



Science Education as A Tool for Security and National Transformation

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Abstract

The paper is focused on science education as a tool for security and national transformation in Nigeria. The challenges of national security in Nigeria were highlighted showing how these security challenges have individually and collectively continued to pose serious threat to national security which is the bedrock of any meaningful development. Science education is presented as a panacea for promoting National Security and as a tool for National Transformation in Nigeria. The challenges facing national transformation in Nigeria were also highlighted.

Introduction

National security refers to the ability of any nation to develop and protect herself, promote her legitimate values, norms and improve the living standard of her citizens and visitors. According to Okene (2011) national security is the absence of those tendencies which could undermine the internal cohesion and corporate existence of any states. It is the maintenance of all the vital activities for the promotion of her core values, socio-political and economic objectives, and meets up the legitimate aspirations of the people. For any nation, especially Nigeria to attain sustainable growth and development that will leads to security and transformation, there is a need to recognize science education as a main concern area of education for her citizens. Science as a concept is coined from the Latin word “Scientia” meaning knowledge.

Science, according to Abdullahi (1982) is seen as an activities culminating into a testable, falsifiable and verifiable body of knowledge. Ogunniyi (1986) sees science as an attempt by human beings to organize their experiences about nature into meaningful systems or explanations. Okoye (1997) sees science as a dynamic human activity fretful with understanding the workings of our world. This understanding helps the scientist to further look into the nature of things and events and to control and harness such things and events for benefits of mankind. Pembe and Humbe (2009) observed science education as a process of teaching, especially in the school to improve one’s skill of systematic enquiry and natural attitudinal characteristics. Science education deals with allotment of science content and process with individuals who are not considered traditionally to be members of the scientific community who could be student, farmers, market

men and women or a community. Science education as a discipline is recognized as a prerequisite for technological development. It also involves the study of science in-depth and in addition educational knowledge and concepts are learnt and verified. No country can be globally recognized without talking about its scientific advancements.

Science education recognizes natural phenomena appropriate to a child’s interest and skills (Lewis, 1985 and Okoye, 2018). It also equips teachers, learners and the society with knowledge and skills to perform noble task useful for improving socio-economic standards of the society. Despite this importance of science education to national development, Nigeria lacked sustainable science education since her independence and as a result, science education has not been able to move the country into industrialized and above poverty level. Momeke (2007) opined that science education has failed to produce skilled manpower needed for the transformation from national poverty.

Security is a cherished state of being which constitute a number of values that people unavoidably desire (Onuoha, 2005). It is a principal condition required by humans whose satisfaction guarantees a feeling of wellbeing and survival. It is the activities involved in protecting a person, building a country against attack danger or any form of harm. There are various forms of security such as national security, personal security, hotel security, airport security, financial security and others but our focus in this paper will be national security. Insecurity on the other hand is a condition in which people has no confidence in the institution and leadership that were supposed to protect their lives, property and provide for their well-being (Radda, 2013). Consequently, they live in trauma, fear,

anger, despair, suspicion and mistrust. In comparing security and insecurity, Parkins (1993) stated that:

“security is a value, one among ill-assorted and vitally important values while insecurity is a disvalue”, a bad thing, one among a number of evils to which we are unavoidable averse to ..., we want security and we fear and shun insecurity....(p16).

If security is the state of the feeling of being safe and protected, insecurity is the state of being unsafe or insecure, it is also a state of mind characterized by self-doubt and vulnerability. Security is the lack of such protection.

Human societies have always had problems and people have always sought a solution to such problems. The educational sector has always been one of the first points of call to seek for solution to social ills. Hence, it has been the concern of educational administrators to set goals to transform the society. It is a fact that Nigeria as a country despite her abundant human and material resources is still facing a development deficit which manifests in poverty, insecurity, corruption, unemployment, lacks of productivity and all forms of negativity in almost all aspects of her national life. The country is under-achieving and is not where it is supposed to be in the comity of nations. There is therefore the need for national transformation. This is one of the anchor points of this paper.

Transformation simply means to change something or modify its form or appearance usually for the better. Education (especially science education) is universally acknowledged to benefit individuals and promote natural development. Science education is therefore an agent of change and transformation. Science education is fundamental to national transformation because it depends on literate and skilled citizenry. In spite of many challenges confronting national transformation in Nigeria, education (especially science education) remains the “key agents” for the desired transformation. It follows logically that national transformation must start with the science revolution. Peace and security are also necessary for national transformation hence this paper is to focus on science education as a necessary tool for security and national transformation in Nigeria. Subsequently, the paper will examine the challenges of national security in Nigeria, science education promoting national security in Nigeria, Science education and national transformation in Nigeria, challenges of national transformation in Nigeria and

strategies for promoting national security through science education.

