

Envisioning Global Security for Sustainable National Development in Nigeria: The Role of Science and Technology Education

Adah, Stephen Akomaye (Ph.D)

Department of Curriculum and Instructional Technology, Cross River University of Technology, Calabar

DOI: <https://doi.org/10.37745/bje.2013/vol11n13644>

Published: 19th January 2023

Citation: Adah, S. A. (2023) Envisioning Global Security for Sustainable National Development in Nigeria: The Role of Science and Technology Education, *British Journal of Education*, Vol.11, Issue 1, 36-44

ABSTRACT: *Security is an imperative for every nation of the world. This is even more vital for a developing nation like Nigeria. Existing studies revealed that scientific and technological advancements in many developing nations have in no small measure help in reshaping their security capabilities which in turn has tremendously mitigated the impact of security threats. Drawing from this background this paper therefore x-rays some security threats in Nigeria that reveal that the country as a nation requires transformation in science and technology education to tackle the increasing insecurity level that has hitherto destroyed the corporate existence of the nation. The meanings of science and technology as well as the concept of global security are explained. The interactions of these are explored and the implications to the Nigeria science and technology education are drawn. The paper concludes with some suggestions among which is that Nigeria Government should invest not only in science and technology education but should also use the right policy framework to develop appropriate labour force through science and technology education.*

KEYWORDS: global security, science and technology education, sustainable national development

INTRODUCTION

Security, like many other terms in international political theory has attracted many definitions and many of those that attempt to define the term tend to approach it from their own ideological conceptions. Hence broad areas of the term “security” exist. If defining security is that elusive, then there is little wonder why opening within its coverage is so fluid.

It is not in doubt that people and government have at one time or the other taken actions where intended and unintended outcomes have become very difficult to tackle in the name of security. Because of its seeming lack of conceptual boundary, security as a concept is often used to entice and whip up patronage for many political projects both at the state and international levels of politicking (Osisanya, 2015). Hence, Williams

(2018) argues that security is a powerful political tool in claiming attention for priority items in the competition for government attention.

In the context of this paper, Makinda's (2019) definition of security as the preservation of the norms, rules, institutions and values of society appears to be the most appropriate. The author believes that all institutions, principles and structures associated with society including its people are to be protected from military and non-military threats. The term preservation as an important component of this definition presupposed conscious, deliberate and definite steps and actions. Therefore, the perception of the leadership of a society determines its actions and guides its efforts which becomes evident in the width and depth of the security agenda of that society.

Several attempts have been made to create a dividing line between national security and global security. Although in theory, a boundary exists between those two conceptual frameworks but such a boundary is not sufficient to maintain a clear-cut delimitation between them. Rather, they have symbiotic relationship but limited to the local authority sphere that will require a domestic security to deal with. (Makinda, 2019)

According to Osisanya (2015) national security is the ability of a nation to cater for the protection and defence of its citizenry while global security evolved from the necessity that nature and many other activities, particularly globalization, have placed on nations. These are demands that no national security has the capacity to handle on its own and as such call for the co-operation of every nation.

Buzan (2009) described global security as measures, taken by a given nations and international organizations such as United Nations, European Union and others to ensure mutual survival and safety. Such measures include military action and diplomatic agreements like treaties and conventions. Global security, according to Buzan has today expanded to cover a variety of inter connected issues in the world that affect survival. It ranges from the traditional or conventional modes of military, power, the causes and consequences of war between nations, economic strength, to ethnic, religious and ideological conflicts, trade and economic conflict, energy supplies, science and technology, food, threats to human security and the stability of nations from environmental degradation, infectious diseases, climate change and activities of non-state actors.

Osisanya (2015) posited that the global inter-connection and interdependence among nations that the world has experienced and continues to experience since the end of the cold war makes it expedient for nations to co-operate more and work together. However, Bilgin (2018) lamented that one of the major challenges which global security has to contend with is the concept of security complex, a situation in which the security concerns of every nations is deeply interconnected to the point that one nation's security needs cannot be realistically considered without taking into cognizance the security needs of other states. Bilgin further noted that the fear or threat content of security complex often breeds rivalry among nations but that this can be remedied through global security initiatives among nations.

