THE POTENTIALS OF NIGERIA’S SCIENCE AND TECHNOLOGY EDUCATION IN PROMOTING PEACE IN AFRICA: A REFLECTION OF THE UNIVERSAL BASIC EDUCATION (UBE), BASIC SCIENCE AND TECHNOLOGY CURRICULUM

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Abstract

All over the world there is a strong interest in the promotion of peace for development. Unfortunately in most countries, especially in Africa, this important goal is constrained by many factors which include inequitable distribution of wealth, widespread poverty and denial of human rights that generally results in conflict which lead to violence or even war that destroy peace and development. This paper highlighted the various ways through which Nigeria’s Basic Science and Technology curriculum could serve as veritable tool for the promotion of peace in Africa. It shows that the science and technological knowledge acquired from the curriculum, the applications of the knowledge acquired and the process used in acquiring the knowledge all can influence socio-economic development, poverty reduction, communication and dialogues in communities and the mindset that promotes peace. Suggestions towards achieving the desired results were proffered.

The seventh largest continent of the earth after Asia is Africa, which covers about 23 percent of the world’s total land area and contains about 13 percent of the world’s population. Africa is endowed with abundant natural resources: mineral and agricultural resources with large water bodies both fresh and salty, and diverse plant and animal species, yet the continent is categorized as the most devastated and most under developed among the seven continents (Encarta, 2009). Among the major factors that lead to the devastation and under development in Africa are conflicts that usually result to violence or even war that destroys peace and development. Although, conflict is an unavoidable human nature but when these conflicts arise too frequently it is difficult to achieve a common goal. Therefore, it calls for resolution because there can be neither growth nor development when there is no peace. According to Massaquoi (2009) in the last decades many conflicts have erupted all over Africa and countries which have known different types of conflicts include: Sierra Leone, Liberia, Cote D’ivoire, Guinea, Eritrea, Ethiopia, Somalia, Uganda, Sudan, Kenya, Rwanda, Burundi, Congo DR, Congo, Angola, Senegal, Guinea Bissau. Recently in mid 2011 the continent witnessed more conflicts as part of the Arab Spring in Egypt, Libya,
Tunisia, and Algeria. Massaquoi further explained that almost fifty percent of countries in Africa have had some type of violent conflict in the last decade and most of the conflicts can be described as “political violence”.

Fisher (1993) pointed out that by far the most common violent conflicts in the world today are low intensity types which are deep – seated racial, ethnic, and religious hatreds combined with structural cleavages and political oppression that result in the victimization of one or more groups through the denial of their fundamental needs. Several African conflicts fit well in to these global characterizations. In the continent the denial of the fundamental needs referred to, include: the inequitable distribution of wealth, and widespread poverty and the denial of human rights. Poverty and inequitable distribution of wealth in Africa creates resentment of those who are well – off. It generates a lot of anger and hatred in society. It diminishes the poor’s respect for institution and property. It disses – empowers the afflicted and reduces their access to justice. It diminishes their self – esteem and when a group of individuals losses all these abilities and power to regain them, they become hopeless and eventually resort to violence because it is seen as the only solution available. If the line separating those who are poor and those with wealth coincides with those of the ethnic, religious or regional divisions, it creates an atmosphere for conflict. Most of the conflicts that may be construed to be political are really fought over resources (jobs, tax revenues, infrastructural developments e.t.c.). It is not uncommon in Africa to hear politicians say “it is our groups turn to provide leadership”. The intention that really lies behind such statement is access to and control over the national resources when there is resistance from another group to this take – over of political power (actually economic resources), conflict ensures (Massaquoi, 2009).

The absence of peace in Nigeria generally results from the multi – religious, multi – lingual or ethnic nature of Nigerians as well as the confinement of distinct religious and ethnic groups and Nigerias’ major source of wealth which is petroleum to specific or distinct region in the country. Religiously, Nigerians practice two major religions namely; Islam and Christianity along with minority followers of the African traditional religion. Also regionally Nigeria is divided into two distinct regions, the North and the South. With the Northern part dominated by the followers of the Islamic religion and the Southern part dominated by the followers of the Christian religion. Ethnically, Nigeria is divided into three major regions. The Northern region dominated by the majority ethnic Hausa – Fulani, the South – Western region dominated by the majority ethnic Yoruba and the South – Eastern region dominated by the majority ethnic Igbo. In terms of wealth, the Nigerians’ major source of wealth which is petroleum is confined to the Niger – Delta area which is a distinct area of minority ethnic groups situated in the South – Eastern region.

