

The Role of Indigenous Technology and Technology Education in Vision 2020

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Technology education is a major Educational Policy in Nigeria. Attention is said to have been paid to it by various governments, yet technology education has not yielded the expected dividend. The much emphasized vision 2010 could not hold thus, come another plan to move the country to the position of one of the 20 developed countries of the world, tagged "Vision 2020". As an approach towards using indigenous technology to actualize vision 2020, this paper examines the following: statement of the problem, indigenous technology and vision 2020: A conceptual review of the linkage, indigenous technology and national transformation, technology education and vision 2020: steps to be taken in achieving the goals/objectives of technology education in Nigeria.

Introduction

For any nation to develop economically, socially and politically, there must be changes in technology. Usually, school curriculum modifications are necessitated by prevailing situations to create room for meaningful development. The integration of technical education into the national policy on education through 6-3-3-4 system of education confirms the intention of government in using technical education to bridge the gap of unemployment in Nigeria by empowering Nigerians technically for self employment. That is to say, technology plays a vital role in the industrial, economic, political and educational advancement of any nation. Education is a great instrument for change, a functional technology education should therefore be able to bring the development visions of Nigeria if the political, social and economic impacts of changes are analyzed and measured. This analysis and measurement rests squarely on the development of human resources and looking inwards for the right type of technology that could flourish so as to achieve the goals of the nation.

Statement of the Problem

It is a known fact that foreign goods are more preferred by Nigerians than locally manufactured goods. The urge for this by Nigerians is a major problem to the development of indigenous technology. In addition, the government hardly encourage local craftsmen in their quest for production and manufacturing goods using locally sourced materials. For instance, the blacksmiths are not encouraged in a way of buying equipments for them to enhance mass production and qualitative products. Though technical education has been enshrined in the schools curricula, graduands of such schools are not willing to practicalize what they learnt in the schools after graduating, rather they prefer roaming about the streets searching for nonexistent white collar jobs.

Most of the schools of technologies are hardly equipped in terms of materials needed to enhance teaching and learning. Not only that, there is also shortage of manpower to handle the teaching of various courses relating to technology education. It is generally agreed that learning takes place only when we are taught and it is the teachers that will introduce students to the use of indigenous technology.

It is a fact that the public and private sectors concentrate much in the importation of finished goods instead of paying attention to the promotion of locally made goods to encourage the growth of indigenous technology. The "Igbo made" or Aba made" goods are neglected and in its place, the imported goods are highly encouraged by our business men. This in turn runs down the development and growth of indigenous technology.

Again, take a look at local gold mining that has been taking place in Zamfara State for over five years now, the government has not thought it wise to get involved by way of encouraging the local miners through the provision of such equipments that could assist them in effective mining geared towards the development of indigenous technology.

Funding is another hindrance to the use of indigenous technology to actualize vision 2020. Most often than not, government find it difficult to fund the development of indigenous technology, even if such funds are released, it is often mismanaged by those entrusted with them. The question now is, what could be the ways out'?

Methodology

In the course of this study secondary data were used. The result of the study indicates that efforts of various governments at realizing technology education at all levels of education in Nigeria has not yielded the expected dividend so far as a result of improper implementation of policies on technology education. To improve upon this, the paper recommends that policies on technology education should be properly executed, schools of technologies should be well equipped, learning to do with the impartation of indigenous technology knowledge should be part of the schools curricula, etc.

Indigenous Technology And "Vision 2020": A Conceptual Review Of The Linkage

Nigeria is endowed with indigenous technology that can be used to achieve technological development like the advanced world. These abound in every nook and corner which was utilized by generations prior to colonialism. Yerima (1997:2) is of the view that indigenous technologies are traditional skills and techniques used in our traditional industries for the production of goods and services. Indigenous technology is based on socio-cultural set up, the local materials available and the needs of the people. Indigenous technology, involves the application of goods and services using locally sourced raw materials, tools, skills and techniques, indigenous technology range from mat weaving, iron smelting, pottery, agriculture, building, medicine, textile, transportation, soap making, warfare, communication etc.

Educational Technology system that existed in Nigeria prior to western education imparted the knowledge of self-reliance. People were imbued with the knowledge of producing native farm implements, herbs, waving, mattering, pottery carpentry, building etc.

This created room for them to be self employed and self sufficient. In the present day Nigeria, with the coming of a modern technology, the art of native pottery is taken over by ceramics, the art of building is replaced with architectural building technology, manual labour scarcely exists instead chemical and mechanical weed control is in use. Local preservation has given way for cool houses while local herbs are hardly used.