Accordingly, it has become necessary for every nation to make conscious efforts towards building links with other nations and to also engage in global security initiative. This can only be realizable when science and technology education is made a priority by all nations and their institutions and when nations begin to realize that education generally holds the key to greater empowerment of the marginalized population and will be the principal weapon in the fight against global concerns such as poverty, injustice, inequality, insecurity, terrorism, environmental degradation, population control and desertification.

Global security issues in Nigeria

Nigeria, like many other global communities has had a long and unfortunate history of communal conflicts and ethno religious violence as well as economics, environmental, foods, political and personal security issues.

However, the most recurrent security issues that have been very prominent are terrorism, herder farmer conflicts, banditry, kidnapping, cyber-crimes, inter-ethnic conflicts, political repression and human rights abuses, environmental degradation, desertification and personal security.

As Makinda (2019) puts it, Nigeria has gradually become a slaughter ground for all forms of inter-ethnic strife, religious crises, herds men-farmer's struggle and terrorism all of which have grown exponentially with negative consequences on the citizenry. Nigerians are in Constance fear of what the next hour might bring as the attacks are disturbingly endless. The Boko-Haram insurance and the herder-farmer conflicts have become a national albatross and the government appears paralyzed and inept, almost passive on taking any vigorous action to stem the tide. According to Muhammed (2021) when viewed from outside, it could appear that these conflicts boil down to religious differences, tension between blocks of Muslims and Christian inhabitants but when one looks deeper, however, one finds that politics-more precisely, control of government patronage is the primary cause of many of these insurgencies and conflicts. These conflict and attacks by various terrorist groups usually come with devastating human cost in terms of lives lost, or permanently altered, internally displaced persons and immensely negative consequences for economic and social development.

Among the dreaded terrorist groups in Nigeria is the Boko-Haram sect founded by Muhammed Yusuf in 2002 and also active in Chad, Niger and Northern Cameroon. It is an Islamic sect that believes Northern politics has been seized by a group of corrupt and false Muslims and therefore wants to wage war against them and the Federal Republic of Nigeria generally to create 'pure' Islamic state ruled by Sharia Law (Buzan, 2009). This sect has been driven by a desire for vengeance against political class, police, Islamic authorities for their role in brutal suppression of the group. The group has been resolute and has proved to be very adaptable, evolving its tactics swiftly and changing its targets at the behest of a charismatic leader (Osisanya, 2015)

According to Beres (2018) Boko-Haram insur leap onto the world agenda in 2011 when it bombed the United Nation's compound in Abuja, killing twenty-three (23) persons. Other areas which have been their target include places of worship, markets, shopping

malls, hotels, bars, restaurants, viewing centres, transport terminal, government buildings, security and educational institutions that attract large crowds. Some observers speculate that Boko-Haram sect has reached out to fine allies in other global jihadist movements in the sahel which according to Jekins (2019) could be why the group had developed the capacity to improvised explosive devices and enlist suicide bombers. Boko- Haram is one of the largest Islamist militant groups in African and has conducted terrorist attacks on religious and political groups, local police, and the military, as well as indiscriminately attacking civilians in busy markets and villages.

According to Baylis (2011), individual and groups choose terrorism because it can acts as a form of asymmetric warfare to directly force a government to agree to demands or intimidate or coerce its citizens to further certain political or social objectives. After terrorist acts, people suffer from post-traumatic stress disorders, anxiety and sometimes psychosomatic symptoms. According to Sheeban (2005), terrorism is often practice by political organizations with both rightist and leftist objectives, by nationalistic and religious groups, by revolutionaries and even by national institutions and those who engaged in terrorism may do so for purely personal reasons based on their own psychological state of mind. Their motivation may be nothing more than hate or the desire for power or to create a general climate of fear in a population to bring about a particular political objective. In order to attract and maintain the publicity necessary to generate widespread fear, terrorists usually engage in increasingly dramatic violent and high profile attacks like hostage takings, kidnappings, mass shootings, car bombings and suicide bombings. This has been the trend of the Boko-haram insurgency in Nigeria as they have engaged in chibok girls kidnap, train passengers kidnap among others.