Challenges of National Security in Nigeria

The primary responsibility of any government is the protection of lives and property. Citizens are happy with any government when and where it is able to protect their lives and property and converse is the case. The protection of lives and property is usually achieved through the national security agenda of a government. Therefore, the actualization of the social contract entered into by citizen and the government is solidified when the national security is guaranteed. Any government that fails to secure the lives and property of its citizen can be said to have lost legitimacy (Rousseau, 1980; Perkin, 1993).

The return to democracy in Nigeria on May 1999, not only brought about various types of conflicts and insecurity problems, new one emerged. There was the transformation of the old ones such as traditional challenges to national security such as political instability, tribal and communal clashes and ethno religions conflicts that have brought about new dimension to the threats and challenges to national security in the country. There is a need to also see security from the broader sense as the struggle to secure the most basic necessities of life such as medicine for healthcare, food, fuel and shelter (Abubakar, 2005). From the standpoint of human physiological needs, security is a key for attainment of peace and overall national development. This is because social instability arising from the absence of such basic human needs can indeed manifest into security problems. In addition to the socio-economic security challenges confronting Nigeria today, include ethno-religious crisis, ethnic militia, political and election conflicts, boundary dispute, organized crimes, cultism, criminality, Book Haram, insurgency, kidnapping for money, armed robbery, menace of armed bandits especially in Northern Nigeria, Niger Delta militant upsurge and farmers-herders crisis. All these activities have continued to pose serious threats to national security as they are scattered all over the country. In recent times, these undesirable activities have not only assumed dangerous dimensions but have continued to pose serious threat and challenges to national security which is the bedrock of any meaningful development. Many people in some communities in Nigeria lives in fear of uncertain death from bomb explosion especially in North-Eastern part of Nigeria due to armed bandits and terrorist activities

of Boko Haram that have continued to wreck havoc on human lives, communities and schools in these areas. Many communities in these areas has been sacked by these murderous gangs forcing their inhabitants to now be camped in many Internally Displaced Camps (IDPs) scattered all over this North East Region of Nigeria. Even the military personnel sent to secure lives and properties of these communities are not spared by the activities of these Boko Haram terrorists. Recently, it was reported that over 850 underestimated numbers of soldiers have lost their lives in their war against these terrorists. The activities of armed bandits, armed robbers, kidnappers and armed herdsman have continued to pose a serious threat to lives and properties in many areas of the country with Northern part of the country being the worst hit. The lives of nationals living in Nigeria are in perpetual danger of abduction or kidnapping by these agents of insecurity.

Employing Science Education Strategies for Promoting National Security

Looking at education as a process, individuals get assisted formally through proper direction and guidance to develop their capacities for the benefits of our society and nation at large, it then follows that if a nation leave their citizen with the right type of education (especially science education), the citizen will not turn against their fatherland, rather they will bring national security for sustainable development (Azubuike, 2013). Daily-Sun in 2013 reported that professor Regayyata Rufai former Minister of Education, have recognized reform of the educational system especially in the sciences as a solution to the security challenges facing the nation. It is necessary for total renovation of the educational curriculum at all levels of education with a view to providing learners broad-based education for the development of the mind, soul and the body, and for comprehending the environment and in the development of appropriate attitudes, skills, abilities and competencies to co-exist with and contribute to the development of the society. This of course calls for synergy between liberal education, science education, vocational and entrepreneurship education.

Liberal education is one that frees the minds of its recipients from their preconceptions. It broadens the possibilities for a great understanding of others in our nation and around the world (Forum Futures, 2007). Nigerian institutions should therefore try to train future workers to help state economies and to offer liberal education so as to produce informed

citizens who can contribute to our democratic way of life.

Functional science education is the fulcrum for producing youths that have critical thinking scientific literacy. The exposure of Nigeria youths to science education curriculum laden with the acquisition of functional skills and competences will help to divert their attention to productive ventures away from all forms of crimes and criminality which endanger national security. Science education helps to create informed and skilled citizenry which is vital to our democratic society. It increases the potential for individuals to perform as critical thinking citizens. These critical thinking citizens should be armed with the necessary key components of critical thinking which are skills disposition and knowledge. Critical thinking citizens developed through science education programs cognitive skills associated with higher order thinking directed into productive ventures. These well informed products of science education are usually armed with skills for analyzing arguments, making inferences, using inductive and deductive reasoning, judging or evaluating alternatives of actions, making decisions or solving problems, asking questions as basis for informed actions, interpreting or explaining events and being able to see both sides of any issue. Citizens of Nigeria armed with these skills acquired through planned exposure to functional science education are the catalysts for nation building away from potentials of insecurity.

