
SUSTAINABLE EDUCATION IN NIGERIA

Peer Reviewed Book Chapter

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9

DEVELOPING GREEN CURRICULUM FOR SUSTAINABLE BASIC EDUCATION IN NIGERIA

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Abstract

This chapter examined the concept of green curriculum and its relevance to the Nigerian basic education system. The chapter discussed the meaning and dimensions of green curriculum as an educational framework designed to promote environmental awareness, sustainable development, ecological responsibility, and practical environmental problem-solving among learners. The study further examined the condition of Nigerian schools in relation to environmental education and highlighted the growing environmental challenges confronting the country, including flooding, desertification, deforestation, poor waste management, pollution, and climate change. The chapter argued that Nigerian schools must move beyond conventional knowledge transmission to curriculum practices that equip learners with sustainability competencies and environmental responsibility. Attention was also given to the strategies for developing green curriculum in Nigerian basic education, including curriculum integration, teacher preparation, community participation, provision of green infrastructure, policy reforms, and experiential learning approaches. The chapter established that green curriculum is essential for producing environmentally conscious citizens capable of supporting national development and environmental sustainability. The chapter concluded that integrating sustainability principles into Nigerian basic education will strengthen environmental literacy, improve learners' attitudes toward conservation, and prepare future generations to respond effectively to ecological challenges. Recommendations were made for curriculum planners, government agencies, teachers, school administrators, and communities on effective implementation of green curriculum in Nigerian schools.

Keywords: Green curriculum, environmental education, sustainability, Nigerian schools, basic education, climate change education.

9.0. Introduction

Education remains one of the most powerful instruments for national development, social transformation, and human advancement. Every society depends on its educational system to transmit knowledge, values, skills, attitudes, and cultural heritage from one generation to another. In Nigeria, education plays a strategic role in promoting national unity, economic growth, technological advancement, citizenship development, and social stability. The Nigerian educational system has continued to expand over the years in response to increasing population growth, globalization, technological changes, and emerging societal challenges. The Federal Republic of Nigeria (2013) recognized education as an instrument “par excellence” for national development and emphasized the importance of functional education capable of addressing societal needs. Nigerian schools, particularly at the basic education level, occupy an important position in shaping the intellectual and moral foundations of children. Basic education in Nigeria covers early childhood care, primary education, and junior secondary education. The Universal Basic Education programme was introduced to provide free, compulsory, and universal education for every Nigerian child. Schools at this level are expected to develop literacy, numeracy, life skills, civic responsibility, and social values among learners. However, contemporary realities have expanded the expectations placed on schools beyond traditional academic instruction. Modern schools are now expected to prepare learners to respond to complex global issues such as environmental degradation, climate change, resource depletion, insecurity, population pressure, pollution, and unsustainable patterns of consumption.

Nigeria presently faces serious environmental challenges that threaten sustainable national development. Across different regions of the country, environmental problems continue to affect livelihoods, health conditions, agriculture, infrastructure, and educational activities. In northern Nigeria, desertification and drought have reduced agricultural productivity and displaced communities. In southern Nigeria, flooding and coastal erosion have destroyed homes, schools, roads, and farmlands. Oil pollution in the Niger Delta has negatively affected aquatic ecosystems and community health, while urban centres such as Lagos, Kano, Port Harcourt, and Abuja continue to struggle with poor waste management, air pollution, and environmental sanitation problems. These environmental conditions demonstrate the urgent need for environmental consciousness and sustainability education among citizens. The school system has a major responsibility in addressing these environmental problems through curriculum development and educational reforms. Curriculum represents the totality of learning experiences provided to learners under the guidance of schools. It determines what learners study, how they learn, the values they acquire, and the skills they develop. Consequently, if schools are expected to contribute meaningfully to environmental



sustainability, environmental education and sustainability principles must be adequately integrated into the curriculum. This necessity has led to growing global interest in the concept of green curriculum.

Green curriculum refers to curriculum practices that integrate environmental sustainability, ecological awareness, conservation values, climate education, and responsible resource management into teaching and learning activities. It seeks to equip learners with the knowledge, attitudes, competencies, and behaviours required for sustainable living and environmental protection. Green curriculum goes beyond theoretical environmental discussions by encouraging practical experiences, problem-solving skills, and responsible environmental actions among learners. It promotes environmental literacy and prepares individuals to participate actively in building environmentally sustainable societies. Globally, educational systems are increasingly incorporating sustainability education into school curricula in response to climate change and ecological crises. International organizations such as the United Nations Educational, Scientific and Cultural Organization and the United Nations have consistently emphasized the role of education in achieving sustainable development. The Sustainable Development Goals, particularly Goal 4 on quality education and Goal 13 on climate action, encourage countries to integrate sustainability knowledge and environmental responsibility into educational programmes. UNESCO (2020) stressed that education for sustainable development helps learners develop critical thinking, environmental responsibility, and practical competencies needed for sustainable societies.