The main goal of terrorism generally is to destroy the public's sense of security in places most familiar to them. Major targets sometimes include buildings or other locations that are important economic or political symbols such as embassies or military installations. The hope of the terrorists is that the sense of terror their attacks engender will cause the population to pressure political leaders towards a specific political end. Another very disturbing and recurrent issue in Nigeria is the herder-farmer conflict over land resources. This has been especially prominent in the middle belt (north central) since the return of democracy in 1999. Attacks have also taken place in the north-west Nigeria against farmers who are mainly Hausas.

According to Buzan (2009) herder-farmer conflict in Nigeria have deep root and date back to pre-colonial times and have in recent time become far more severe because of population pressures, climate change and other various factors. Buzan further stated that during the British colonial era, herders and farmers would agree on a system called "Burti" in which specific migration routes were set up for herders with mutual agreement from the farmers, Herders and local authorities. However, the "Burti" system collapsed around the 1970s when farmers increasingly claimed ownership of lands along cattle migration paths. While the conflict has underlying economic and environmental reasons, it has also acquired religious and ethnic dimensions. Thousands of people have died since these attacks begins. Sedentary farming in rural communities are often target of attacks because of their vulnerability.

The herder-farmer conflict has killed so many people in Nigeria and also displaced hundreds of thousands. It followed a trend in the increase of herder-farmer conflict throughout much of the western Sahel, due to expansion of agriculturalist population and cultivated land at the expense of pasturelands, deteriorating environmental conditions desertification and soil degradation. Musarrat (2003) noted that population growth, breakdown in traditional conflict resolution mechanisms, land and water disputes, destruction of crops, contamination of streams by cattle, zero grazing lands, disregard for local traditional authorities, female harassment, harassment of nomads by host communities, among others are the main causes of the herder-farmer conflict.

These conflicts which were predominantly in the north central region have spread across other regions in Nigeria and have resulted in indiscriminate and avoidance loss of lives and properties. The country is now locked in a perennial macabre dance between sedentary farmers and nomadic pastoralists or herder because of the issue of accessibility and use of land and water resources. Apart from the terrorists and herder-farmer conflict other issues in Nigeria of global security concerns are:

- i) Economic –unemployment and poverty.
- ii) Food –hunger and feminine

Health – Unsafe food, malnutrition and lack of access to basic health care. As a result of globalization people from different parts of the world crisscross between geographic boundaries. As much as this has claimed to bring economic prosperity, it is also reflect with challenges particularly in regard to the spread of communicable diseases, crimes and terrorism.

Environmental – Environmental degradation, resource depletion, natural disaster and pollution which called for more cooperation among states especially when dealing with the aftermath of natural occurrences like earthquake Aside from spill outs resulting from deliberate human activities, another areas of concern is the consequences of internal conflict which include refuges problems which transcend geographical contiguity.

Science and technology education in global security

To understand the roles science and technology education play in global security, we must also understand what science and technology mean.

What is science?

It is quite difficult, if not a futile exercise to attempt a precise definition of what science is. Indeed the term science covers all kinds of activities and this probably explains why Rose and Rose (1969) as quoted by Umoren (2005) sees science as a magical word expected to embrace all sorts of concepts, odds and ends. Science is a dynamic activity concerned with understanding of the workings of our world. Ogunniyi (1996) defined science as an attempt by man to organize his experience with nature into meaningful systems of explanations. The term experience as used by Ogunniyi refers to: (i) the discovery of regularities and discrepancies and their effect on nature (ii) knowledge of

human actions and (iii) understanding derived from the control of diverse phenomena in nature and so on.