It can be seen that functional science education is a very powerful tool for promoting national security as shown above. Viewed in this context, functional science education can promote national security via the following strategies;

- a. Functional science education produces citizens that will feel obligated to the nation. Citizens who will directly and indirectly ensure the stability, order and progress of the nation.
- b. Science education produces manpower armed with functional skills and competencies for the nation. The government in its efforts to satisfy the yearnings of the citizen establishes institutions through which it can provide social and economic infrastructures. These institutions have to be managed by educated people a good number of whom are science graduates from tertiary institutions. Their effective and efficient performance in these institutions such as the military, paramilitary and civil institutions promotes national security.

- c. Science education empowers a person or people economically, politically and socially. A nation armed with productive science educated people can be said to be a wealthy nation because of the positive correlation between science education and disposable income gained from employment.
- d. Science education through the educational system assist in absorbing, training, empowering and engaging youths in Nigeria which shields them from idleness and the dangers associated with it.

In summary, a science educated population is an asset to any nation. This is not only because of the economic value attached to the contributions of science educated people, but also because of their capacity to generate and, offer employment to the unemployed. Hence, no amount of money spent on science education for the Nigeria citizens can be too much as it will pay off by making the nation secure. Science education no doubt is also the foundation of development in every society. It is important to every individual and the society at large just as roots are important to the growth and development of a tree. Hence, science education is a very strong agent of national transformation.

Science Education as a Tool for National Transformation in Nigeria

Transformation is a constant process. Nothing is static; everything is constantly changing either for better or for worse. Hence, a society cannot be static. That Nigerians are quick to remember with nostalgia the good old days in terms of the economy, education and social relationships is a pointer to the fact that there has been a transformation in the negative sense in Nigerian society. The need to halt this ugly trend is the thrust of this paper. The application of science education can be seen as key agents for the desired transformation. It follows logically that National Transformation must start with education especially science education. Raising the gravity and standard of science education in Nigeria to an international competitive level is surely bound to ignite national transformation. The importance of science education as a tool to national transformation can be established because:

1. Science education is an exciting intellectual adventure that inspires the young to expand the frontiers of their knowledge about nature.

2. Science education generates fundamental knowledge needed for the future technological advances that will continue the economic engines of the world.
3. Science education contributes to the technological infrastructure and provides trained personnel needed to take advantage of scientific advances and discoveries.
4. Science education is an important element in the education of chemists, engineers and computer scientists as well as practitioners of other physical and biomedical science.

From the above, it can be seen that science education is very important to the growth and development of the Nigerian society because of its power to fashion individuals to be integrated into our society, to become a promoter of the societal culture and development. Science education is thus a very strong tool for national transformation.

Challenges to National Transformation in Nigeria

As a developing, country, Nigeria is bold in declaring her ambition to be ranked among the twentieth developed economies in the world by the year 2020. This is because the goal of government everywhere is the betterment of society by ensuring economic growth, development of infrastructure, national security, social justice and improvement in the welfare of all the citizens.

Nigeria is Africa's largest economy, with a huge population of over 180 million people, Gross Domestic Produced (GDP) of about 195 billion dollars and per capital income of 1,500US dollars (Charles-Ogan, 2015). This however does not make Nigeria the most developed country in Africa. Is her goal, to attain this goal, the Federal Government of Nigeria outlined the vision 20:2020 economic transformation blue print as the nation's long-term development agenda. Hence, in a bid to achieve the millennium development goals (MDGs) and the vision 20:2020 target, President Goodluck Ebele Jonathan on the inception of power in May 2011 came up with a four years development plan tagged "Transformation Agenda" (TA), 2011-2015. TA is based on a set of programmes aimed at transforming the Nigerian economy to meet the needs of the present Nigerians without jeopardizing the need of future generations. TA therefore, emphasized continuity, consistency and commitment (3-Cs) and makes education a key component of human development capital of the agenda.

An overview of the TA which covers the period (2011-2015) draws its inspiration from the millennium development goals (MDGs) vision 20:2020 and the first national implementation plan (NIP) 2010-2013. TA was based on a set of priority

policies and programmes to transform the Nigerian economy to meet the needs of the present generation while the future needs of the Nigerian people are not jeopardized. Figures 1 and 2 below depicts the pillars and development priority of the TA.