As such for almost about three decades now, the peace and harmony that had existed for centuries between Nigerias’ major religions and ethnic groups has been
shaken periodically and brutally too. Religious intolerance occur both intra and inter religiously. For example in the year 1981 an Islamic intra – religious crisis called Maitatsine uprising resulting from Islamic extremism occurred in Kano State destroying many lives and property (Alaku, 2001). Recently from the mid of 2011 to date, majority of the Northern region is witnessing yet another uprising also from Islamic extremist sect called Boko Haram destroying many lives and property. Inter – religious crisis that occurred between Muslims and Christians include the Kano crisis of 1991 which led to the Ibadan crisis of 1991, the Kaduna crisis of 2000, the recent Jos crisis of 2011 and many more.

Ethnic groups in different parts of Nigeria have also contributed to tension in the country. Examples of these are the Arewa Peoples Congress (APC) of the Hausa – Fulani dominated Northern Nigeria, the Odua Peoples Congress (OPC) of the Yoruba dominated South – Western Nigeria and the Movement for the Actualization of Sovereign State of Biafra (MASSOB) of the Igbo dominated South – Eastern Nigeria. The ethnic groups lay claim not to Nigeria as a nation but to their regions (Giwa, 2009). Okechukwu (2003) showed that between May 1999 and May 2003 there were 52 violent ethnic and religious clashes in 21 states out of the 36 states of Nigeria. On the other hand, in the oil exploration Niger Delta area of the South – Eastern region, there has been violent protests and kidnapping of officials of the oil companies by members of the area organization called Movement for the Emancipation of Niger Delta (MEND) who cry out that although, the nation’s wealth which is petroleum is obtained from their area, the exploration activities of which subject their environment to severe environmental degradation, their region is left unattended to by the government with the majority of their people living in extreme hardship resulting from poverty and poor condition of life. This group felt that the only way out of this crisis is for the area to control the resources produced from their area with this being the bone of contention between the group and the federal government.

Considering the major factors that result to conflicts in Africa, science and technology education therefore, has a major role to play in the promotion of peace in Africa as Bronowskki (1965) pointed out that, the strength of science and its safeguards rests predominantly on principles of freedom, notably, free inquiry, free thought, free speech and tolerance, all of which are the hallmarks of respect for human rights, freedom and democracy which are prerequisites to peace and peaceful coexistence that prevents conflicts. Also through experiencing science, learners are able to embed themselves in what is referred to as a “web of human relationships” (Arendt, 1985), thus enabling the teacher to integrate issues of sustainable development among which is peace and the need for peaceful coexistence into the curriculum. This paper examines the potentials of Nigeria’s Basic Science and Technology curriculum in promoting peace in Nigeria and in Africa in general.

**Universal Basic Education in Nigeria**
Universal Basic Education (UBE) is a free and compulsory education for all children from the age of six to fifteen years and literacy training for adults. In Nigeria, UBE program was introduced in 1999 in fulfillment of the governments signatory to a number of International Declarations on Education among which is the Jomtien Declaration of Framework for Action on Basic Education. The UBE act was passed into law in the year 2004 (Tahir, 2005). It is expected that, at the end of nine years of continuous education, every child should acquire appropriate level of literacy, numeracy, communication, manipulative and life skills, be employable, useful to him/her self and the society by possessing relevant ethical, moral and civic values.