Evidences abound to prove that indigenous technology thrived before the introduction of western technology which led to its eradication. Draw and Pam in Yerima (1997:3) put it that desires to develop traditional technology have been receiving great attention despite the current impact of the modern technology. Indigenous technology embodies all concepts of technology. It is a technology which develops by active participation of the indigenous people through the harnessing and utilisation of local materials and natural resources. It is based on the skill and techniques that make the heaviest use of the most abundant indigenous resources and locally produced machines. According to Atiku (1997:2) Nigeria is blessed with abundant natural resources and population in which no black African country can compete with. However the rate at which we develop technologically compared to our counterparts in the Asian continent is very discouraging. This is because Nigerians do not pay much attention to the development of our indigenous technology by way of giving preference to the products from the developed countries, despite the high costs associated with this approach. In a bid to give it the desired approach, the Federal Government inaugurated a committee on “vision 2010”.

According to Junaidu (1997:8) the Nigeria’s vision 2010 was intended to inspire the people and serve as unifying force for pulling together various forces within the nation towards a common endeavour, achieving a respectable level of social, political, cultural and economic development by the year 2010. That is to say that a national vision helps a country to establish its current position and define the desired future. While inaugurating the committee on “vision 2010” Abacha in Junaidu (1997:8) has its terms of reference as follows:

- a. To define for our country, its correct bearing and sense of economic, political, social and cultural direction. Examine all aspects of our national life which should be developed and fortified.
- b. To set appropriate goals/targets and time frame for achieving our economic, political, social and cultural objectives and to propose the strategies and the institutional arrangements required to attain the set goals and target.
- c. To forge a plan which will ensure that Nigeria is enroute, by year 2010 to becoming a developed nation in terms of economic property, to focus on creating the right atmosphere and environment for:
 - i. Sustained annual growth of 6-10 percent of the Gross Domestic Product (GDP),
 - and ii. Level attainment of high literacy rate and qualitative education levels for the country.
 This vision could not materialise in 2010.

With the Federal Government's quest to develop the country politically, socially, economically and culturally, there comes vision 2020. According to Umar (2012:16), the main organs responsible for the development of the vision 2020 plan are:

- a. National Council on vision 2020 (NCV 2020). This is the apex, providing leadership and direction to galvanise the whole nation with the President as the Chairman.
- b. National Steering Committee (NSC). The members are drawn from both private and public sectors and their duties are to develop, implement, monitor and evaluate the vision.
- c. National Technical Working Group (NTWG). These are experts drawn from both public and private sectors to undertake specific studies or research work to provide data necessary for the working group report. The NTWG has 29 thematic areas covering all aspects of the system.
- d. Stakeholder's development committee whose membership is drawn from government establishment is to prepare vision 2020 thoughts and ideas based on the guidelines approved by the National Council. The information that will create room for the actualization of vision 2020 is expected to be provided by these committees.

Having seen the committee and its terms of reference it suffice it to say that its functions are not far from that of vision 2020 that was not realized. The issue is not the committee, its terms of reference or membership. The disturbing problem is that of managerial ability. The ability and skill required in administering well with a view to achieving the set goals. Put the other way, the ability to make use of our indigenous technologies with a view to growing/developing naturally without necessarily copying the foreign ways of developing.

To serve as a basis for understanding technology education, technology is seen as an applied science which increases the utility of resources to give comfort and improve production. It is the way of doing things through the application of knowledge derived from systematic investigations of natural forces and devices indispensable to stable enhancement of the quality of life and human progress. Abdullahi in Dantani (1997:2) traced the origin of the word technology to a long Greek word "a bag of tools". He further explained technology as way, manner, method or technique of doing things. However, technology is thought to be a product of creativity and ingenuity. Technical education is defined by the National Policy on education as that aspect of education which leads to acquisition of practical and applied skills as well as scientific knowledge. The main emphases on technical education by the national policy on education were:

The acquisition of practical and applied skills, and basic scientific knowledge. This explains the reasons for establishment of special institutions of science and technology in Nigeria by the government, like universities of science and technology, polytechnics, universities of agriculture and colleges of education (Technical). This is to pave way to technological knowhow which can be seen as an independent variable, indeed, as the causal agent.

Indigenous Technology and National Transformation

The industrialised and technically developed countries of the world were once like Nigeria, and as a result of hard work, shift and incentive genius, they become what they are today. Though, a vast supply of cheap raw materials, slave labour and access to a captive seller's market, formed the basis of the prosperity of the industrialised nations. But China chose a different route to technological transformation. One that stresses self-reliance, locally developed intermediate technology rather than imported, hi-tech machinery, and a labour intensive rather than a capital intensive strategy, to take advantage of its enormous manpower resources.

