

TECHNOLOGY EDUCATION: THE MEANS TO THE REALIZATION OF NIGERIA'S VISION 2020

REAGAN N. ROBINSON

(Received 16, September 2010; Revision Accepted 20, October 2011)

ABSTRACT

The realization of Nigeria's vision 2020 is now a challenging problem. However, using Technology Education as a means to the realization is the focus of this paper. This paper highlighted the current state of technology education in Nigeria and stated its efficacy to advance development and improve the nation's economy. Technology Education as a means to vision 2020 realization was examined, using some existing economic problems in Nigeria as focal points. It also highlighted societal misconception, inadequate training facilities, inadequate funding and poor policy implementation as hindrances to technology education in realizing vision 2020. It proffers solution by making some recommendations that would give technology education the opportunity to move Nigeria's economy forward to one of the best 20 by the year 2020.

KEY WORDS: Technology, Education, Realization, Economy and Development.

INTRODUCTION

Technology education is generally designed to bring about industrial development which in turn is a key player in economic development (Silvius and Bohn, 1976). This means that, the world of industries is the source of instructional content for technology education program. Generally technology has risen to be the key element in all human endeavors all over the world especially in socio-cultural change. This must have made Galbraith (1985) to define technology as systematic application of scientific and other organized knowledge to practical tasks. Rarely is there any human effort without application of technology to simplify the task at hand either through application of technical information or the use of technological devices or machineries and apparatuses. Technology therefore, encompasses scientific knowledge that must be possessed by man. The reason is that, its equipment, devices and apparatus are quite beneficiary to man. For instance, the uses of electro-mechanical devices, sophisticated gadgetries and computerized equipment have made life easier and comfortable. This later explanation of technology portrays technology

as all activities carried out using man-made apparatus, machines and devices for the purpose of simplifying the task of living in a constantly dynamic environment.

With all these benefits of technology, Nigeria is yet to emerge as an actor in the global scene of technological development. A lot is yet to be done individually or collectively to really encourage Nigerians to accept technology as part of their culture and not as an alien to it (Uoro and Edu, 1997). Though Nigerians wholeheartedly appreciate products of technology, they are yet to change their attitude towards technology related program. For instance, technology education program, the only known means of training the needed manpower to man the different phase of Nigeria's technological sector is yet to receive priority attention from the authorities. Even the trainers and the trainees themselves involved in technology education program are no longer committed to the productive aspects of their program in order to fully develop the learners' problem solving abilities.

It is the desire of every nation including Nigeria to be technologically developed and self-

Reagan N. Robinson, Department of Technical Education, Rivers State University of Education, Rumuolumeni, P.M.B. 5047, Port Harcourt, Rivers State, Nigeria

reliant. To be technologically developed and subsequently become self-reliant, a nation must utilize technology education as a foundation. To this end many countries have actually formulated policies and devised strategies necessary to aid them aspire to achieve advantageous positions. It was on this premise of policy that vision 2020 was born. It is a vision in which Nigeria is aspiring to become one of the 20th most developed countries in the world by the year 2020. Unequivocally, it is the view of this paper that technology education is the vehicle to drive vision 2020 to its realization. The essence is to re-direct the attention of the government towards Technology Education in order to give it the necessary support.

What is Vision 2020?

In September 2000, the United Nations Millennium Summit in trying to tackle the disturbing world economy came up with a declaration of Millennium Development Goals+ (MDG). This was a means to address the dwindling economy of the world especially the third world nation of which Nigeria is one. In the same new millennium, the World Bank economic ranking of nations of the world placed Nigeria as the 41st largest economy with a Gross National Income (GNI) of \$203.7 billion (Onyeinka, 2008). Also in a UNDP (2006) report on Nigeria, it was noted that, the nation's GDP per capital in 2004 was \$560 which is a little over the poverty line of 1\$ per day. Of course, this puts the country in the class of low income economies.

Worried about these results, the Nigerian government led by President Olusegun Obasanjo came up with an economic development plan that will make Nigeria one of the twenty (20) largest economies in the world by the year 2020 AD. This plan was tagged %ision 2020.+ some people tagged it %ision 20:2020+. On the premise of this vision 2020, President Musa Yar%aduac\$ 7-point Agenda was born. This was due to the fact that the realization of the vision was gradually becoming gloomy instead of bright. The challenges are getting more by the day.

