

RETOOLING POLITICAL IDEOLOGY AND ECONOMY FOR NATIONAL DEVELOPMENT THROUGH BIOLOGY EDUCATION

Hafsatu A. B.¹, Abubakar C.² & Maryam M.B³

hafsatrahman@gmail.com.

08135195377/08036517029/08028942033

^{12,3}Biology Department, Federal College of Education, Yola Adamawa State

Abstract

This study aims at retooling political ideology and economy for national development through Biology Education. Specifically, it dwelled on deep connection between Biology Education and political ideology for economic National Development. It looked into the transformative potential of the Biology Education as a catalyst for national economic development of the country by examining how Biology Education fosters creativity, innovations, entrepreneurship skills, it also examines the strategies of retooling biology education for national development and drives economic diversification through bringing up a scientifically literate populace from the classroom to navigate through political challenges in order to create ways and opportunities for total overhauling the economic crises of the nation. The paper concluded that Biology Education creates a lot of strategies in fostering diversifications in its field that nurtures the young populace from different potentialities for national development. The paper recommended for Education reform by the stakeholders to be carried out from classroom creativity, innovations, entrepreneurship skills development so as to be used for the economic diversification to expand as Biology education emerges as the only dynamic tool that can empower the nation for enhanced competitiveness, build a resilient and prosperous nation/

Keywords: Political Ideology, National Economy. Sustainable Development. Biology Education

Introduction

Political Ideology refers to set of ideas, values and beliefs that determine how society should be governed. This influences political behavior, policy-making, and national economic development of a nation. Common ideologies include liberalism, conservatism, socialism, and nationalism. An economy is run based on the ideological orientation of those who control the state. Development of political ideology sustains and transforms the national economy, education system, and reinforced the nation economy (Sanusi, 2023). Biology education is the field concerned with sharing scientific knowledge, and methods with people not considered part of scientific community. It is also identified as one of the major bedrock for the sustainable development of our country, which is seen as knowledge or ideas acquisition relevant to biology Nnamdi (2014). and is concerned with important of knowledge on environment, as well as others. Biology as a branch of biology and the pre-requisite subject for many field of learning contributes immensely to technological growth of the nation. The study of biology both in tertiary and senior secondary schools can equip the learners with useful concepts, principles and theories that will enable them face challenges before and after graduation. The importance of biology and biology education for sustainable national development cannot be overemphasized as it finds its way into agriculture, pharmacy, ethnobotany, medicine,

biotechnology, and other related fields. This paper intended to discuss how the biology education plays a major role in retooling the political ideology of the national economy.

Nigerian political ideology

Nigeria's political ideology is rooted in its colonial past. The British colonial administration introduced Western political systems, including parliamentary governance, and democratic elections. However, pre-colonial Nigeria had its own political systems, ranging from centralized empires like the Sokoto Caliphate and the Oyo Empire to decentralized societies governed by chiefs or councils, such as the Igbo communities Falola T.O. (2024). Colonialism forced these diverse systems into a single political entity, laying the foundation for future political tensions. The post-independence political ideology in Nigeria was driven by nationalism, with key figures like Nnamdi Azikiwe, Ahmadu Bello, and Obafemi Awolowo advocating for the creation of a strong, unified Nigeria. However, regional and ethnic interests played a significant role in shaping early political ideologies. The country was divided into regions dominated by different ethnic groups, with the Northern region controlled by the Hausa-Fulani, the Western region by the Yoruba, and the Eastern region by the Igbo, koledade and Johnson, (2023). This regionalism was reflected in political ideologies that often prioritized ethnic and regional interests over national unity. Nigeria's political landscape has been shaped by a diverse range of ideologies, reflecting its complex history of colonialism, military dictatorship, and democracy. Since gaining independence in 1960, the country has oscillated between ideologies, influenced by the regimes in power. Early post-colonial governments, such as that of Tafawa Balewa, leaned towards a capitalist framework modeled on Western economies, while military regimes like that of Yakubu Gowon adopted more socialist policies, particularly in the control of key sectors like oil and agriculture. Nigeria's political ideology has aligned with neoliberal economics, particularly with the Structural Adjustment Program (SAP) introduced under the Ibrahim Babangida administration in the 1980s. This policy shift promoted privatization, deregulation, and reduced government intervention, reflecting a shift towards a more capitalist-oriented approach, Falola T.O. (2024).

