

EDUCATION AND SUSTAINABLE DEVELOPMENT CHALLENGES AND PROSPECTS OF TECHNOLOGY EDUCATION IN NATION BUILDING

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Abstract

The sustainable development of a nation depends largely on the level of the citizens' participation in technology education and ability to use that technology in transforming its environment. The 7 point agenda of Yar'adua's administration is geared towards better life for Nigerians and having a strong and self-reliant nation with a dynamic economy that can compete globally. Education and training remains the universally acclaimed keys that unlock every other sector for a sustainable national development. This paper discussed education and sustainable development, with emphasis on the role of technology education in nation building, challenges of technology education in a developing nation and made recommendations such as the establishment of more schools and teacher training programmes among others for a more functional education.

Education is the building block for progress and sustainable development. It is a doing phenomenon which empowers a people with knowledge, skills and values that brings transformation. As Holbrook (2009) opined; the need for change from an educational point of view is based on the overall desire to develop an educational development literate society in which sustainable development is understood and appreciated within the content of the environment, basic needs and for promoting a better quality of life now and for future generations.

The 7 point agenda of Yar'adua's administration is geared towards improving the lives of the citizens and developing the nation at large.
The 7 point agenda are as follows:

1. Energy
2. Security
3. Wealth Creation
4. Land Reform

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5. Mass Transit
6. Education
7. Niger Delta

Every point on the agenda is geared towards sustainable national development which can be attained by empowering the citizens with the right education and training. The ability of any nation to positively influence the standard of living rest on the resourcefulness of its citizens. A strong and self reliant citizen will create employment opportunities thereby, bringing to barest minimum crime and corruption in the society, increase productivity which will result in great and dynamic economy.

Sustainable development requires the participation of all concerned actor while at the same time, taking into consideration specific local circumstances. McMichael, Smith and Corvalan (2000), defined sustainable development as a pattern of resources use that aims at meeting the human needs through the production of new technologies for improved quality of life, while preserving the environment so that the needs can be met not only in the present, but in the infinite future.

Education is a universal phenomenon which allows all human societies to develop the requisite knowledge, experience and skill for their self preservation and growth. It is a precondition for a meaningful existence in the industrial technology and knowledge driven world. This implies that education is an integral component of the process of socialization and its nature and scope is suitable to every society relative to its state of development. This paper discusses education and sustainable development, with emphasis on the role of technology education in nation building. The challenges of technology education in a developing nation like Nigeria and recommended the way forward.

Education and Sustainable Development

Education remains the indispensable key to sustainable national development and occupies a central position as an agent of both social mobilization and democratic equality. It is believed that the greater the number of people with basic education in a country the more and better the chances the country has for rapid political, socio-economic and cultural development.

In the changing universe of today, Education has been viewed by many scholars, research institutions and organizations from different perspectives. International Standard Classification of Education (1985) defined Education as: An organized and sustained communication designed to bring about learning, where communication requires a relationship between two or more persons involving the

transfer of information, organized and planned in a pattern or sequence with established aims or curricula. Sustained leaning experience has the element of duration and continuity. Learning therefore, is any change in knowledge, skills, attitude, behaviour, understanding and capacities which can be retained.

Education is the transmission of what is worthwhile, involving knowledge and understanding with the cognitive perspective to a learner, for the purpose of developing his potential to the maximum, so as to make him a responsible person. Basically, education is a process of training an individual systematically with the aim of developing his latent ability, to effect positive behaviour changes, which would result in the achievement of his life goals, to become a fulfilled citizen. Formal education takes place in schools and institutions, which are manned by teachers and based on curricular experiences. Thus, education is often perceived as both a process and a product. The process being the teaching that the teacher does and the learning which the pupil receives, while the product is what the receiver is capable of doing as a consequence of what he received or the experiences undergone during the process of teaching and learning (Lassa, 1998).

A more comprehensive and encompassing explanation is the one by Coockey in Chikelu (1992.234) that;

“Education in its every day sense could mean formal training that is given in schools and institutions, i.e. the acquisition of the ability to read and write and calculate. It could also mean the specialized training that is given on the job. In a wider sense, education could mean the training of the entire person to enable him not only be able to read and write and calculate or to be proficient in a given job, but also to enable him fit himself for living in a society. So education could be treated either, as a very narrow subject relating to school and formal education or as a training covering the whole life”.

This quotation refer to education as a process through which a person acquires knowledge, skills, attitude and values demanded of him by the society into which he is born and within which he must function. This implies that education is concerned with the double role of an individual, first for himself, and secondly as an active member of the society.