Right from the on-set, the plan was clear with no ambiguity. The missions associated with this vision were;

1. a united and self-reliant economy
2. a great and dynamic economy
3. a just and egalitarian society
4. a land of bright and full opportunities, and
5. a free and democratic society.

The realization of the vision and the missions depend to a large extent on technology education. The minimum GNI per capital of the high income economies which Nigeria intends to join is at least USD 10,680 in the current rating (Adebayo, 2008). This established a need for rapid economic progression or development which technology education can easily address if given the priority. Besides, a clear observation of the economic history of all the high income economies shows that they had all conquered the challenges behind their technology education (Ibeneme, 2005). Of course, the clear impression is that technology education is the means to vision 2020.

Current State of Technology Education in Nigeria

Technology education is clearly seen as a form of education for the development of industry as well as practical skills (Schultz, 1996).The philosophy behind technology education is that the learner will be self-reliant in the society at the face of unemployment as seen in Nigeria or be employed in an industry. It trains different classes of manpower needed for the development of a nation. Technology education is not exactly the same with vocational education though related. While Vocational Education is that education that prepares an individual for a specific vocation in a specific occupation and job, Technology Education is that aspect of education that prepares an individual for the acquisition of practical skills to earn employment. The small contrast is that technology education is not just the acquisition of practical skills; it involves skill application that utilizes scientific knowledge.

In Nigeria, technology education has been criticized on the grounds that it has not been able to produce practically competent graduates who are equipped with problem solving abilities. The major reason is as a result of poor and inadequate training facilities and equipment in the institutions. This has caused a wide damaging effect on trainees. It is clear that no institution in Nigeria can provide models of machines or equipment similar to those used in the industries to equip learners with skills needed by the industries. In this situation of limited or no equipment, the students are short changed in the acquisition of technical skills. It is the foregoing situation that has drawn the attention of Federal Republic of Nigeria (2004) to the implications of poor technology training outfit. The view of the government is that, since the system of education

cannot rise above the quality of its teachers, teacher education will continue to be given a priority in all educational sectors, including technology teacher education. Since her awareness of needs for effective technology teacher education program, the Federal Government had taken steps to meet that need through its accrediting agencies, namely National Commission for Colleges of Education, National Board for Technical Education and National Universities Commission. It is now mandatory for students in technology education program to undergo a 16-week industrial training (IT) in relevant technology firms for work experience under the supervision of Students Industrial Works Experience Scheme (SIWES).

In still trying to redeem the image of technology education the Federal Government of Nigeria further entered into bilateral agreement with Government of various developed countries of the world between late seventies and early eighties during which Nigerian youths were trained at the middle level of technical experience in various fields in a scheme popularly referred to as 'Crash programs'. Products of these programs formed the bulk of the present day technocrats of Nigerian technological practices. The manifestations of the benefits of the crash programs testify to the significance of manpower training as an essential step in preparing for industrial development of any nation. The aim of the training among others is to develop middle level manpower for various sectors of the Nigeria economy.

The introduction of this scheme had gradually uplifted technology to a reasonable extent of development, but without outstanding economic breakthrough, which is the larger essence of the program. According to Usoro and Ibritam (2008), the only solution is when adequate emphasis is placed on the major components of course contents. In addition, adequate finance will boost technology education and hence good economy else, Nigerian vision of becoming one of the best 20 economies in the world by 2020 will be a mirage. The meaning is that vision 2020 hinges on the development of technology education.

Technology Education as a Means to the Realization of Vision 2020

The plan of vision 2020 in one hand is good, but its realization in another hand is the multi-million dollar question that is yet to be given clarity. Two of the efforts made at the inception

were; (1) to identify the causes of unrealized targets and (2) to identify the means and ways to realize unrealized targets by the year 2020 AD. A critical look at the first efforts shows that there are some existing problems in which targets have been set to resolve them. The second effort simply indicates the way out in meeting the target. A careful fusion of these two efforts will go a long way to answer the multimillion dollar question of vision 2020 and its realization, using technology education. That is the crux of the problem this paper would attempt to address.