National economy and political ideology

Nigeria is a developing country and has a long way to catch up with the more advanced countries. The quest for national development in Nigeria has been a major challenge that successive military and civilian administrations have been unable to effectively address over the past 6 decades of independence, Iheanacho, (2014). Despite various efforts in development planning, the country continues to grapple with the problem of addressing the socio-economic and political crisis that impedes desired development. The evident crisis of development in Nigeria which manifests in a high rate of unemployment, widespread poverty, lack of adequate infrastructural amenities, excessive debt burden, insecurity among others, are pitfalls of years of ineffective development planning (Iheanacho, 2014). Quite notably, the country experienced a major recession in 2020, during which its economy dwindled by 1.8% (Aitalohi, 2021). The 2020 recession, which was as a result of the economic impact of the COVID-19 pandemic and the attendant fall in oil prices, became Nigeria's second recession in five years and its worst decline since 1983 (Word bank, 2021) in Olarewaju, 2022.

Furthermore, Nigeria is largely a monolithic economy with oil revenues accounting for 80% of its export, a third of banking sector credit and half of the government's income (Word bank, 2021). As a result, the country is heavily affected by fluctuations in oil prices, which has further fuelled calls for economic restructuring and diversification (Suberu et al., 2015). Up until the era of independence in October 1960 and the formative years that followed, Nigeria heavily relied on agriculture as the mainstay of its economy. During these early years, agriculture was the major source of government revenue, accounting for employment, food production, raw materials and foreign exchange earnings (Chete et al., 2014). Following the discovery of oil in Oloibiri in 1956, Nigeria soon became an oil-producing state in 1958, which marked a defining moment in its history. By the 1970s oil became a major source of revenue arising from the oil boom occasioned by the Arab Israeli crisis (Suberu et al., 2015) in Olarewaju, 2022..

Ideology is one of the indicators of the economic system, a driving force in the development of educations. In a society like ours, there is need for individuals with appropriate knowledge and skills in the pharmaceutical, medical, agricultural, industrial and scientific aspects of the economy. For a nation to advance they must have well trained and capable persons in handling so many sensitive areas connected to health, food production, manufacturing of finished products coupled with general satisfaction with little or no importation of goods from other nations of the world. These aspects have not been achieved in Nigeria because patients are still flown abroad for medical treatment, while food and other finished products are still imported. These bring about inflation and general economic backwardness (Aina, 2013) in Sallau I. A , Bilkisu Bello S. Yau 2018.

Biology Education and National Economy

Biological science are keys that can open the door to the national economy as the only biology that study life. Biology plays a vital role in the field of biochemistry, genetics, physiology and anatomy, ecology, medicine, Olutola et al A. T. Olutola, D. S. Daramola and E. O. Bamidele (2016). The idea of saving human life brings about the idea of producing healthy environment of plants and animals, other scientific equipment used for the extraction of plant and animal products used for pharmaceutical companies. These bring about training to suit these purposes since life is precious in all its ramifications. Biology education builds human and animal life and boost food production through gene manipulation. In doing this, the non-living components of our environments such as soil, air, sun and water also play useful roles for the betterment of plant and animal lives. Traditionally, biological science has formed part of the training programs in schools from secondary to tertiary institutions where people are trained (Baba, G. I. 2014).

Biology has been made a central focus in some human activities including being a solution to the problem of food scarcity, health, hygiene, family life, poverty eradication, management and conservation of natural resources, biotechnology, ethics, various social vices and as well lack of appropriate infrastructural materials. (Aina 2013). stated that, Biology Education is important to any growing economy of a nation like Nigeria. Many graduates of Biology education are self-employed and employers of labour; many owned schools for themselves where people works and earn their living.

