

THE ROLE OF BIOLOGY EDUCATION IN ACHIEVING THE MDGs IN NIGERIA

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Abstract:

The study examines the role of biology education in attaining the Millennium Development Goals (MDGs) in Nigeria. It discusses the origin of the MDGs and the challenges of attaining them in Nigeria. It highlights the roles and implications of biology education for attaining the MDGs which covers poverty reduction, health, job/wealth creation, material and human resource development, food production among others. The paper recommends that biology education should be taken seriously and that adequate provisions should be made to ensure the effective teaching/learning of the subject in schools to boost its relevance in sustainable development. The paper finally concludes that biology education has the capability and can be used as a tool in attaining the MDGs in Nigeria.

Keywords: role, biology, education, attaining, MDGs, Nigeria.

Introduction

Education can be seen not only as a veritable and pivotal process of training, but also of acquiring and massively developing man's knowledge, skills, behavioral and attitudinal dispositions, intellectual capacities and other potentials needed to live a qualitative better life. Education according to Tinam (1998), is one of the instruments by which individuals are equipped to participate in the socio-economic and political life of a community and to make their contributions for promotion of social change. Biology education in particular is so important in nation building and sustainable development considering the roles it plays in various areas of the economy such as

medicine/health, agriculture, teaching, manufacturing, crime detection, disease control, food production and security, research and foreign exchange.

Biology is a popular subject among secondary school students due to its nature. It addresses the needs of majority through its relevance and functionality in content, practice and application (Ukpai and Okoro 2010). What our nation Nigeria needs now is a functional biology education (curriculum) that is specifically designed and adopted to meet the needs of the populace considering the challenges of attaining the Millennium Development Goals (MDGs). Unfortunately, the biology learning experiences in secondary

schools are not appropriate and consistent with the demands of the society at large. Uche (2004), observed that school graduates lack the requisite mental preparation that would help them in job creation, self reliance or contribute to nation building. These school leavers/graduates are the future generation, building them is building the nation. Ukpai and Okoro (2010) pointed out that there is a glaring disconnect between what is learnt in schools and what students practice at home or work place.

The United Nations Millennium Development Goals (MDGs)

For more than two decade ago, the United Nations proposed a doughty task through the Millennium Declaration to the world's nations at the summit which was held from September 6-8 in the year 2000. The summit identified and adopted a set of eight time-bound measurable goals aimed at eradicating extreme poverty and improving living conditions of women and men alike. The leaders of the one hundred and ninety two (92) nations present in the summit (including Nigeria) made the commitment, echoing the desires of the world's people to close the divide between nations and work together to promote peace, happiness, good governance and internationally agreed upon human rights and fundamental freedoms, including the right to development by the year 2015. Thus, the resulting UN Millennium Declaration of 2000 was later translated into the Millennium Development Goals (MDGs).

The MDGs according to Wikipedia (2010) are the eight goals agreed on by 192 countries that are members of the United Nations along with 23 other international organizations. The MDGs came as a tool through which governments are struggling to implement and succeed in transforming the lives of their citizenry in all aspects of human endeavour. According to Maseko (2011), the MDGs had been commonly accepted as a framework for measuring the developmental progress of a nation. A document of the Federal Republic of Nigeria (FRN 2005) stated the eight MDGs are as follows:

1. Eradicate extreme poverty and hunger.

2. Achieve universal primary education.
3. Promote gender equality and empower women.
4. Reduce child mortality.
5. Improve maternal health
6. Combat HIV/AIDs, malaria and other diseases.
7. Ensure environmental sustainability.
8. Develop a global partnership for development.

A critical look at the goals reveals that they have some features that will as well guide their attainment in the nations, the features are as follows:

- They are time-bound goals.
- They are goals with quantifiable targets.
- They are internationally agreed upon

indicators.

These features make it possible for a nation (like ours) to know the extent she has gone in attaining the goals. The question is how many countries especially the developing ones have even gone half-way in attaining the goals? Yes, many advances in the various countries are being made in attaining the MDGs. However, a large number of the developing countries including Nigeria have not even gotten out of the starting blocks as they are still plagued by extreme poverty, high death rates due to diseases, high infant mortality rate, devoid of sound educational system and are bounded by ravages of HIV/AIDs. Even though there are challenges, there are also opportunities to attain the goals, biology education could be one of such opportunities.