Education no doubt is Power. In the modern world, those countries that have invested and continued to invest heavily in education have experienced stable and phenomenal growth. It is not strange that due to her failure to invest in her human capital, Nigeria lags behind many developing third world nations some of which it

become independent with it at the same time. With Nigeria, current state of development, she does not feature at the top of any development indices ranking even in Africa. In a 2007 survey, out of 53 African countries, ranked according to six indices (voice and accountability, political stability, government effectiveness, regulatory quality, rule of law and control of corruption) Nigeria ranks 42. As number 42 the "Giant of Africa" is ranked below Sierra Leone (31), Republic of Benin (20), Burkina Faso (14), Ghana (7), and Cape Verde. This is sad because in 1953, the highly reputable Wall Street Journal compared Nigeria with Japan in terms of potentiality of emerging as an economic super power. At that time, China, India, Malaysia, South Korea, Brazil, Argentina to mention but a few, did not even deserve a mention in the journal.

The situation today, after more than 50 years later is the complete opposite. Japan rose to international economic stage by leaps and bounds, overtaking all European economies by the 1970s. Malaysia not only caught up with Nigeria by the 1970s but it has been fast surpassing it. By 1980s, Malaysia was earning more revenue from palm oil than what Nigeria earned from export of its gas and oil. By 2001, while the Gross Domestic Product of Nigeria was put at 41 billion dollars, that of Malaysia was 188 billion dollars. That of South Korea, a country also far behind Nigeria in the 1950s/1960s, was 9046 billion dollars. China has captured the attention of the world, yet in the 1980, China was not prominent in the world. Again, education seems to be playing very important roles in the phenomenal growth of China. Whereas in 1949, only 20% of Chinas' population was literate, by 2005, it had reached 90%. Between 1978 and 1998, China tripled the number of its high institutions from 598 to 1984. (Mahadi 2008).

The examples just cited indicate that educational advancement is not just about employment. It is instead, a mechanism for creating an atmosphere suitable for a world of competition, technology and knowledge. The stagnation in Nigerians' educational system is the reason for her underdevelopment.

Technology Education and Nation Building

Nigeria is one of the developing nations of the world aspiring for technological and economic development. The importance of technological development cannot be over emphasized for the rapid development of other sectors of the economy. Appraising the resources needed for development and growth of a nation, Nigeria is well endowed naturally with material resources, she also has human resources which should be able to retrieve and process the natural resources for strong economic development. Usman (2009) described Nigeria as:

1. Having the 6th largest deposit of gas in the world.
2. Being the 8th largest producer of petroleum in the world

3. Having 34 solid minerals
4. Having 44 exportable commodities.
5. Having large arable land.

Unfortunately, these God given potentials and resources have not been adequately utilized to grow the nation's economy and industries. The necessary infrastructures that will ensure solid economic growth and stability are lacking thereby, subjecting Nigeria citizens to unemployment and poverty. Despite its oil riches, Nigeria is ranked 80th in the Human poverty index amongst 108 developing countries (Nigeria Entrepreneurship Initiatives, 2008).

Aina (2008) on his report on visit to China, noted that it is a country which has fascinated the whole world, not only for its success at producing technical manpower in the right quantity and standard, but about a country which has used Technical Vocational Education (TVE) to revolutionize a society of over 1 billion in less than 20 years. Aina (2008) captured their motto in the message of the Principal of Tiajin vocational school, Zhang Lichang which went thus:

“The prosperity of modern urban economy has always co – existed with the development of education; vocational education has played an essential role in constructing a well off society in an all round way and has taken the lead in realizing modernization. The truth of vigorous and education prosperous China has been well- known and proved by the practice of Chinese vocational education. So the wink of the history will become the everlasting of history that will be the symbol of the wisdom and endeavour of the pioneer, tailless and reformers of vocational education. The peach and the plum do not peak, yet a path is worn beneath them. History is the testimony and road is so wide. Chinese vocational education is flying high towards the new destination in the open sky of development of economy and society”.

The role of education especially Technical Vocation Education (TVE) cannot be under estimated in nation building. Technical Vocational Education simply refers to packages of training programmes assembled to teach skills of different types of jobs, equipping the trainees to use their hands and expertise to produce finished products or provide some services. Technical vocational jobs in this regards include home economics, automobile mechanics, woodwork, concrete practice, agriculture, electronics /electrical technology, fine and applied arts, computer training, and business education among others. (Adediran2004).

Technology education, according to Igwe (2008), is a time-honoured process which deals with acquisition of skill and knowledge in chosen occupation to enable an individual to earn a living. This type of education helps to identify potentials in individuals, develop the individual's skill, knowledge and attitude for employment in a particular occupation, group of related occupations or to function in any economic activity including agriculture, commerce, public and private services.

Technology Education leads to nation building through wealth creation by the citizenry. Technical Education is necessary to increase industrial productivity by supplying the needed workforce to the labour market. Technology Education through training transforms potential job-seekers into job-creators who instead of depending on the government employment, express their creativity and innovations in small and medium scale enterprises which in turn, boost the economy of the nation.