Thus, understanding help scientists to probe further into the nature of things and events and to control and harness such things and events for the benefit of mankind. This implies that science is an intellectual and practical activity encompassing the systematic study of the structure and behaviour of the physical and natural world through observation and experimentation. The nature of science has been conceptualized to comprise both the product and process. The activities of science (process) are supported and nourished by previously generated concepts (products). The products of science (its classification, laws, theories etc.) are generated or revised by the processes of science. The dimensions of the nature of science based upon the inter-relationship of scientific processes and products as put forward by Chatuwedi (1998) are as follows;

- i) Science proceeds as a series of approximation. It attempts a systematic and comprehensive understanding of physical reality.
- ii) Science is not a finished enterprise, much is yet to be discovered. Its theories are tentative and the use of these theories is contingent upon their correctness.
- iii) Scientific knowledge is based upon observations of samples of matter that are accessible to public investigation and are capable of being replicated through independent and competent investigations.
- iv) Science proceed, on the assumption based upon experience that time, space, and matter are real and that nature is not capricious but consistent.
- v) Every effect has a cause that can and should be quantified through the development of quantitative distinctions.

Scientific process therefore includes; observing nature, noting its regularities, identifying unobserved causes or mechanisms of these regularities. Classifying these regularities according to common properties. The generalization that emerge from these classifications becomes laws once they are integrated into theories. The theories help to explain the causes and mechanisms as well as predict and control the events.

What is Technology?

Technology according to Dugger (1995) originated from the Greek word “Techne” and “Logos” with the first relating to the art or craft in making something (artifact) and the later involving the understanding or logic of arts, crafts, or skills. Technologists define technology in terms of artifacts for carrying out tasks while sociologists tend to view technology as embracing the culture of a people. However, in terms of knowledge, technology can be defined as the application of science and other forms of organized knowledge towards specific practical use so that mankind could live more comfortably and securely. Technology is a problem-solving process developed by a people to control the environment, harness resources and produce goods and services and has its goal in the improvement of the quality of human life (Dugger, 1995).

Devries Marc E. (1997) defined technology in terms of five characteristics viz:

- i) Technology is inseparable from human beings
- ii) The three dimensions or pillars of technology are matter, energy and information.
- iii) Technology is closely related to science
- iv) Technology has three kinds of skills which are designing skills, practical – technical skills and product skills.
- v) There is a mutual influence between society and technology.

The nature of technology involves the methods inherent in its diffusion from place to place and its applications in the solution of man's problems posed by his environment. An individual's understanding of its nature, therefore, should include his or her understanding of its relationship with science, the principles inherent in its diffusion and the individual beliefs as to the usefulness or destructiveness of the application of technology. To understand the nature of technology therefore, one should be able to see technology as the immediate and direct consequence of scientific discoveries and appreciate the dangers inherent in its misapplication.

According to Chaturvedi, testing and verifying are universally valid, as are equally the principles of technology. Technology is an on-going process, a set of principles for problem-solving skills, and knowledge (products), since technology can only grow out of the study of science and its application. For instance, there have always been human activities to explain natural phenomena, there have also been ways and means of controlling the environment. Human history is therefore ranked by the evolution of man-made technology from the first all-purpose tools of the earliest man to tools of greater precision, greater variety and greater specialization.

What are the roles of science and technology in global security?

Science and technology education holds the key to greater empowerment of the citizenry and also a principal weapon for global concerns such as poverty, injustice and inequality, terrorism, environmental degradation, health, gender issues, international migration, populism, transnational organized crimes, extremism, ethno-religious violence, energy and infrastructure. Providing individuals with basic scientific and technological knowledge will enable them to apply same in various areas of human endeavour for the maintenance, development and advancement of the quality of life of mankind.

