over nature and has evolved civilised ways of life as distinct from the crude one in which he wandered about in search of wild animals and plants for food. And the many ways in which science and technology have been of benefit to mankind too are worthy of note. These are increases in product of goods and services and higher standards of living arising from the products of technology such as telephone, good roads transportation, radio, television, improved search etc needs.

Problems of Technology Education in Nigeria

Technology education has not really got the attraction it deserves in Nigeria. There are a lot of problems facing its growth and development. The major problems confronting technical education can be summarised as follows:

(i) Lack of Proper Definition of Technology Education: Many people do not know (the difference between technology education and the ordinary system of education that we are used to. Even some of the technology institutions like the Polytechnics and Colleges of Technology now run courses that are a departure from technology curriculum. According to Uzoka and

Oka for (2003) the First International Forum of African Science Educators (FASE) held in Harare (19K6) recognised that our curricula are rather deficient of technology for the transformation of rural life.

(ii) Lack of Qualified Technical Teachers: It is usually said that one cannot give what he or she has not got. Hence without qualified technical teachers, it is indeed difficult to successfully run technology education. According to Omechukwu (1985) teachers who are occupationally competent in teaching methods and supporting skills is a serious problem. Therefore, training suitable teachers for the programme is of vital importance for success of the programme.

(iii) Problem of Facilities and Equipment: Technology Education requires equipped workshops, laboratories and adequate textbooks for operation. Oranu (199-4) discovered in his trip around the country's technology institution that most of them lack workshop and equipment facilities. This hinders the progress of the development of technology education. It is therefore necessary that adequate equipment be made available.

(iv) Apathy Towards Technical Education: According to Afe (1990) the apathy towards technology education are due to the following reasons first, there is a general thinking that technical education is for people who are not intelligent enough to do academic work. Second, the poor salaries paid to technical workers help to buttress the thinking that it is not uncreative as other professions and thirdly, many Nigerians find it difficult to work with their hands. Finally if technical education is limited to dropouts of secondary schools as provided for in the NPC, then there is the danger that talented people will not be attracted to the field of technology (Uzoka and Oka for, 2003).

There are other problems such as lack of proper funding of technical education, which is one problem contracting technology education. A situation in which an insignificant percentage of the national budget is allocated to technology programme leads to decline in the outcome of such programmes.

Lack of political will on the part of Government to implement policies on technical education. Most of the laudable programmes of technological programme in Nigeria are never implemented. At the inception of the 6-3-3-4 system, it was stated Introductory Technology was a compulsory subject for all the students in the Junior Secondary School and to be promoted to the next class a student must pass the subject. But today, very few secondary schools take Introductory Technology as a subject. These inconsistencies must stop if technology education must thread the path of success.

The Way Forward

Nigeria is in urgent need of scientific and technological development. Most of what we regard as problematic in the country have their sources and originating points in our technological retardation. Without adequate practicalisation of what our nationals read in biology, chemistry, mathematics, physics and engineering textbooks, the country will remain underdeveloped and subservient to advanced countries. We tend to be panicky over the issue of dearth of foreign investors and possible abandonment in the face of current reforms in Eastern Europe, South Africa, South East Asia, Mexico and Brazil. These countries' existing industrial foreign investors at the exclusion of Nigeria and other laggards (Guardian, 2001).

The new National Policy on Education was designed to make graduation of our schools to be functional. Therefore, to meet the needs of the individuals in areas of practical skill acquisition in order to be self-reliant then the following recommendations are made;

- (i) Nigerians should be made to develop their local technology by encouraging the people know that technology cannot be transferred! from one place to the other. That effort should be made to make things work for our land. According to the Guardian Sept., 30, apart from the national level, every state of Nigeria should create its ministry of science and technology. States like Yobe, Osun, Edo, Abia or Adamawa should proudly manufacture goods that are exclusively made by them without exclusively relying on foreign imports.
- (ii) Enough fund should be allocated in our annual budget to the Ministry of Science and Technology to enable the ministry and adequately all technology institutions such as Polytechnics, Colleges of Technology, Universities of Technology etc.

(iii) There is the need to encourage talented Nigerians to develop their skills, for instance, they should be given automatic admission into centres of excellence created to develop such talents. They should be given scholarship to study science and technology.

(iv) According to Nwabuoke (2001) the names of Nigerians who obtain excellent university degrees in Mathematics, Physics, Chemistry, Biology, Material Science, Engineering, Pharmacy Medicine, etc should be compiled by the Ministry of Science and Technology. Those whose names should appear on the list are those with B.Sc Second Class (Upper division) and first class, M.Sc and Ph.D. The persons so identified should be given internationally competitive remuneration and absorbed in various centres of excellence as a rank of honour,

(v) There is the need to encourage technical education teachers with attractive salaries, fringe benefits and conducive environment for teaching.

(vi) Restructure science and technology and other technology institutions to meet with the day-today needs of society.

Conclusion

Technology education is the major tool in the hands of nations that want to achieve economic rehabilitation and self-reliance. This is so because those who acquire the necessary technological skills are able to engage themselves in useful ventures. The problems that confront the growth and development of technology education have been highlighted. To overcome the identified problems it has been suggested that indigenous technology should be developed to take care of our local needs.

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