Obiageli C. Ejilibe (2013), explains that, Biology Education contributes to the realization of the ultimate goals of education. This is dependent on how it is taught. When it is taught properly using activity-based instruction such as inquiry method it stands to contribute immensely to general development of the students. To achieve this both teachers in high institution and Secondary schools should do everything humanly possible to produce students devoid of parasitizing the nation's economy. This can be achieved by guiding the students to realize that is hundred percent better to be innovative, creative self-reliant, entrepreneurial and productive than being dependent on government for employment and other essential of life. But biology education has not actually achieved this due to the way it is presented to the students,

The Concept of Entrepreneurship in Biology Education

An entrepreneur is someone who has ability to develop a new venture in business in order to make money, often in a way that involves financial risks (Quirk, 2003) in Obiageli 2013. Entrepreneur Education provides training experience and skills that are suitable for entrepreneurial endeavours (Ovie, 2011) in Obiageli 2013. According to Ezema (2000) entrepreneurship education is the education given to an individual which will help him develop the skills needed for the management of any business venture. This type of education helps the person to take financial risks and at the same time utilize the material and human resources available to him to achieve the aim of establishing the business According to Agbobu in Biology offers a lot of opportunity in various fields or subjects which can be taught for entrepreneurship ability among the students. These subjects will depend on the geographical locations and their biodiversity for the obvious reason that a student living far away from the sea need not be taught sea weed farming. These topics and subjects according to Nayah (2002) in Obiageli 2013 include;

- Agriculture or Bee keeping; it includes the preparation of an artificial hive to attract the honey bee and once they colonize the honey can be extracted as when required the other products include bee wax.
- Aqua Culture; this includes composition fish farming. prawn farming and crab culture, snails etc.
- Sea Weed Culture; this includes intensive sea weed farming. Products include Agar, Agarose, machines, thickening agents.
- Floriculture; growing flowers for ornamental values and for export as well as for domestic market.
- Horticulture; growing fruits and vegetable. The products can be exported as well as can be used for domestic market.
- Ecotourism; this is the most developing field where the students will be able to guide the tourist both foreign and domestic to show the bio-diversity.
- Aquarium; the fish used in the aquarium can be reared and the students can be taught to maintain aquariums. This is again a lucrative business with export market.
- Mushroom Culture; it is a source of protein and has good export market value.
- Water Conservation; it is a must in many nations of Africa for agriculture and drinking.
- Preservation of soil fertility and prevention of spreading of the desert; Biological methods are having advantage over the others.

- Poultry; rearing birds used for human consumption.
- Insect pest and their control; to increase agricultural yield.

These fields among others when properly practiced can increase the economic growth rate of Nigeria because of the export market potential thereby creating employment, this will also improve the life of those who cannot go for higher education. However it is the duty of the biology teachers to teach these entrepreneurial topics properly. For the biology teacher to inculcate entrepreneurship skills in students' demands that she in addition to being the master of the subject will be able to spur the students' interest in the subject through her method of teaching and attitude to the subject. According to Ukeje in Ezema (2000) a good teacher is one who in addition to transmitting knowledge and effective manner is also able to inspire the students to greater heights of achievement by guiding them to the full realization of their potentials.

According to Ezeudu (2008) in Oyovwi, (2022), entrepreneurship education has the following advantages

- Skill acquisition
- It will play as a complementary role in developing the occupational knowledge, job skills and work experience among teachers and students
- Creation of employment: it offers opportunities to students for job experiences at an earlier stage of life than their peers, contributing to their believe in their abilities and to a sense of self-worth
- There will be great reduction in the high rate of unemployment and poverty
- There will be great increase in self-employment, business ownership will be viable and appealing goals for today's students
- Effective utilization of local resources
- Decentralization and diversification of business
- Promotion of science and technology
- Capital formation and
- Promotion of entrepreneurship culture