In order for the UBE programme to attain its noble objectives, the existing curricular for Primary and Junior Secondary Schools (JSS) were reviewed, re – structured and re – aligned to fit into the 9 – year Basic Education Programme. A new curriculum structure namely: Lower Basic Education Curriculum (Primary 1 – 3), Middle Basic Education Curriculum (Primary 4 – 6) and Upper Basic Education Curriculum (JSS 1 – 3) was approved by the National Council on Education (NCE). Core subjects in the curriculum include English Studies, Mathematics, Basic Science and Technology, Basic Science, Basic Technology, Civic Education and Social Studies. The curriculum reflects depth, appropriateness and interrelatedness of curricula contents. Also emerging issues which covered value orientation, peace and dialogue, including human rights education, family life, HIV/AIDS education and entrepreneurial skills were incorporated into the relevant content of the new 9 – year Basic Education Curriculum. In general, the curriculum pays particular attention to the achievement of the Millennium Development Goals (MDGs), the goals of Education For All (EFA) and critical targets of the National Economic Empowerment and Development Strategies (NEEDS), which can be summarized as: value re – orientation, poverty eradication, job creation, wealth generation and using education to empower people (Obioma, 2007). Thus, the vision of the UBE has taken care of all that it entails to bring socio – economic development.

**Basic Science and Technology Curriculum for Peace Promotion**

The 9 – year Basic Science and Technology curriculum according to Adeniyi (2007) is a product of re – alignment and reconstruction of the revised curricula for Primary Science and Junior Secondary School Integrated Science. In selecting the contents, three major issues shaping the development of nations worldwide and influencing the world of knowledge today were identified. These are globalization, information and communication technology (ICT) and entrepreneurhp education. The desire of Nigeria to be identified with contemporary development world wide called for the infusion of relevant contents of four non school curricula innovations in the areas of:

a) Environmental Education (EE)

b) Drug Abuse Education (DAE)
c) Population and Family Life Education (POP/FLE)

d) Sexually Transmitted Infections (STI) including HIV/AIDS

Infusion of content occurred in every class from Basic 1 – 9. Also some introductory technology topics have been introduced at the Lower and Middle Levels, leaving the Upper Level with purely science topics. The overall objectives of the curriculum are to enable the learners to:

a) develop interest in science and technology education

b) acquire basic skills in science and technology;

c) apply their scientific and technological knowledge and skills to meet societal needs;

d) take advantage of numerous career opportunities offered by science and technology; and

e) become prepared for further studies in science and technology;

At the Upper Basic Level however, theme 3 “You and Technology” was changed to “Science and Development”. The topics under each theme are sequenced in spiral form beginning with the simple to the complex across the 9 – year of Basic Education in order to sustain the interest of learners and promote learning. The use of guided inquiry method of learning is implied in the activities prescribed under each topic in order to promote learning by doing and skills development. The theme “Science and Development” was added to expose students to development in science and technology alongside skills that will enable them face challenges, make informed decisions, develop survival strategies and learn to live effectively within the global community.

A critical analysis of the goals vested on the UBE Basic Science and Technology curriculum reveals the potentials of the goals in promoting peace as illustrated below:

a) **Develop Interest in Science and Technology Education:** This goal is aimed at motivating pupils to study science and technology which is an indispensable tool for the advancement of any society. Such advancement leads to improvement in the capacity of individuals and the society at large which is a step to peaceful living in any society including Nigeria.

b) **Acquire Basic Skills in Science and Technology:** The acquisition of scientific methods and using them in solving problems can also pave way to peaceful
living in Nigeria. Constant application of scientific methods in solving problems inculcates scientific attitudes in individuals. Such attitudes as honesty, dedication and creativity can produce a wholesome change in an individual from a “savage” to a civilized person who can live peacefully with himself/herself and him/her society. Also the acquisition of technological skills can equip people with basic skills of solving simple problems and be self employed, thereby, having more peace of mind.

c) **Application of Their Scientific and Technological Knowledge and Skills to Meet Societal Needs:** The application of appropriate scientific and technological knowledge and skills in meeting societal needs will likely deviate the mind of people from using other non scientific alternatives to find solutions of problems which are usually selfish and violent. The African society should be disengaged from selfish beliefs which are inconsistent with the desires of others and usually cause disputes.

d) **Take Advantage of Numerous Career Opportunities Offered By Science and Technology:** Career opportunities are better exploited with relevant knowledge which is today science and technology inclined. With adequate science and technology education and qualifications, people have better chances in the labor market. Unemployment is another factor that stimulates violence in Nigeria. Making youths employed through the acquisition of science and technology education can go a long way in promoting peace.

e) **Become Prepared for Further Studies in Science and Technology:** Qualifying pupils for further education is also another way of promoting peace through the creation of advanced professionals in science and allied fields. Such individuals can engage in researches and studies in areas that are relevant to the development of the society. Solving issues that are of relevance to the advancement of the society will reduce the tension caused by misplacing societal priorities thereby, promoting peace.