A critical look at the present state of Nigeria indicates clearly to the least person that she is encompassed with enormous economic problems that have led the government to a state of dilemma. President Yar'Adua's 7-point agenda is an attempt to resolve/solve these problems. However, it is the view of this paper that any part of the agenda that does not have a direct or indirect link to technology education as a means of finding solution to the problems is bound to fail. The reason is that technology education is a field of study that has encompassing abilities that could completely address the economic situation of a country if properly and sincerely integrated with the needs of society. According to Chukwuyekwe (2000), technology education is an integral part of capacity building in a productive economy. This suggests that technology education training, remunerations, deployment and retention will enhance productivity, wealth generation and poverty alleviation in any economy-minded country. This means that, technology education can be used as a means to solving the economic problems of Nigeria. Let us highlight some few points to illustrate.

Poor Agricultural Output: Poor agricultural output is one of the paramount economic problems of Nigeria. It was highlighted as one of President Yar'Adua's 7 point agenda. Poor agricultural output simply means insufficient food for a population of over 120 million Nigerians. According to Onogu (1992), lack of food is the most painful form of poverty in any developing nation. UNDP millennium poverty report shows that 66% of Nigerian population lives below the poverty line (Esan, 2000). Esan went on to say that, lack of mechanized agricultural production is the cause of insufficient food in any nation and Nigeria is one. There is a very high level of insufficient food in the country to the extent that foods are imported hence, increasing our exchange rate and reducing the value of our

currency. This is not a good light to economic development. There is no aspect of agriculture that mechanization cannot be used to increase productivity. Mechanization is simply converting human efforts in agriculture to machine efforts in order to increase food productions. It involves the provision of agricultural machines, usage and maintenance which, is part of the objectives of technology education. If given a sole responsibility, technology education would fabricate the parts of those machines and develop a good maintenance that will synchronize with high food production, which will in turn serve the purpose of economic development and hence vision 2020. But with the poor value of technology education in Nigeria, how can this initiative be integrated to Vision 2020. It is high time the Nigeria government realize that technology education is the means to the realization of vision 2020.

Insufficient Energy and Power Supply:

Insufficient energy and power supply is another serious problem Nigeria is facing in economic development. Energy and power have always been an essential support to all aspect of modern age. It is indeed the life-wire of industrial advancement (Akarakiri and Lawan, 2004). They further emphasize that it is a very critical ingredient for development and had always been a vital, indispensable input to the economic needs for any civilization.

Energy and power plays a central role in the overall frame work of developmental plan of any nation. In fact it is the motive force behind sustained technological development of any nation. However, in Nigeria unreliable and unstable energy has remained a major problem hindering economic development. According to Ayodele (1992) the status of electricity supply to any community is a function of several factors. Among such factors are the quantum of energy deposit in such a community; the level of power generation; the technology applied; electricity demand growth rate; the institutional frame work for electricity generation; supply and distribution coupled with the policy; the operational efficiency of the institution etc.

Further in his findings Ayodele (1998), states that available information without rigorous data analysis shows that Nigeria is a primary energy store home with over 10,000 Mega Watts of large scale, 734MW of small scale hydropower and over 5000 MW of gas power generation capacities. However, Nigeria has failed to exploit

fully and effectively utilize her endowed energy potentials which is contrary to vision 2020. In his view, grass-root technology development is a major challenge which technology education can carefully address and hence bring vision 2020 to realization. According to Usoro and Ibritam (2008), grass-root technology development is a primary responsibility of technology education.

The fact is that, from the Nigerian context, chance is yet to be given to technology education to explore the challenging areas like small scale development of electricity and power generation. This can be done through technology education institutions to begin building small kilowatts of generating stations through solar system (thermal generation), acquisition of little gas to push machines that will generate power (gas turbine) and using falling water to rotate engine and generate power (hydropower). All these can be conceptualized in technology education institutions if a free hand and funding is provided. The generation can start from small kilowatts to larger megawatts. With this gradual growth, in few years electricity power problem will be a thing of the past. According the Energy Commission of Nigeria (E.C.N., 2007), Nigeria has both the raw materials and resources to engage in any extent of generation, but the problem is the lack of grass-root development, which technology education can conveniently take care through technical institutions. An accomplishment of this type of program alone is close to complete realization of vision 2020.

Inadequate Security: Another disturbing problem which is confronting the Nigeria economy is lack of good security. In every developed or developing nation, the state of security is a vital issue. It can completely run the economy down and cause fast depletion of human and material resources. For instance, the Niger delta crisis is a typical example of breakdown of security towards human and material resources. The influx of youths in the Niger Delta region under the guise of resource control is adversely affecting the economy of Nigeria. Since the sole revenue of crude oil is located in the highly dilapidated region of Niger Delta, law and security is difficult to be enforced. The consequence is a downward economic development which is contrary to vision 2020.