Importance of Biology Education

According to C.I. Okenyi

1. It helps to promote the individuals' understanding of the man's relationship with environment as well as knowledge of the interrelationship existing between living and non-living things that abound in the environment.
2. The skills include the ability to observe, communicate, identify problems, ask questions, formulate hypothesis, analyze data, make inferences and predictions.
3. The carefulness, open-mindedness and acceptance of warranted generalization.
4. It helps to prepare the individual for vocational selection such as in Pharmacy, Medicine, Teaching, Agriculture, etc.
5. It helps to increase the individual's interest and aesthetic appreciation of nature.

6. It helps to stimulate the individual's interest in biologically-based hobbies such as growing flowers, collecting insects, etc thereby encouraging leisure activities for individual enjoyment.
7. It helps to impart factual knowledge and stimulate scientific reflective thinking so as to produce a better informed individual.
8. It helps to inculcate in the individual scientific skill

Effect of Biology Education to National Economy

To harness the full potential of Biology Education, concerted efforts are essential such as Adequate investment in educational infrastructure, curriculum enhancements that prioritize hands-on learning and critical thinking, ongoing teacher training, and public advocacy are pivotal in propelling National economy, toward a future where Biology Education is not just a tool but a cornerstone of its economic development journey (Rising, 2009). The potential reverse relationship of the contributions of biology education to perspectives on national economics of biology conveyed toward the establishment and the maintenance of the scientific enterprise which rely on the production of biology teachers through the education system

Role of biology Education to national economy; Biology education can equip future leaders and policymakers with the insights required to strike balance between economic growth and environmental sustainability. Healthcare, a cornerstone of societal well-being, benefits immensely from a populace educated in the biologys. From medical research to the development of cutting-edge treatments, biology education underpins advancements that enhance public health, reduce mortality rates, and bolster workforce productivity (Omotayo, 2010) Agriculture, a vital sector in Nigeria, can be transformed by the principles of biology. Biology education enables farmers to adopt modern practices, increase crop yields, and ensure food security, mitigating the challenges posed by a growing population and fluctuating environmental conditions. The nexus between biology education and entrepreneurship is undeniable. Armed with a solid scientific foundation, individuals are empowered to establish biology-based startups and businesses. These ventures not only diversify the economy but also generate employment opportunities, contributing to the nation's overall prosperity (Oforidum & Onyekwena 2019). For Nigeria to assert its presence on the global stage, a robust biology education ecosystem is indispensable. International collaborations, research partnerships, and access to global markets are facilitated by a scientifically literate population, fostering economic growth through an interconnected world. As Nigeria aspires to eradicate poverty, biology education emerges as a catalyst for change. By equipping marginalized populations with scientific knowledge and skills, this educational paradigm breaks the chains of poverty and ushers in avenues of socioeconomic mobility To harness According to (Ukeje, 1988 in Wanekezi, Okoli and Mezieobi, 2011), pointed out that education unlocks the door to modernization and sustainable development but that, it is the biology teacher that holds the key to the door. Thus, the teacher has the responsibility of translating educational policies into practice and programmes into action. It is clear from the foregoing that the role of the teacher in sustainable development cannot be quantified, especially in training personnel in various areas of the workforce. For national development and peaceful co-existence to be attained, there is need to give priority to investment in human capital through teacher education and