Challenges of Attaining the MDGs in Nigeria

In response to the setting up of the MDGs as well as the report that Africa might not achieve the goals, some advances have been made in the countries of Africa Nigeria inclusive, to achieve the set goals, for instance in 2007, the Millennium Development Ambassadors Initiative (MDAI) was launched in Nigeria as a network of committed educators and leaders who are being mobilized to support the founding vision of the UN and to help in

achieving the MDGs. The Initiative was further strengthened in 2008, when, supported by Cisco-Public Benefit Investment Group, the Millennium Development Ambassadors from Nigeria attended the Women Millennium Summit in Brussels also. The MDA are to inspire, empower, create and encourage local leaders to be committed to facilitating the realization of the MDGs (Maseko 2011). Nigeria has also adopted other strategies by establishing certain programs such as National Economic Empowerment and Development Strategy (NEEDS) in (2004), UBE (1999) and Entrepreneurship Development Centres (NDC) in (2008). These programs are established in order to achieve the MDGs and solve the nation's environmental challenges which include: illiteracy, unemployment, political instability. Injustice, gender inequalities, human right violation, poverty, hunger, diseases, environmental degradation etc. Amidst these efforts to attain the MDGs, the country is still facing a lot of these challenges and as such we cannot really say that a tangible thing has been accomplished even after the set time has expired. Let's look at the objectives of the goals and the challenges each is facing. The UN summit stated the objectives of the goals this way:

- **MDG 1: Eradicate Extreme Poverty and Hunger:**

This goal is aimed at lifting people out of extreme poverty by providing them with the basic things they need to live a decent life: nutritious food, cloths, clean water, a home and healthcare. This is a dream yet to come true as the findings of the FRN report (2005) reveals that a total of 34.9% of the populace was found to live in absolute/extreme poverty. 51.9% of the population was found to live below international poverty line \$1 USD per day (FRN, 2005). This is relatively high in the rural areas where over 70% of the unemployed are unskilled people between the ages of 12-18 years. In many communities in Nigeria today, adults, youths and children are dying of hunger. But if the current programs are properly implemented and followed up; they are likely of achieving this goal.

- **Goal 2: Achieve Universal Basic Education**

This is aimed at making sure that children everywhere, boys and girls alike, are able to complete a full course of primary education. Though statistics have it that there is a decline in literacy rates in Nigeria, primary school enrolment rates were consistently higher for boys than girls. The Federal Government (FG) established the UBE programme in 1999 in order to accelerate actions towards improved learning outcomes to achieve Goal Two by 2015. It is worthy to say that this goal is yet to be attained as a result of the challenges UBE is facing which are related to corruption, unavailability of materials, management, unequal access to education, funding etc.

- **Goal 3: Promote Gender Equality and Empower Women:**

The aim of these goals is to guarantee that women have equal opportunities to make their lives and the lives of their families better. This equal opportunities touch particular areas like education, politics and other famous spheres of the society at large. Let us take a look at education and politics for instance, female representation is still very low compared with that of men. In an attempt to promote gender equality and empower women for sustainable development, the FG has set up programmes such as United Nations Convention on the Elimination of all forms of Discrimination Against Women (CEDAW), strategy for Accelerated of Girls Education in Nigeria (SAGEN) and Female Functional Literacy for Health Project (FFLH). The question is "how far have all these gone in raising the number of women in education and politics at least"?

- **Goal 4: Reduce Child Mortality:**

This goal addresses the health problems that face children from infancy to the age of five. Child mortality in Nigeria is as a result of poverty, poor access to health care services, child labour/molestation, poor materials and HIV/AIDs. The FRN (2005) stated that child mortality rate in 2003 worsened from 133 per

1000 live births in 1999 to 200 per 1000 live births in 2003 while more than 2,400 children below five years of age die daily from preventable diseases/other causes and malnutrition. The National Health Insurance Scheme (NHIS) was launched in 2005 in order to get funds for system development, but the scheme is not functional because of some challenges like lack of funding, lack of decentralization, personnel training and research.

- **Goal 5: Improve Maternal Health:**

This goal is to improve the conditions of mothers giving birth, and to reduce by 75% the number of women who die in child birth. Factors like poverty, culture/use of traditional health practitioners, harmful health practices, teenage pregnancy and delay in seeking for antenatal care promote maternal death. The country could not achieve this goal as a result of challenges like lack of highly sophisticated medical facilities and equipment, lack of funding, high cost of drugs for poor folks etc.