In Nigeria, however, environmental education and sustainability practices remain insufficiently integrated into many school programmes. Although some environmental topics exist within subjects such as Basic Science, Social Studies, Geography, Agricultural Science, and Civic Education, these contents are often fragmented, theoretical, and inadequately implemented. Many schools lack environmental learning facilities, sustainability projects, trained teachers, and supportive policies needed for effective green education. In several Nigerian schools, environmental sanitation is poorly managed, waste disposal systems are inadequate, and learners receive limited practical exposure to sustainability practices. These shortcomings reduce the ability of schools to produce environmentally responsible citizens. Another concern is that many teachers in Nigerian schools have limited training in environmental education and sustainability pedagogy. Traditional teaching methods that emphasize rote memorization continue to dominate classroom practices, thereby limiting opportunities for practical environmental learning. Effective green curriculum implementation requires learner-centred teaching approaches such as inquiry learning, fieldwork, outdoor activities, project-based learning, environmental campaigns, and community participation. Without adequately trained teachers and supportive educational policies, sustainability education may remain ineffective.

Nigerian schools operate within communities already experiencing the consequences of environmental neglect. Flood disasters have disrupted school activities in several states, while erosion and poor sanitation continue to threaten school environments. Climate change has also affected food production, health conditions, and water supply in many communities. These



realities make it necessary for schools to educate learners on environmental adaptation, conservation practices, waste management, renewable energy, and sustainable lifestyles. Learners who acquire environmental knowledge and practical sustainability skills at an early stage are more likely to become responsible citizens who can contribute positively to environmental protection and national development. The justification for this chapter is therefore rooted in the urgent need to reposition Nigerian basic education toward sustainability and environmental responsibility. The growing environmental crisis in Nigeria demands educational reforms capable of producing environmentally conscious citizens. Conventional curricula that focus mainly on academic achievement without addressing sustainability challenges can no longer adequately serve the needs of society. There is a need for curriculum innovation that reflects contemporary environmental realities and equips learners with practical competencies for sustainable living.

This chapter is also justified because schools remain one of the most effective institutions for influencing attitudes, behaviours, and social values among children and young people. Environmental attitudes developed during childhood often influence adult behaviour and community practices. Therefore, integrating green curriculum into Nigerian basic education will help inculcate environmental responsibility, conservation ethics, and sustainable habits among learners from an early stage. This chapter is important because it contributes to ongoing discussions on curriculum reforms and educational quality improvement in Nigeria. Educational development cannot be separated from environmental sustainability. A nation that neglects environmental education risks producing citizens who lack awareness of ecological responsibilities and sustainable resource management. Green curriculum therefore represents an important educational response to climate change, environmental degradation, and sustainable development challenges confronting Nigeria and the global community. The chapter further provides guidance for curriculum planners, policymakers, teachers, school administrators, researchers, and educational stakeholders on practical strategies for integrating sustainability principles into Nigerian schools. Through effective green curriculum development, schools can become centres for environmental transformation, community awareness, and sustainable national development.

9.1. Conceptual Terms

Concept of Green Curriculum

Green curriculum is a curriculum that emphasizes environmental protection, conservation of natural resources, rational utilization of resources, and the promotion of environmentally friendly behaviours within the teaching and learning process (Okanović et al. (2021). Ajmi (2023) defined green curriculum as an educational framework that integrates sustainability principles, environmental awareness, ethical responsibility, and ecological literacy into all levels of education to prepare learners for sustainable living.

According to Namdeo (2020), green curriculum refers to curriculum content and school activities designed to help learners understand environmental problems and develop attitudes



and practices that promote ecological balance and sustainable development. Zhang et al. (2013) described green curriculum as curriculum programmes that incorporate environmental education, natural conservation, energy management, and sustainable resource use as central instructional objectives in schools and higher institutions. Weldemariam et al. (2017) viewed green curriculum as a curriculum framework that integrates sustainability concepts into teaching and learning experiences in order to develop environmentally responsible citizens capable of addressing present and future ecological challenges.