Challenges of Technology Education in Nigeria

The hitherto steady growth of technical education in Nigeria in the 1960s started to suffer a decline in the 1980s as a result of unfavourable government policies, which have forced many industries to close shop or operate at an abysmally low capacity level. Aina (2008) encapsulated the challenges of technical education as:

1. Poor power supply and generally unfavourable operating climate.
2. Obsolete and dysfunctional equipment in the workshops and laboratories.
3. Inadequate or outright lack of basic tools and essential instructional materials
4. Lack of essential equipment and materials for trade practice and full cycle production.
5. Inadequate or dilapidated infrastructure such as classroom buildings, workshops and laboratories.
6. Poor students enrolment, particularly in the new generation colleges, due to lack of encouragement and attraction to technical education as well as problems and proliferation of pre-degree programmes at tertiary institutions
7. Inadequate exposure of students to practical.
8. Acute lack of qualified and experienced teachers and instructors.
9. Lack of essential utilities such as power and water supply and
10. Inadequate funding especially recurrent activities.

These problems in the education sector became so serious that the United Nations Educational, Scientific and Cultural Organization (UNESCO, 2006) concluded that the aims of various governments to combat poverty through the establishment of different programmes aimed at job creation and poverty reduction have failed because graduates of our institutions lack necessary and vocational education, in both formal and informal programmes. (Aina, 2008).

Conclusion

Education holds the key to the nations' present and future development. Nigeria and Nigerians are graciously blessed with enormous resources that are untapped, thus great challenges facing the government is not lack of resources but inability to train and retrain the human resources to be able to process the material resources to increase productivity. The key instrument in the hand of the government and stakeholders to achieve her developmental agenda is effective implementation of a functional education i.e. technology education. Technology education for sustainable development is that which seeks to empower all citizens with functional education so that they can assume responsibility for creating a sustainable future for themselves and contribute to the actualization of the 7 point agenda for national development.

The Way Forward/Recommendations

It must be noted that the phenomenon of human development revolve around how man applies his knowledge to master and control his environment. Globalization has made it imperative for our society and the economy to be re-oriented towards viability and competitiveness.

The strategy to bring technology education to the front burner in order for it to play its proper role in nation building can be summarized as follows;

1. Teacher training
2. Establishment of more schools across the states of the nation.
3. Curriculum review and textbook development
4. Sponsored conferences, seminars and workshops.
5. Provision of adequate remuneration, welfare package and promotion.
6. Facilities rehabilitation, expansion and modernization.

Teacher Training

While not discounting the importance of any of these, the emphasis on this subject is teacher training. The successful implementation of any educational system depends to a large extent on the number and calibre of teachers operating in the school system. It is a truism that the educational system of any nation cannot rise above the quality of the teachers. Aggarwal (2003) stipulates that the destiny of a nation is shaped in classroom and it is the teacher who is a very important instrument in moulding that destiny. The teacher can be described as the sparks that fix the whole development progress. The services of the teachers are indispensable to a nation for they are more important than any other professional group; they influence the lives of the Nigerian youth and therefore, the nation's future.

Establishment of More Schools

China demonstrated the concept of establishing more schools, when in 1949, only 20% of China population was literate, by 2005, it had reached 90%. Between 1978 and 1998, China tripled the number of its high institutions from 598 to 1984. (Mahadi 2008). Applying the same strategy will enhance Nigeria literacy level and put her on the path of rapid development.

Curriculum Review and Material Development

Educational agencies must supervise, administer, coordinate, articulate and disseminate the laudable articles of National Policy on Education. These agencies include:

- a. NERDC (Nigerian Educational Research and Development Council)
- b. NUC(National Universities Commission)
- c. NTI (National Teachers Institute)
- d. UBEC (universal Basic Education Commission)
- e. TRCN (Teachers Registration Council of Nigeria)
- f. WAEC (West Africa Examination Council)
- g. JAMB(Joint Admission and Matriculation Board)
- h. NECO (National Examinations Council.)

These agencies must engage in periodic review of the curricula, originate and improve/update educational materials, re-train teachers and offer quality workable recommendations to the government.

Sponsored Conferences, Seminars and Workshops

Obi (1990) opined that for a teacher to become more proficient in discharging his duties, he must take many routes such as workshops, independent study, curriculum committee work and professional conferences. Sponsorship of this nature will give the technical teachers opportunity to rub minds with other educationists thereby, keeping them abreast with modern trends in education and other current issues. This will place the teachers in a vantage position to groom the students and pupils under them to actualize the 7 point agenda resulting in national development.

Provision of Adequate Remuneration, Welfare Package and Promotion

Momoh-Olle (2000), stated that one major reason for the brain drain is underpayment of technology teachers compared to other equivalent profession. The long debated teachers' salary scale when implemented will go a long way to make those about leaving to remain, while those scared of coming in, would be encouraged to enlist.

Promoting teachers as at when due is enough motivation to make them be more committed and dedicated to duty. Ipaye (2002) also declared that promotion is a

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way of rewarding people for their efforts and services; it helps to boost the morale of teachers and motivates them to work harder.

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