- **Goals 6: Combat HIV/AIDs, Malaria and Other Diseases**

This is aimed at stopping and finally reversing the spread of HIV/AIDs, malaria and other deadly diseases by 2015. Many children have lost their parents to AIDs. In 2004 FG reported that children aged 0 – 14 who have lost one or both parents to AIDs are estimated to have reached 1.7 million in 2004. Ignorance, care free attitude, inadequate provision of drugs and mosquito nets at affordable prices hinder the attainment of this goal.

- **Goal 7: Ensure Environmental Sustainability**

The aims of this goal are to improve the way we take care of our environment, preserve the natural resources and make them available for future generation. Deforestation, oil pollution and spillages, sanitation problems, desert encroachment and other factors have been the problems of this goal. Attainment of this goal has been very difficult due to corruption in government offices, poor inspection and

supervision of foreign countries, inadequate policy reforms in this area and inadequate funding.

- **Goal 8: Develop a Global Partnership for Development**

This goal needs collaboration between the rich and poor countries to achieve it. Its objective is to establish partnership with other countries of the world. In Nigerian situation, the challenges facing this goal include corruption, external debts burden, insecurity, electoral malpractice, insincerity among others. As a result of these, the international community lacks favourable impression and trust in Nigeria. International investors and multinationals see it as a big risk to invest in Nigeria as a result of the recent militancy and religious crisis as well as occurrences of kidnapping, herdsman attack, boko Haram/bomb attacks, incessant attacks and killing of innocent people every way (Nigeria is unsecured especially now). This is greatly affecting global partnership for development between Nigeria and other countries of the world (FRN, 2020).

Biology Education as a Means of Attaining the MDGs in Nigeria

Globally, people have accepted education as an essential instrument for human development and various means (such as a – school, workshops, and conferences) have been put in place to extend the benefits of education to all. The major problems of man worldwide are ignorance, illiteracy and poverty. Hence, the critical issue is the creation of awareness in people. Awareness that one plus one is two, that good nutrition helps to eradicate diseases and infant mortality or that good sanitation and hygiene coupled with abstinence from pre-marital sex can hinder HIV/AIDs and other health problems etc (Nwamuo & Izuagba 2010). Education is the key to national development and biology education in particular. Biology education provides the public with opportunities for information and learning. These opportunities are accessible to all aspects of the society irrespective of age, gender and ethnic affiliation. This role of biology education must

be seen against the bench drop of the fact that the development of the society and individuals can only be achieved through the ability of well-informed / trained citizens to exercise their democratic rights and to play an active role in the society.

A critical look at the biology curriculum reveals that biology as a teaching subject in schools is designed to provide citizens with the key concepts in biology, to promote their knowledge of the world around them, as well as develop broadly applicable skills such as problem solving, communicating, critical thinking and objective reasoning ability to prepare them for work place and self sustainability in the world economy (Federal Ministry of Education (FME), 2008). Hence, biology education prepares and equips individuals to participate in the socio-economic and political life of the community. Biology education has great potentials for equipping students with the knowledge, skills attitude that can help in achieving the MDGs. It covers most areas of human endeavour. Maduabum (1992), pointed out that biology education is so important in nation building considering the roles it plays in various aspects of the economy and public life such as health, manufacturing, job/wealth creation, agriculture, human development, pest and disease control, food production and security, research to mention but a few, all these are imbedded in the MDGs. Biology is a popular subject among students in secondary schools boys and girls alike due to its nature as earlier said. Ukpai and Okoro (2010) said that it addresses the needs of majority through its relevance and functionality in content, practice and application. Nwagbo (2009), put it this way; that functional education especially biology will drive away illiteracy, create jobs, produce food for the people, provide services and lead to democracy, achieving the MDGs in Nigeria calls for a functional science (biology) education. Idowu (1999) defined a functional education as the total process of bringing up individuals to develop their potentials (cognitive, effective and psychomotor) to the fullness and consequently to be able to contribute maximally to the

development of the society at large. But unfortunately the education system in Nigeria especially science education is not as functional as expected in meeting the needs of the people (via the MDGs).