A good observation of the people involved in this struggle is virtually youths. Again, a good look at them shows that, most of them are poor and unemployed. No employed youth in his

right mind would quit his good job and go for a struggle that would likely end his life. The rationale behind it is the huge financial benefit that comes often. This is applicable to other vices committed by youths like armed robbery, kidnapping etc. They are both poor and jobless; hence their decision to risk their lives for money. This invariably means that unemployment and poverty are the major causes of security breakdown in a nation like Nigeria. Again technology education is a good solution.

Being an education that provides individuals with relevant technical skills that will fit them into the work force, our youths can acquire positive change in the society if they are trained under technology education. In other words youths would be able to improve their saleable inbuilt skills to advance the nation and become useful to the society by being producers of goods and services rather than mere consumers. It affords the youths a self-dependent life that will free them from social vices. This is because it will make them job creators rather than job seekers. This therefore means that, if technology education is supported to attend to the unemployment needs of the youths security problem would be averted and vision 2020 will be easily realized.

Lack of Good Transport System: Lack of good transport system is another problem area in Nigeria that deprives her from fast economic development. It is also part of President Yar'Adua's 7-point agenda. But technology education can adequately address it hence, realizing vision 2020. Lack of good transport system means the nation finds it difficult to move goods and services from one point to another under specific time frame. In Nigeria, the transport system is so bad to the extent that, carrying goods and services from one point to another sometimes takes much longer time than necessary. If the goods are perishables, then preservation poses a problem and wastage becomes inevitable. This is a direct opposite of vision 2020.

According to Usoro and Edu (1997), the problem of good transport system in Nigeria is due to lack of good indigenous technologists and good maintenance. Most of our roads are very bad due to the absence of technological foundation of our technologist on good maintenance, which technology education can provide. The fundamental prowess of every technology lies in the arms of technology

education, but when it is absent, advancement becomes a problem (Robinson, 2006). The exact solution to the transportation problem is when technology education being a fundamental agent to technology development, is used to provide the required fundamental training on road maintenance and the trainees are empowered to take up responsibility from cradle.

However, contrary is the order of the day in Nigeria. As a result, a journey that is meant for a day now takes more days. Time is therefore wasted which no man can redeem; hence the economic development goes several times backward instead of forward.

Most towns are not properly planned in Nigeria. But even when they are planned the basic rules and regulations in infrastructural maintenance are not followed. According to Usoro and Ibritam (2008), poor practical training of our engineers/ technologist is a major reason. But in technology education, those in building technology are well trained to details. In fact, they are taught the very basic practical fundamentals in building and road maintenance. In summary, the elementary practical details given out in technology education are rare in most other fields. The practical orientation is quite transmitted to students that they consciously grow up with the skills. This goes along way to bring about a better accuracy to building and road maintenance hence, aiding our transport system and in turn realizing vision 2020 in good time.

Hindrances to Technology Education in Vision 2020 Realization

Technology education is really a good means to the realization of vision 2020, but in the Nigerian society, it has so many hindrances that are retarding its encompassing benefits. Below are a few of them;

- 1. Societal Misconception:** In Nigeria, technology education has a very low awareness compared to other fields of study. This is primarily as a result of the misconception and the poor image generated around it. People have this misconception that it is for the less intelligent and the inferiors in the society (Ezeji and Okorie, 1988). Therefore, no field of study that has that level of inferiority against it can prosper easily and realize vision 2020 in a competitive society like Nigeria.

- 2. Inadequate Training Facilities:** Technology education has been going through

epileptic growth in Nigeria. One of the resounding aspects is the area of inadequate training facilities that it has been encountering. No field of study can do well without corresponding facilities for training. According to Kalat (2007), the training facilities are the working instrument that assists the acquisition of skill. Since technology education is the aspects of learning that equip the individual with practical skills, it therefore implies that without the necessary facilities, it will not be useful in realizing vision 2020.

3. Inadequate Funding: Technology education require high level of funding since it require several equipment, machines, tools etc. for its program. Anything less than the required funding will make it non effective, which should be avoided. But in Nigeria funding of technology education is a big challenge. Most of the institutions are suffering from inadequate funding. This had added more injury than healing to its existence. Therefore, technology education funding is really a big challenge in realizing vision 2020.