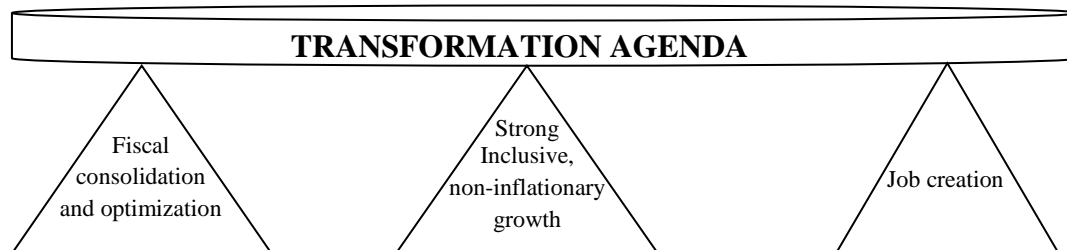


Fig 1: Pillar of Transformation Agenda

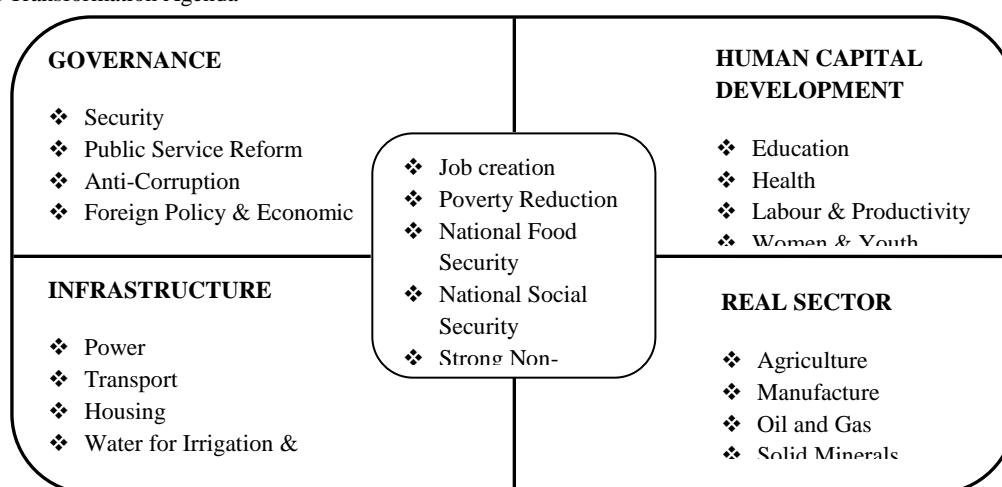


Fig. 2: Development Priority of Transformation Agenda

There is no doubt that investing in human capital development ensures a nation's human resources endowment and enables the optimal exploitation and utilization of another resource for effective growth and development. Priority policies for the development of education (including especially science education) under the TA include:

- Promotion of primary enrolment of all children of school age irrespective of the income profile of the parents;
- Provision of infrastructure such as classroom across all levels of education to ease overcrowding, increase access, and reduction of pupils'/teacher ratio; and
- Enhancement of the efficiency, resourcefulness, and competence of teachers and other educational personnel through training, capacity building and motivation.

Conclusion

Science education has remained the focal point of attention for nations seeking solutions to myriads of problems that they are confronted with. This is because science education is expected to produce skilled manpower required to transform society and act as agents of national security. Nigeria like many developing nations in Africa is indeed in dire need of transformation in many areas of national life. The problem of security has also continued to pose serious problem to the national survival of many nations in Africa with Nigeria almost looking helpless in overcoming diverse security challenges confronting her. This paper has tried to point to the direction of science education as a very important tool for security and national transformation. A comprehensive introduction was provided on the concepts of science, science education, national security and transformation. The challenges to national security in Nigeria have been seen to centre on human physiological needs, political and electioneering conflicts, ethno-religious crises boundary disputes, ethnic militias,

cultism, organized crimes, criminality, Boko Haram insurgency, kidnapping and a host of others that have combined to pose serious threats to national security. The provision of functional science education is seen as a panacea to national security and a tool for national transformation. Challenges to national transformation in Nigeria have been rooted on low moral qualities of the leadership and the led leading to high level of corruption among the ruling class at all levels of Nigeria with the citizens left to wallow in poverty. The way out of this situation has pointed to the direction of education especially science education that is laden with functional skill production amongst the citizens.

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