training. The Nigerian educational system needs to be responsive to the technological social and economic needs of the society and provide the type of human resources needed in the industrial and economic sector. Herein comes the role of effective teacher education programme to translate the needed skills, knowledge and attitudes to meet their needs and the societal ones. Trends, Challenges coherent teacher education programme should we will trace a set of ideas that provide a dialectic engagement with these two conflicting agendas: (a) the broadening of biology education to include the contextual positioning of biology, namely the economic dimensions of biology, thereby contributing to the research basis of biology education as well as the pragmatic scientific literacy agenda, and (b) the guarding of the proliferation and reinforcement of those aspects of economics of biology such as commodification of scientific knowledge that can promote inequity and restricted access to the products of the scientific enterprise. As biology teachers, our aim is broadly to engage in the debates in economics of biology so as to investigate the potential interactions that might exist with biology education. First, we will question the extent to which recent research in biology education promoting “biology in context” has articulated the economic dimension of biology. Here we will illustrate as an example how current work on NOS is underspecified with respect to the characterization of biology. This section will warrant the need to extend the theoretical characterizations of ‘biology’ in biology education research. Second, we will trace some selected notions from economics of biology and explore their implications for biology education. We will focus on the issues of patent rights and the discovery/invention dichotomy and highlight how they can be embedded in biology education. Across both instances, our discussion will be mindful of the evidence-base in biology education for effective teaching and learning. For instance, we will be cognizant to situate these notions in current biology education research such as argumentation (e.g. Erduran and Jimenez-Alexandre 2008) so as to ensure relevance in positioning in biology education and to forge realistic uptake in the community for further inquiry particularly from a

The impact of Biology Education on Political Ideology

Sustainable development can be conceived within the concept of growth, advancement, conservation and preservation of the gains of development for the benefit of the present and future Baba (2014). (Olorode Olorode,2016) considered sustainable development as development that meets the needs and aspiration of the present without compromising the ability of future generations to meet their own needs. Nnabuo and Asodike. Olorode Olorode (2016), stated that, sustainable development is an approach that combines the developmental needs and aspiration of the present without compromising the ability of the future while also maintaining ecological integrity. Three aspects of sustainable development have been in recognition, viz, Economic, Social and Environmental.

Challenges and prospects of Biology Education on National Economy

Aina 2010 in Okenyin (2016) is opined that security challenges that biology education faces is as follows:

1. Security: Security issue in Nigeria has been worrisome for more than ten years now because of the insurgence of the Boko Haram sector due to religious motivation. People in Nigeria live in fear of the uncertainty of death from bomb explosions or gunshots from the terrorists or from armed robbers and many a time from kidnappers. The lives of nationals living in Nigeria are in

perpetual danger due to kidnapping. Lecturers and students don't know their fate every day until they retire to bed at night because of armed robbers. The attacks on a northern university where student and lecturers were cold bloodedly murdered still remains fresh in the academic arena. Science infrastructures built with huge amounts of money for schools in which Biology departments in such schools are part of its beneficiaries were also destroyed while gas and oil installations are vandalized too. The resultant effects of these are on education. Many parents have lost their jobs and the effect is on the children. These children could not complete their education and eventually had to drop out of schools. Majority of these dropout students are very brilliant scholars who could have become renowned Biology educators the country would be proud of.

2. Corruption: Corruption has eaten deep into the Nigerian system and it is manifesting in every sector of education including biology. In Nigeria today it is not what you know but whom you know. Appointment and admission into higher institutions of learning are no longer based on merit but on whom you know and the amount you can offer for such job or space for admission. Purchases of biology equipment for schools are no longer done transparently since it is either the chief executive of the school or many of his or her relations will do the supply. In this case they neither supply according to the required specification nor the required quantity. In most cases they don't even supply anything thereby leaving most of the biology laboratories empty or with fake and obsolete biology equipment which are useful for nothing but for mere demonstration. Money meant for staff training are diverted to personal account while selection of those who benefit in staff training is on whom you know syndrome. All these will bounce back on the quality of biology educators Nigeria produces. Employment is also no longer based on merit; those who are qualified for teaching biology are not given employment because they don't have godfathers in the government. Teaching appointment is done based on nepotism and favouritism. This is affecting the biology education in Nigeria.

3. Teacher: Biology teachers are key factors to be considered when talking about improvement of biology education in any nation. There are shortages of qualified biology teachers in Nigerian schools, and the so called biology teachers are not professionally qualified. They may have the knowledge of the subject but lack the method. Aina, (2009) in his study of challenges and prospects of science teaching affirmed that there are unqualified science teachers in the country. These teachers for many years have not upgraded their certificates by going for in-services training, this affects their output and it is a problem to the development of science education of which biology is one of them.