4. Poor Policy Implementation: Education policy implementer stake little or no account of implementing policies that relates to technology education (Aina and Beecoft, 1992). They went further to state that, some educational policies are due to most of the planners not having adequate knowledge of technology education. Most of them they lamented are historians, economists etc. On this ground, they suggested that technology education should be separated from general education and manned by the experts, so as to attract adequate allocation and help the realization of vision 2020.

RECOMMENDATIONS

1. The federal government should be directly involved in the program of technology education in order to gradually clear every form of misconception affecting it.
2. Federal government should make it a point of duty to provide training facilities to technology education on quarterly bases.
3. The federal or state government should create certain percentage of the national budget to develop technology education to international standard.

4. Government should create and monitor policy implementation concerning technology education especially those policies that will remove neglect of its program in national issues.

CONCLUSION

Technology education being program meant to give practical skill to an individual is a good tool to achieve economic development in any society. Similarly vision 2020 which is a pursuit of Nigeria becoming one of the best 20 economies in the world can be realized through technology education as seen from this paper. Addressing problems like, poor agricultural output, insufficient energy and power supply, lack of adequate security and lack of good transport system, technology education can realize Nigeria's vision 2020.

REFERENCES

- Adebayo, J., 2008. Problem of technical development. *Punch Newspaper*, May 25, 20 (19793), 13
- Aina, O. and Beecroft G. A., 1992. Towards adequate supply of quality technical manpower. *Education and Development*, 1(2), 18-23.
- Akarakiri, J. B. and Lawan A. F., 2004. A synopsis on the dissemination of renewable energy technology in Africa. *International Journal of Science and Technology Research*, 1 (1&2), 14-19.
- Ayodele, A. S., 1992. Public enterprises institutional reform, the PHCN and electricity development in Nigeria. *An Economic Analysis*. A commissioned paper, PHCN District commercial managers' workshop, April 1992 in Calabar.
- Ayodele, A. S., 1998. Illegitimate energy market activities in the Nigerian energy industry. *Electricity and petroleum products workshop*, Ibadan Nigeria.
- Chukwuyekwe, S. E., 2004. Poverty reduction through capacity building in engineering manufacturing. *Proceedings of the*

- national engineering conference.NSE, Jos 2004. Energy Commission of Nigeria (2007).Renewable energy master plan, E.C.N. Abuja, Nigeria.
- Esan, A. A., 2004.Provision of Adequate and government energy for rural development.Proceeding of the national engineering conference.NSE, Jos 2004.
- Ezeji, S. and Okorie J. U., 1988.Elements of guidance, vocational and care education.Onisha, Nigeria: Summer international education publisher.
- Federal Republic of Nigeria., 2004.National policy on Education. Lagos: Government press.
- Galbraith, J. R., 1985. The new industrial state. Boston :Houghton Mittlin Company.
- Ibeneme, O. T., 2007.Funding technology education for sustainable youth empowerment. Book of proceedings, NATT 20th Annual conference, Kaduna. 219-225.
- Kalat, I. K., 2007. Technical and vocational education facilities.A care of concern in the education reform agenda. A paper presentation at the 20th National conference of National Association of Teachers of Technology (NATT), Kaduna.
- Onogu, M. I., 1992. Village technology. Institute of Technician Conference, Lagos.
- Onyeyinka, R. A., 2008. Public-private partnership in agriculture extension: A strategy for the realization of vision 2020. A paper presentation at the 21th National conference of National Association of Teachers of Technology (NATT), Jos.
- Robinson, R. N., 2006.Technology in the Nigerian economy.Journal of Vocational Education and Technology. 3(2), 25-31.
- Schultz, D. P., 1996. Psychology and industry today. New York: The Macmillan company.
- Silvius, G. D. and Bohn, R. C., 1976. Planning and Organizing Instruction in Vocational and Technical Education. Illinois, USA: Mc. night publishing company.
- Usoro, H. S. and Edu, D. O., 1997. The Illusion of transfer of technology. Journal of Research on General Studies, 3(1), 17-223.
- Usoro, H. S. and Ibritan, S. K., 2008.Strategies for consolidating and sustaining school industry relationship.A paper presentation at the 21th National conference of National Association of Teachers of Technology (NATT), Jos.