Dealing with Security Challenges and Achieving Transformation in Nigeria through Science Education

By

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Abstract

This paper discussed the significance of science education in the development of the nation. It examined the state of science teaching and learning in the country. The security challenges of the' nation emanating from social and economic realities were discussed. The transformation programme of the government was also discussed. The paper recommended among others improvement in the teaching and learning of science with which the problems of unemployment and poverty which are serious impediments to national development could be reduced.

Introduction

All independent nations strive to develop their human resources. This is perhaps due to the realization that a nation's most valuable asset is its human resources because it is only resourceful human beings that ensure national development. According to Taiwo, (1983) development starts with people, that is their orientation, organisation and discipline. For the human resource to contribute meaningfully to the development of a nation, it must be adequately prepared through education. That makes education the cornerstone of socio-economic and political development of any nation.

The effectiveness of any system depends largely on the competence of key players in the system. This is particularly true of the education system. When competent and qualified people are given appropriate training, quality is assured. Incompetence on the part of the teachers will hamper the smooth and successful implementation of any curriculum. Teacher education in Nigeria has undergone a lot of changes with the aim of improving the quality and competence of the teacher. However, there is a very serious down – turn in the quality of teachers at all levels of the education system. Okebukola, (2005) was quoted as saying "*the quality of graduate teacher education in Nigeria is being called to question"*. That graduate teachers in Nigeria are largely characterised by very poor pedagogical skills, poor communication skills, poor classroom management and control, lack professionalism, lack entrepreneurial skills and general poor attitude to work.

Most human activities are now shaped by electronic and mechanical devices produced by science and technology education to bring about pleasure and better life to human beings. According to Wasagu, (2009) any country aspiring for greater heights in today's world therefore must not toy with its science and technology education. In this regard, science and technology education seems to have a pre-eminent position above everything else in the development process.

Fifty six years after political independence, Nigeria is still a developing nation despite her abundant human and natural resources. This is because science and technology education in the country is saddled with many problems ranging from insufficient quantity of well trained competent, committed and qualified science teachers, inadequate supply of laboratory

equipment and facilities, due to poor funding, negative attitude of students toward science among others. As a result of all these graduates of science and technology education in the country lack basic scientific knowledge and technical know-how. The knowledge received cannot be said to be of good quality. It is theoretically oriented, factual knowledge that can not be transferred to real life situations. As such there is a general lack of qualitative, skilled manpower for the development of the nation. The knowledge is also not sufficient and relevant enough to make its recipients self employed. Graduates of all levels of education of the country are now roaming the street unemployed and lacking in self sustenance. The questions that comes to mind at this point are –

1. Why is our science education not pursuing relevant goals?
2. Why are the outcomes of our science education unsatisfactory?
3. Why do we have educated unemployed youth?

The Nigeria society is presently bedeviled by a number of social ills ranging from armed robbery, political thuggery, hooliganism, religious and ethnic conflicts. The nation's economy is in a state of stagnation as a result of which government cannot achieve developmental objectives. Poverty, unemployment crises, insecurity and other social vices have made it difficult for government and individuals to channel available resources to productive ventures. This underscores the need for change. That is the need for positive change in the social, political and economic life of the nation which is only possible by increasing the rate, quality and relevance of science and technology education at all levels. Its teaching and learning changed from transmission and acquisition of information to constructivist approach and acquisition of skills needed to continue learning through out life. So that a literate society is created with sufficient knowledge for undertaking specific tasks that are sufficient for the transformation and modernization of the society. A functional and well articulated science and technology education is thus a viable economic base.

This paper highlights the significance of science education in the overall development of the nation. It examines the state of science teaching and learning. It discusses the security challenges in the country and their effect on national development. The paper further examines the current transformation programmes as they affect education and recommends the way forward.

Science Education and National Development

Science education is that aspect of education which is concerned with developing scientific and technological literacy among the populace. According to Wasagu, (2009) it is a field of study that acquaints individuals with certain basic knowledge, skill, competence and attitudes that are essential for successful living within the society.

Science and technology have been identified as the potent tools for development in today's world. According to Aminu, (1986) development means improving the total circumstances of humans on earth, satisfying their spiritual and material needs and granting them mastery of their environment. For the nation, development means that, such fulfilled individuals should come together to build a systematically organized, self-generating and technologically advanced society. Thus national development encompasses development in all aspects of life of

citizens. This involves social, economic and political activities. Science and technology education is thus relevant to national development. Every activity of human rests on science and solutions to all human problems in terms of food, shelter, clothing, water, energy, employment, healthcare and others all centers around science education.

For any nation to develop technologically and industrially that nation must have well trained and capable man power. This makes manpower development central to any nation that aspires for .national development. According to Lewis (1976) countries across the globe ensures economic growth, civil and political development as well as social and personal integrity through quality science education. This is acquired through development of resourceful human beings that can exploit and develop other material resources for development.