9.2. Result and Discussion on strategies for Developing Green Curriculum in Nigerian Basic Education

i. Integration of Environmental Education across Subjects

One major strategy for developing green curriculum in Nigerian basic education is the integration of environmental concepts into all school subjects rather than teaching them as separate disciplines. Environmental sustainability should be infused into Social Studies, Basic Science, Civic Education, Agricultural Science, Home Economics, Mathematics, and even Language subjects. For example, pupils can learn about waste management through Basic Science, discuss climate change issues in English comprehension passages, and study environmental statistics in Mathematics. This interdisciplinary approach helps learners understand that environmental sustainability is connected to everyday life and national development. Nigeria faces serious environmental problems such as erosion, flooding, desertification, deforestation, and poor waste disposal. Embedding green education across the curriculum will expose learners early to practical solutions to these challenges. Research has shown that schools that integrate sustainability themes across subjects produce learners with stronger environmental consciousness and responsible attitudes (Kensler,2012)

ii. Training and Retraining of Teachers on Green Education

Teachers are central to the successful implementation of green curriculum. Many Nigerian basic education teachers were trained under conventional curriculum systems that gave little attention to sustainability education. Therefore, continuous professional development programmes are necessary to equip teachers with modern environmental knowledge and green pedagogical skills. Government agencies, teacher training institutions, and educational stakeholders should organize workshops, seminars, conferences, and in-service training on environmental literacy, climate education, waste recycling, biodiversity conservation, and sustainable teaching approaches. Teachers should also be trained on participatory teaching methods such as inquiry learning, outdoor learning, project-based learning, and environmental problem-solving techniques. These methods make green curriculum more practical and learner-centred. Studies have emphasized that the effectiveness of green curriculum depends largely on teachers' competence, commitment, and environmental awareness (Zhang, X., et al. 2013)



iii. Provision of Green School Infrastructure and Learning Resources

Green curriculum cannot succeed without supportive learning environments and instructional facilities. Nigerian basic schools require environmentally friendly infrastructure that demonstrates sustainability practices to learners.

Schools should establish:

- 1) Tree planting projects
- 2) School gardens
- 3) Waste recycling bins
- 4) Rainwater harvesting systems
- 5) Energy-saving facilities
- 6) Environmental clubs
- 7) Outdoor learning spaces

These facilities provide learners with practical experiences that strengthen classroom instruction. For instance, pupils can participate in planting trees, sorting waste materials, maintaining gardens, and conserving water resources within the school environment. Learning resources such as environmental charts, documentaries, digital materials, and sustainability textbooks should also be provided. Practical exposure enhances learners' understanding more effectively than theoretical teaching alone. Research on green schools indicates that environmentally friendly school environments positively influence learners' attitudes toward sustainability and environmental responsibility. (Weldemariam., Boyd, Hirst., Sageidet, Browder, & Hughes, 2017)

iv. Inclusion of Climate Change and Sustainability Topics in Curriculum Policies

Another important strategy is the deliberate inclusion of climate change education, renewable energy, environmental conservation, and sustainable development goals in Nigeria's basic education curriculum policies. Curriculum planners under the Nigerian Educational Research and Development Council should revise the curriculum to include contemporary environmental challenges affecting Nigeria and the world. Learners should study topics such as:

- 1) Flood control
- 2) Deforestation
- 3) Pollution
- 4) Renewable energy
- 5) Waste management



6) Biodiversity conservation

7) Sustainable agriculture

8) Climate adaptation

Nigeria is increasingly experiencing climate-related disasters such as flooding in riverine areas and desert encroachment in northern regions. Early exposure to sustainability education will prepare young citizens to respond responsibly to environmental challenges. Modern curriculum reforms globally now emphasize sustainability competencies and ecological citizenship as essential educational goals (Namdeo, 2020).

v. Community Participation and School-Community Partnership

The development of green curriculum requires active collaboration between schools and communities. Environmental education becomes more meaningful when learners connect classroom lessons with real community experiences. Schools should partner with:

- 1) Local environmental agencies
- 2) Community leaders
- 3) Non-governmental organizations
- 4) Agricultural extension workers
- 5) Waste management authorities

Community participation may involve environmental sanitation campaigns, tree planting exercises, recycling projects, environmental awareness programmes, and school gardening activities. Parents should also support environmental practices at home so that learners can apply sustainability habits beyond the classroom. Such collaboration strengthens practical learning and encourages collective environmental responsibility. Scholars have argued that sustainability education becomes more effective when schools adopt community-based and participatory approaches (Namdeo, 2020)

vi. Adoption of Experiential and Project-Based Learning Approaches

Green curriculum development should emphasize practical and experiential learning methods instead of excessive theoretical instruction. Learners understand environmental concepts better when they actively participate in projects and real-life activities. Project-based activities may include:

1. School recycling projects
2. Environmental sanitation exercises
3. Tree planting campaigns
4. Compost production
5. Water conservation projects
6. Climate awareness debates
7. Organic farming demonstrations



Experiential learning promotes critical thinking, creativity, problem-solving, teamwork, and environmental responsibility among learners. It also helps pupils develop lifelong sustainability habits. In Nigerian basic education, activity-based learning can help bridge the gap between environmental knowledge and actual environmental behaviour. Studies on green pedagogy have shown that hands-on sustainability education significantly improves learners' ecological awareness and environmental action (Hanisch, Rank, & Seeber, 2014)

Conclusion and Recommendations

The integration of green curriculum into Nigerian basic education has become a necessity in the face of increasing environmental challenges and sustainability concerns. Nigerian schools have a critical responsibility to prepare learners not only for academic success but also for responsible environmental citizenship and sustainable living. Environmental problems such as flooding, pollution, deforestation, desertification, poor waste disposal, and climate change continue to threaten national development and social wellbeing. These realities require educational reforms that promote environmental literacy, sustainability consciousness, and ecological responsibility among learners.