Considering the laudable goals of the 9 – year Basic Science and Technology curriculum, which are directed at achievement of the Millennium Development Goals (MDGs), the goals of Education For All (EFA) and critical elements of the National Economic Empowerment and Development Strategies (NEEDS), as well as its objectives and contents, one can say that the curriculum has all it takes to empower Nigerians in particular and Africans in general at the grassroot to learn to solve most of their developmental problems that result in conflicts. The anticipated effect is that people will learn to co-exist and live peacefully with each other for the common good of all.

Furthermore, in the course of the curriculum delivery the various teaching techniques employed by teachers may also have contribution to peace promotion. For
example, among the science teaching techniques is a cooperative learning, collaborative group discussion and project where a teacher willing to teach any science concept can divide the class into groups and assign a group a task or activity to undertake. This is exactly what is required by the curriculum (that is teaching and learning by doing). So the teaching techniques employed provide a platform through which children could be made to imbibe key elements that are known to promote peace such as sharing, valuing and respect for each other’s feelings and beliefs.

The incorporation of Civic Education in the 9 – year Basic Education curriculum further strengthens the ability of the Basic Science and Technology curriculum to promote peace in Nigeria and in Africa in general. Because it is expected that through Civic Education the younger generation will grow up to be better citizens of high integrity, contentment, courage and discipline who will say no to corruption and live in unity as one Nigeria one nation for the common good of all.

Suggestions

Education particularly science and technology education is agreed to be an instrument of both change and development for not only the individuals but also the society and the nation at large. The 9 – year Basic Science and Technology curriculum has all it takes to serve as a tool for development and peace promotion in Africa. Therefore, for the curriculum to be effectively delivered to serve the purpose it is meant for, the following suggestions should be considered:

1. All African governments should allocate at least 26% of their annual budget to education as recommended by UNESCO to build more schools, classrooms and laboratories and also provide the necessary infrastructures and facilities, equipment and consumables for the teaching and learning of science and technology.

2. Capacity building for the in – service teachers should be ensured on a continuing basis in order to sharpen their capabilities and competencies to effectively deliver the curriculum.

3. Teacher – training institutions should be adequately funded and staffed to produce enough and competent world class science and technology education teachers to cater for the manpower needs of the curriculum.

4. Teachers should make social context of science process to be part of their daily lesson plan and should as well be evaluated.

5. During the teaching – learning, teachers should always make the students to realize the relevance of peace and peaceful co – existence in development and in sustaining the development.
6. Teachers who are the key implementers of the curriculum should consider themselves as important force and agents of change for peace promotion and development of their nation.

7. The quality and quantity of education given in Africa should be subjected to regular monitoring and evaluation to ensure standard and usefulness at solving the developmental problems of Africa.

**Conclusion**
Conflict is an unavoidable human nature, but for any nation to develop and the development to be sustained its citizens must learn to resolve their conflicts by solving the problems that result to it. If it is the type that can not be resolved, because not all conflicts can be resolved, then one should learn to live peacefully with it. As such the Nigeria’s Basic Science and Technology curriculum needs to address not just the pure science and technological aspects of development but also the socio – scientific issues affecting man especially in Africa in general and Nigeria in particular. Among which is peace within oneself and peaceful co – existence with one another as a pre – requisite for sustainable development. This is because it has been realized that development through science and technology no matter how well planned cannot be achieved without peace. Development no matter how highly achieved can be destroyed in the absence of peace. So, the urgent need to promote peace in Nigeria, in Africa and the world at large.

**References**