> *"countries which have made substantial investment in and have strategically managed science and technology have been able to significantly raise their material welfare and by extension the quality of life of their population while those countries which have not done so have been unable to supply even the most basic needs of their populace"(Wasagu 2009, P. 5)*

Science education is a means of acquiring skills for life long career prospects. This is because through science education learners are able to learn and think creatively, constructively and independently of others. This makes them self-reliant and well rounded individuals who can generate employment for themselves and others.

Rapid growth in the economy of any nation is subject to its scientific and technological development. Countries that have invested greatly in science are among the developed nations of the world while countries that did not do so are among the developing or under developed nations. It is thus a good rule to remember that science education is a high yielding investment. It is needed to build a prosperous society that is socially responsible and capable of taking its rightful place in the competitive world.

The State of Science Teaching and Learning in Nigeria

It is self-evident that skills for the development of any nation are directly connected with science and technology. There is a general consensus among educators that science teaching in Nigeria is not producing the desired results. (Wasagu 2008, Eniayeju, 2010, Nnena, 2010).According to Wasagu, (2008) "We have students who cannot read, curriculum materials that' are irrelevant to the needs and aspirations of both students and society, teachers who cannot teach and schools that are poorly administered".

Ogonnaya and Uzoamaka (2011) also noted that the system only turns out graduates of science education with scarcely any skill. That is, the system does not prepare students for the world of employment. That the system, has failed to transform its recipients into productive and utilisable elements of the society. Instead, the system has produced a class of people who have no means of ascending into the intellectual world nor are they willing to descend to the level of their farming or trading parents. A lot of them feel too educated to go hack to agriculture and rural occupation while the modern sector is not generating enough employment opportunities to absorb them.

Ideally the study of science should lead to the production of well rounded individuals. This is however when it is provided with reasonable efficiency and effectiveness. That science teaching has

failed to provide learners with appropriate knowledge and skills needed to make useful contribution to the development of the nation. This is because science teaching at all levels in Nigeria is facing a number of problems which includes:

i. Inadequate funding;
ii. Inadequate teaching facilities, equipment, tools and infrastructure;
iii. Inadequacy of well trained science teachers;
iv. Ignorance of career prospects in science and science-related professions;
v. Poor preparation for science teaching;
vi. Lack of good interaction among teachers, students and resources.

Ogannaya and Uzoamaka (2011) however attributed the poor state of science teaching in schools to the science curriculum. That the curriculum is outdated, content driven, overloaded and irrelevant. That the curriculum does not prepare students for -the world of employment or for further studies.

In an attempt to improve the quality of and access to school science, government had come up with a number of policies and programmes. According to Wasagu, (2008) it is the country's desire to achieve rapid social, economic, scientific and technological development that can lead to substantial restructuring of the school curriculum at all levels of the system from a predominantly literate type to one that stresses emphasis on skill acquisition of science and technology. However the policies and programmes have only indicated good intention.

> *"Government had proven unwillingness over the years to back up the policy framework with adequate budgetary allocation, making it difficult to provide sufficient school classroom, train enough teachers or even pay them adequate salary and provide other inputs necessary for the realization of the countries educational goals".* (UNICEF/NPC (2001, *P. 11)*

This situation indicates that there is a gap between rhetoric's and realities. That science education in Nigeria is only receiving lip service; government is not following policies with significant cash backing. To ensure prosperity, government must make practical and realistic plan and invest heavily in science and technology education. Plans for effective teaching and learning of science should begin with the production of well-trained and competent teachers; this is because no training can take place without competent teachers to handle it. According to Nworgu, (2010) focusing on the improvement of the quality of the teacher has a superlative advantage. This is because the best curriculum and the best instructional method can fail at the hands of ill prepared teachers.

Security Challenges in Nigeria

Economic security and development provides a durable foundation upon which peace and stability can be constructed. This has made the pursuit of national economic development the pre occupation of Nigerian government at different points in time. According to Nwachukwu, (1992) possession of national power hinges upon the creation of national wealth and security.

Nigeria is currently facing economic difficulties; this is as a result of total neglect of the non-oil sectors of the economy. This has made the economy a mono-cultural one. The oil sector only served as a disincentive to the industrial and manufacturing sectors. This encouraged the importation of all

industrial inputs and consumer- items producing a consumer nation syndrome which depends largely on imports to meet domestic demands. This has laid the foundation for external indebtedness. The national economy is now in a bad shape. Nigeria is among the poorest nations of the world and a lot of Nigerians cannot make ends meet.