4. Lack of Proper Curriculum Development: In biology education improvement in Nigeria, the relevance of biology education curricular cannot be ignored. Biology education has not been given an appropriate place in the Nigerian school curriculum. The, bulk of what is taught in schools is imported from other developed countries (Obiaga, 1997). It is therefore necessary to have a curriculum reform to enhance quality biology teaching in Nigeria.

5. Inadequate Fund: There is no adequate fund for the provision of conducive and enabling environment to facilitate the effective teaching and learning of biology process as well as research. Tertiary institutions are statutorily expected to be engaged in research to enrich the process of social development and not to be engaged in teaching only (Ebong, 2008). These expectations are not adequately met due to inadequate funds as research in biology requires huge investments and capital which ordinary individuals cannot cope with.

Recommendation

- a. Curriculum innovators should emphasize on providing a proper curriculum for biology education.
- b. Government at all levels should provide adequate instructional materials and laboratory equipments, and other facilities.
- c. Government should only recruit competent and qualified teachers who can teach biology effectively.
- d. Biology teachers should try as much as possible to improve their methods of teaching through innovation.
- e. Excursion, demonstration and practical methods of teaching should be given much emphasis.
- f. Learners should be motivated and be made to draw their attention into learning the subjects.
- G There should be greater incentives for science teachers in general and for Biology teachers in particular, considering the number of students they handle.
- h. Biology teachers are technologically unskilled and lack knowledge of using technological device in their classrooms/laboratories. Government and educational authorities should create conditions, in-service training that encourages teachers to utilize the new device
- I. Government should ensure proper funding of Biology education to meet up with demands in terms of infrastructure and equipment.
- j. More time should be allocated for practical's since science (Biology) is activity oriented

Conclusion

Biology Education creates a lot of strategies in fostering diversifications amidst political ideology of its citizenry in its field that nurtures the young populace from different potentialities for national development. The paper recommended for Education reform by the stakeholders to be carried out from classroom creativity, innovations, entrepreneurship skills development Curriculum innovators should emphasize on providing a proper curriculum for biology education; Government at all levels should provide adequate instructional materials and laboratory equipments, and other facilities; Government should only recruit competent and qualified teachers who can teach biology effectively; Biology teachers should try as much as possible to improve their methods of teaching through innovation. Excursion, demonstration and practical methods of teaching should be given much emphasis so as to be used for the economic diversification to expand as Biology education emerges as the only dynamic tool that can empower the nation for enhanced competitiveness, build a resilient and prosperous nation.