- Science and technology education helps to develop self-awareness of one's own identity, culture, beliefs and how those concepts with the wider world, social awareness including empathy, appreciating diversity and respecting others and relationship-building skills will go a long way in liberating man from the bondage of superstitions and slavery of other beliefs often associated with global security.
- Science and technology education enables individuals to take purposeful action to improve their own lives and environment and to positively influence the world around them. For instance, when individuals are provided with opportunities to investigate issues they deem important (be it gun violence, access to clean water, disease outbreak, or human right violation) and to also give reasons why these

- issues exist, and thereafter come up with solutions to make them better, they become empowered to be the catalysts of the change they wish to see in the society.
- Science and technology education helps to equip individuals with analytical and critical thinking skills, environmental issues, and how to work against ignorance and intolerance for improvement of the global society.
 - Through science and technology, man has been able to construct dams for irrigation, combat desertification, sustain soil management, control environmental pollution all of which have been of global concern.
 - The primary concern of people and government is to maintain good health through development of capacity for health research. Science and technology education have expanded research in health sectors most especially in areas of disease and population control which have been issues of global security.
 - Science and technology are now integral to security. CCTV, access control systems and alarms as well as integrated IT management system now support the security operations to keep organizations and their people safe
 - Through science and technology, satellite communications have enabled man to provide services related to education, health care, weather, water resources management mitigation of natural disasters and military applications in the field of surveillance, communications and post-strike damage assessment.

Suggestions for improvement of global security

Every new science and new technologies offer new opportunities for global security initiatives, therefore the following suggestions are proffered.

- i) There is need for a strong technical basis, more than ever before for new policy initiatives on arms control, disarmament and non-proliferation of weapons.
- ii) Scientific and technological progress should be used for the overall benefits of mankind to promote sustainable economic and social development of all nations and to safeguard international security.
- iii) International co-operation in the use of science and technology through transfer and exchange of technological know-how for peaceful purposes should be promoted and encouraged.
- iv) There is need for multilateral negotiations among nations to establish universally acceptable non-discriminatory guidelines for international transfer of dual use goods and technologies and high technology with military applications
- v) UN bodies should be encouraged to contribute within existing mandate to promoting the application of science and technology for peaceful purposes.
- vi) As a fundamental driver of human existence, security tops the list of human needs. Therefore, there is need for new policy initiatives on the protection of human beings from violence, disaster and inadequacy of needs such as food, health as well as freedom to do what one wants to do or be what he/she desires.

CONCLUSION

Global security is an important component of human life and the concern of every nation. For a nation like Nigeria with entrenched worldview that is adverse to science and technology, a paradigm shift is required. Nigerians should begin to see the enterprise of science and technology as within their sphere of operations to understand that science and technology is a way of life and part of the Nigerian society is very crucial to global security initiative.

References

- Baylis, J. (2011). *The globalization of world politics*. New York: Oxford university press.
- Beres, L. R. (2010). Terrorism and global security: The nuclear threat. *International Journals of Peace Education*, 21(3), 59-63.
- Buzan, B. (2009). *The evolution of international security studies*. Cambridge: Cambridge University press.
- Chaturvedi, P. (1998). Scientific and technological development and the content of growth in developing countries. *Scientific world*, 27(3), 21-23.
- Devries, M. J. (1997). *What is technology? The concept: technology in secondary education*. Netherlands: Eindhoven university of technology.
- Dugger, W. E. (1995). *Standard for technology education programme project. Basic principles of school technology. Report PATT3, 1995. Conference Vol.2.*
- Kolodziej, E. (2015). *Security and international relation*. Cambridge: Cambridge University press.
- Makinda, S. M. (2019). Sovereignty and global security. *Security Dialog*, 29(3), 281-292.
- Mcsweeney, B. (1999). *Security identity and interest: A sociology of international relations*. Cambridge University press.
- Musarrat, J. (2003). Governance divide, Pakistan horizon. *The Pakistan Institute of International affairs Karachi*, 56(4), 189-195.
- Osisanya, I. S. (2015). National security versus global security. UN chronicle <http://dictionary.combrige.org.article>>91.
- Sheehan, M. (2005). *International security.an analytical survey*. London: Lynne Riewer publisher.
- Williams, P. D. (2018). *Security studies. An introduction*. Routledge: UK.