These sufferings have manifested in hunger, poverty, unemployment, disease, armed robbery, kidnapping, human trafficking, prostitution, corruption and conflicts ranging from political, religious and ethnic. According to Adoga, (2007) causes of conflict include among others competition for resources, ethnic and religious differences, inequality and unjust treatment of individuals, clashes of interest as well as bad governance.

Conflicts have serious implication on national security. This is because during conflicts, lives are lost, people displaced, property razed and business jeopardized and would be investors are scared away from staking their business interest (Adoga, 2007).

The Transformation Agenda

The economic and social crisis in the country is threatening the peace and stability of the nation. The crisis are affecting government plans for education, agriculture, social amenities, health care. It is in this light that government is trying to devise coping mechanism. Government thus came out with its transformation agenda with the view to promote economic growth, self reliance, food security and employment generation to eradicate poverty.

Transformation is certainly a worthwhile goal for education systems, all education policies and practices as it opens up new vistas and brings each person and each society into a wider horizon (Obanya, 2004). In the agenda, government plan to give prominence to technical and vocational education, provide economic growth and self-reliance, accelerate industrialization to achieve high rate of growth, generate employment and raise income. The coordinal objective with regards to agriculture is the sustenance of national self-reliance in food as well as increase in raw material production for the local manufacturing industries and export. These are worth-while goals. The problem is faithful implementation. In the past government has come up with similar programmes which had all failed in the process of implementation.

For positive and meaningful transformation of the economy government should diversify the economy, enhance teaching and learning of science to enhance employment, reduce poverty to limit incidence of social vices and to promote peace and stability.

Conclusion

The paper discussed the significance of science education in the development of the nation. The state of science teaching was examined. The security challenges of the nation emanating from social and economic crisis were discussed. The transformation agenda of the government which aimed at changing the system was discussed.

Recommendations

1. Human capital must be consciously created. It requires efforts to build skills, competences and knowledge that translate people into productive labour force. This is obtained through good science education with which problems of unemployment and poverty which are impediments to national development are reduced.
2. Increase of wealth generated from oil brought distortions in the economy of the nation. Government should diversify the economy, promote non oil exports to enable other sectors make contribution to the growth and development of the nation.

3. Nigerians must learn to manage their differences, cooperate and live peacefully.
4. To ensure peace and stability, equity and justice should prevail. All forms of inequalities and discrimination should be eliminated.
5. Government should demonstrate political will and follow it up with necessary action to ensure successful implementation of policies and programmes.

References

Adoga, F.O. (2007). Financial Management in the Nigerian Public Sector. Journal of Research and Contemporary Issues.3(1 & 2) January – December.

Aminu, J.M. (1986). Quality and Stress in Nigerian Education: University of Maiduguri and Northern Nigeria Publication Company. Maiduguri Nigeria 202 - 209.

Eniayeju, P. (2010). Where is the STEM? Reflections on the missing context in Science, Technology, Engineering and Mathematics Instruction. Proceedings of the 51st Annual Conference of Science Teachers Association of Nigeria (STAN). Nsikak-Abasi Udofia (ed). HEBN Publishers Plc.

Lewis L.J. (1976). Society, school and progress in Nigeria, London Robert Maxwell, M.C Publishers.

Nwachukwu, I. (1992). Nigeria's Economic Diplomacy. A Publication of the Ministry of Foreign Affairs. Lagos Emacon print Limited.

Nworgu, L.N. (2010). Improving secondary school biology Teachers' Pedagogical Content Knowledge within a constructivist framework. Journal of Theoretical and Empirical studies in Education. 2(1) December.

Obanya, P.A.I. (2004). The Dilemma of education In Africa. Ibadan: Heinemann Educational Books (Nigeria) Plc.

Ogonnaya, U.P. and Uzoamaka, O.T. (2011). Science, Technology and Mathematics (STM) Education in Nigeria: The need for Reforms. Proceedings of the 52nd Annual Conference of Science Teachers Association of Nigeria (STAN) Abonyi (Ed). HEBN Publishers Plc.

Okebukola, P.A. (2005). In This Day News Paper. Tuesday 29th November, Page 3.

Taiwo, C.O. (1983). The Nigerian Education System; Aims, Plans and Implementation. Nigerian Education Trends and Issues. Ife Press Limited, Ile-Ife.

UNICEP/NPC, (2001).Children's and Women's Rights in Nigeria. Challenges of a Bitter Legacy. Abuja Nigeria.

Wasagu, M.A. (2008). Reform Agenda of the Nigerian Education Sector: Providing Solution or Evading the Real Problems. Science Teachers Association of Nigeria (STAN) Memorial Lecture Series No. 20.

Wasagu, M.A. (2009). Rethinking Science Education for Changing. Times: the Writing on the Wall. Eight Inaugural Lecture, Usmanu Danfodiyo University, Sokoto. Sokoto Trans-Akab Printing and Publishing Limited.