This is because many of our citizens are still illiterates and those who are educated cannot defend their so called certificates outside school. Abonyi and Okoli (2009) lamented that science education in Nigeria is still facing great challenges by international trends. Akpan (2009), said that government's support for science today is not yet intensified and as such it can not meet the needs of the society. This therefore reveals the reason why there is a glaring disconnection between what is learnt in schools and what students practice at home or work place – as earlier said. Biology, the study of living things, if properly placed could be a very good tool for economic growth and sustainability and as well help in achieving the MDGs in several ways. And since Nigeria is blessed with Natural resources (living things), if well harnessed, could also lead to high productivity.

Implication for Attaining the MDGs

The MDGs provided concrete numerical benchmarks for tackling extreme poverty and promote basic human rights such as the right to education, health, water, security and shelter as well as provide a framework for the international community to work towards the goals identified in the Millennium declaration of September 2000 (Maseko 2011). All these could be accomplished through a functional education.

A look at the goals 1 – 7 reveals that they are mutually inter-related in the sense that the provision of unfettered access to a quality / functional education will greatly lead to the realization of the goals (1-7). Goal 8 stems from the fact that the world is a global village, interconnected and sharing the same fate. This will make it mandatory that bridges of partnership should be built across continents in order to eliminate illiteracy, poverty, diseases and inequalities which usually stem from ignorance and poverty otherwise the world will be hell on earth for all. A functional biology

education from all that have been said in this paper therefore could contribute to the material progress and economic prosperity of the nation

ad could be a tool for attaining the MDGs in the following ways:

MDGs

Goal 1:

Eradicate extreme poverty and hunger

Goal 2:

Achieve Universal Primary Education

Goal 3:

Promote gender equality and empower women

Goal 4 – 6:

Health, child mortality, maternal health and combat HIV/AIDs, malaria and other diseases.

Goal 7:

Ensure environmental sustainability.

Goal 8:

Global partnership for development

Roles of biology education

Enhances material and human development. Creates jobs/wealth (employment via agro-allied ventures like poultry, fisheries, pottery etc). Provides improved varieties and better yielding plants and animals (food production). Provides raw materials for industries. Increases skills development and productivity

Increases supply of trained teachers through schools and workshops and enhanced distance training. Distance learning helps in educational and literacy programmes in rural and remote areas.

Delivers educational and literacy programmes specially targeted to poor girls and women. Studies show that females out number males in biology classes. Empowers women through self-sustaining firms such as fish farming, rabbitry, snail farming, poultry production etc.

Enhances the delivery of basic and in-service training for health workers. Provides raw materials (plants and animals) for production of drugs and vaccines for disease control / cure. Educates people on good health habits, hygiene and nutrition which help much in disease control. Promotes attitudinal change in people and eradicates immoral living which is a major means of contracting HIV/AIDs and other related diseases. Produces manpower (Doctors, nurses etc) for good healthcare delivery. Increases income for both individuals and the nation at large.

Promotes the control of pollution and conservation of our natural resources. Prevents environmental degradation (soil erosion, oil spills and toxic chemical control). Prevents environmental problems by means of biofuel to replace petroleum products. Educates people and change their attitude of indiscriminate use of the forest and pipeline vandalization.

Promotes regional collaboration through plant products for foreign exchange. Produces manpower (Biologists) who serve in other countries across the globe. Provides raw materials which attract foreign investors and industrialists.

Recommendations

The paper made the following recommendations:

- Government should make biology a compulsory subject in secondary school level to expose students to scientific knowledge, skills and attitude which will make them productive and promote national development.
- Government, should intensity their support to and make science education functional.
- Teachers should adequately be motivated and encouraged to attend workshops, conferences and short-time courses to improve their pedagogy and ensure effective teaching of the subject. Only professionally qualified biology teachers should be allowed to teach biology.
- Sex and moral education should be introduced and supported in secondary schools to expose students more to healthy living and attitudinal change.
- More industries and manufacturing companies should be established to provide employment opportunities for our youths and incorporate foreign investors.

Conclusion

The Millennium Development Goals (MDGs) has come to stay and they are essential in making our lives worth living. This paper reveals how biology, a core subject taught at the Senior Secondary School can be an effective tool in attaining the MDGs. This is a fact because the subject has great potentials for equipping individuals with the knowledge, skills and attitude that can make them productive and at large help the nation to attain the MDGs. Thus, teachers should live up to their responsibilities and schools should provide the enabling environment that will give the students the required experiences.

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