Dare in Akeredolu-Ale (ed) (1993:144) argues, that development meant modernisation, which was really euphemisms for westernization. To be developed was to have huge factories churning but consumer goods, iron and steel industries, giant mechanized farms, automated hydro-electric schemes and, of course, to have a high rate of urbanization, in short, to be like the West. This model of technological development is flawed and cannot be copied or emulated by Nigeria. The technologically developed nations couldn't have achieved that without colonialism. The emulation of such technological innovations could only deepen the level of dependency of Nigerians. Hence the need for adequate national education policy that could accommodate and encourage the growth of our indigenous technology.

Technology Education And Vision 2020: Steps To Be Taken In Achieving The Goals/Objectives Of Technology Education In Nigeria

Education is the greatest key to the gate of any nation's development. It is the epicentre to any developmental effort. In the words of Shallah (1997:1) the recommendation of the Chief Adebos seminar on A National Policy on Education, 1973, is that "not only education is the greatest force that can be used to bring about redress, it is generally agreed that it is the greatest investment that the nation can make for the quick development of our economic, political, social and human resources". Generally, technology education is construed as a study of tools, materials and processes of the industry. Technology education should be relevant to our society, and for which tools and materials are available.

To achieve the goals and objective of vision 2020, emphasis should be laid on technology education at all levels of education and its provision. This will enable schools to enshrine technology education skills in their curricula.

According to Abdullahi (2008:28), the curriculum of the Bonny Boys' High School in 1909 incorporated woodwork, typing and telegraph, and Hope Waddle institute. Calabar students received instruction in tailoring, carpentry and agriculture. In northern Nigeria, the Nasarawa School also in 1999 operated vocational/technical school programme where leatherwork, carpentry, weaving and bookbinding were taught. Emphasizing on technical education, the Federal Government of Nigeria, FGN (Revised 1981:28) specified its objectives as:

- a. To provide trained manpower in applied science, technology and commerce, particularly at sub professional level;

- b. To provide the technical knowledge and vocational skills necessary for agriculture, industrial, commercial and economic development;
- c. To give training and impart necessary skills leading to the production of craftsmen, technicians and other skilled personnel who will be enterprising and self-reliant; and
- d. To enable our young men and women to have an intelligent understanding of the increasing complexity of technology.

Going by the above objectives of technology education, it is expected that by 2020 its proper implementation will lead to acquisition of broad knowledge and basic skills applicable to a number of occupations within a given field such that Nigerians will not be limited by their education in their wishes to change occupations overtime. By 2020, it is expected that Nigerian population will increase thereby leading to increase in demand for everything that make living possible, like demand for jobs, housing, electricity, water supply, access roads etc will increase and government alone may not be able to provide the needed facilities adequately. So, it is expected that by 2020 if the objectives of technology education are realized through the incorporation of indigenous technology in our educational system, Nigeria must have been equipped skillfully to be able to provide more for themselves than the government could. In the process of realizing the goals of technology education that might take us to vision 2020, there might be some problems.

Recommendations

- Having identified some of the problems that might deter the actualisation of vision 2020, it is pertinent to make recommendations that could assist in realizing the goals and objectives of vision 2020. Policies that will encourage local craftsmen activities should be formulated and implemented. In the course of implementation, a committee should be set up by the government to monitor and access such execution.
- Appropriate sanctions should be imposed on the importation and patronage of foreign made goods. Such penalties like life imprisonment without option of fine or the destruction of such imported goods when they are confiscated. When this is done, the use of indigenous goods will be encouraged and this will create room for more development of indigenous technology.
- Schools of technologies should be equipped. There should be adequate equipments in the institutions such that the teacher should have enough for the purpose of imparting the required technological knowledge into the students.
- Effort should be made to employ the number of teachers required for each course in order to enhance learning of technology education. Teachers should be paid adequately and promptly.
- Learning to do with the impartation of indigenous technology knowledge should be part of the schools curricula; like blacksmith, weaving, mining etc.
- Enough funds should be made available for all projects designed for the achievement of the goals and objectives of vision 2020. Not only should enough fund be made available, it should be followed with good administrative knowhow. That is, the ability

of the administrator to make proper use of the fund allocated. There should be increase in tariffs, barriers and other fiscal measures.

Conclusion

This is not to say that the government has not made various efforts at making Nigeria become one of the 2020 developed nations. The stumbling block has been that of good management. If adequate managerial attention is paid to the development of indigenous technology, Nigeria will realise its vision of being developed by 2020. That it says, policy makers should consider indigenous technology development as the backbone to Nigeria's economy.

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