Reference

- Aina, J.K. (2009) Challenges and Prospects of Science Education in Nigeria. *Continental J. Education Research*, 5 (2), 32-37.
- Aina J. K. (2013). Importance of Biology Education to National Development and Problems Militating Against it's Development. *American Journal of Educational Research*, 1 (7): 225-229.
- Aitalohi, G. (2021). Resilience through Reforms. The World Bank.
- Ambrose Ihekwoaba EGWIM (2023): Political Parties, Ideologies, and the Nigerian Economy Department of Political Biology, Redeemer's University, Ede, Osun State, NIGERIA
- Baba G. I. (2014). The role of Chemistry Education in small scale Industries for Achieving Sustainable National Development. *Kano Journal of biology education*, 9 (1): 97-103.
- Baba, G.I. (2014). The role of Biological Biologys in small scale Industries for Achieving Sustainable National Development. *Kano Journal of biology education*, 9 (1): 97-103.
- Chete, L. N., Adeoti, J. O., Adeyinka, F. M., & Ogundele, O. (2014). Industrial development and growth in Nigeria: Lessons and challenges (No. 2014/019). WIDER working paper.
- Department of Curriculum and Integrated Science Delta State University, Abraka.
- E. B. Nnamdi (2014). The role of Chemistry Education in National Development. *The International Journal of Engineering and Biology*, 3(3): 12-17.
- Ebong, W.E. (2008) Challenges of Research Efforts in Biology Education Paper Presented at a Conference held in Kano.
- Ezeudu, F. O. (2008) Restructuring our science technology & mathematics education for entrepreneurship. In: Nsikak-Abasi, U, (Ed). 49th Annual Conference Proceedings of STAN: 70-82. Minna: HEBN Publishing Federal Ministry of Education (FME), (2008).
- Ibrahim H. E. (2013). The Problems and Prospects of Agricultural Education in Nigeria. *Journal of Resourcefulness and Distinction*, 7 (1): 1-9.
- Iheanacho, E. N. (2014). National Development Planning in Nigeria: an endless search for appropriate development strategy. *International Journal of Economic Development Research and Investment*, 5(2), 49-60
- Koledade, A., & Johnson, H. (2023). Sectarian conflicts in contemporary Nigeria: occurrence and the way forward. *Editorial board*, 222.
- Obiageli C. Ejilibe (2013): ENTREPRENEURSHIP IN BIOLOGY EDUCATION AS A MEANS FOR EMPLOYMENT; <https://www.globalacademicgroup.com/journals/knowledge/>
- Obiaga, T.I (1997). Nigerian University Education and Improvement of Indigenous Technology. Problems and Prospects. In Ejiogu A & K. Ajayi. *Emergent issues in Nigerian Education*.
- Okenyi, C.I. (2016): THE CHALLENGES AND PROSPECTS OF BIOLOGY EDUCATION IN NIGERIA. *Journal of Assertiveness*, Volume 10 No. 1, June, 2016 in okenyi (2016). Department of Biology, Federal College of Education, Eha-Amufu, Enugu State
- Olanrewaju O. Ogunnubi Department of Political Biology, University of Ibadan, Ibadan, Nigeria
- Olorode O. A. (2016). Exploring education as an instrument for building a sustainable future Nigeria. *Kumbotso Teacher Educator*, 7 (1): 84-94.
- Olutola A. T., D. S. Daramola and E. O. Bamidele (2016). Comparative Effects of Practical and Alternative to Practical Methods on Students' Academic Performance in Biology. *International Journal of Educational Benchmark*, 3 (1): 67-80.
- Oyovwi, Edarho Oghenevwede (2022). Developing Entrepreneurial Skills in Biology Education: A Necessary Tool for Poverty Alleviation.
- P. O. M. and Asodike J. D. (2012). Exploring education as a tool for sustainable development in Nigeria. *European Scientific Journal*, 8 (10): 1-11.
- Politics of National Development and the Dilemma of Development Planning in Nigeria

- Quirk, R.(2003). Longman dictionary of Contemporary English. England pearson Education limited.
- Sallau I. A., Bilkisu B. A.& Sani Y.,Biology Education a Panacea for Sustainable National Development Department of Biology, School of Biology Education, Sa'adatu Rimi College of Education, Kumbotso, Nigeria 2Child Development Centre, Sa'adatu Rimi College of Education, Kumbotso, Nigeria
- Sanusi, M. (2023). 'Reduce dependence on petrol'- Sanusi advices FG on economy' (October 20, 2023). <https://www.thecable.ng/reduce-dependence-on-petrol-sanusi-advises-fg-on-economy>
- Socialscientia Journal of the Social Biologys and Humanities Email: socialscientiajournal@gmail.com Online access: <https://journals.aphriapub.com/index.php/SS/>
- Suberu, O. J., Ajala, O. A., Akande, M. O., & Olure-Bank, A. (2015). Diversification of the Nigerian economy towards a sustainable growth and economic development. International journal of Economics, finance and Management biologys, 3(2), 107-114
- OYOVWI, E. O. (2022): Biology Education in Nigeria: Issues and Challenges in the 21st Century Dept. of Science Education Delta State University, P.M.B. 1.Abraka.