Green curriculum provides a practical framework for equipping learners with the knowledge, skills, values, and attitudes needed for environmental conservation and sustainable development. Through curriculum integration, practical environmental activities, learner-centred teaching methods, and community participation, schools can contribute significantly to environmental protection and national transformation. However, effective implementation of green curriculum requires supportive government policies, adequate teacher preparation, improved school infrastructure, and collaboration among educational stakeholders.

The future of sustainable development in Nigeria depends greatly on the ability of schools to nurture environmentally conscious citizens who understand the importance of protecting natural resources and promoting ecological balance. Based on the findings, the chapter recommend the following:

1. The Nigerian Educational Research and Development Council should revise the basic education curriculum to incorporate comprehensive environmental sustainability and climate change education across all relevant subjects.
2. Government should organize regular training, workshops, and professional development programmes to equip teachers with modern knowledge and pedagogical skills in green education and sustainability studies.
3. Basic schools in Nigeria should establish practical environmental projects such as tree planting programmes, recycling activities, school gardens, and environmental clubs to strengthen experiential learning.
4. Federal and state governments should provide adequate funding and environmentally friendly infrastructure to support green curriculum implementation in schools.



5. School administrators should promote environmental sanitation, proper waste management, and sustainable practices within school environments to reinforce classroom instruction.
6. Communities, parents, environmental agencies, and non-governmental organizations should collaborate with schools in promoting environmental awareness and sustainability programmes.
7. Teacher education institutions in Nigeria should integrate environmental education and sustainability studies into teacher preparation programmes to prepare future teachers for green curriculum implementation.
8. Educational policymakers should establish monitoring and evaluation mechanisms to ensure effective implementation of sustainability education in Nigerian schools.
9. Learner-centred teaching methods such as project-based learning, outdoor education, inquiry methods, and field trips should be encouraged to improve practical environmental learning experiences.
10. Schools should promote environmental awareness campaigns and sustainability competitions that encourage learners to develop positive attitudes toward environmental conservation and responsible citizenship.

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Concluding Synthesis

This volume on *Sustainable Education in Nigeria* contributes significantly to contemporary discourse on educational transformation by examining the policies, practices, innovations, and challenges shaping the Nigerian educational landscape. The chapters collectively demonstrate that sustainable education extends beyond improving access to schooling; it encompasses the creation of resilient, inclusive, equitable, and future-oriented learning systems capable of responding effectively to socio-economic, technological, and environmental changes.

A synthesis of the contributions reveals that sustainable education in Nigeria requires a holistic approach that integrates governance reforms, technological advancement, infrastructure development, teacher capacity building, curriculum modernization, and stakeholder engagement. The studies presented in this volume underscore the importance of aligning educational policies with national development priorities while ensuring responsiveness to global educational trends and Sustainable Development Goal 4 (SDG 4).

The volume highlights the transformative potential of digital technologies in expanding educational opportunities, particularly in underserved and rural communities. Emerging technologies, including artificial intelligence, learning management systems, educational data analytics, and digital content delivery platforms, present opportunities to improve teaching effectiveness, learner engagement, and administrative efficiency. However, their successful implementation depends on reliable infrastructure, adequate funding, digital literacy, and supportive policy frameworks.

The contributions further identify persistent challenges confronting the Nigerian education sector, including inadequate funding, infrastructure deficits, teacher shortages, policy discontinuity, regional disparities, insecurity, and socio-economic inequalities. These interconnected challenges continue to undermine educational quality and limit the realization of sustainable development objectives.

Importantly, the volume repositions education as a strategic instrument for national development, social mobility, economic competitiveness, innovation, and nation-building. Sustainable education is presented not merely as a sectoral concern but as a foundational pillar for achieving broader national aspirations, including poverty reduction, employment generation, social cohesion, and environmental sustainability.

Ultimately, this volume advances scholarly understanding and policy discussions by offering multidisciplinary perspectives and evidence-based insights into the future of education in Nigeria. It serves as a valuable resource for policymakers, researchers, educational leaders, development

practitioners, and other stakeholders committed to fostering educational systems that are resilient, inclusive, innovative, and sustainable.

Implications for Practice

Drawing from the collective findings and recommendations presented throughout this volume, the following strategic implications are proposed for policymakers, educational administrators, practitioners, researchers, and development partners:

Policy Reform and Strategic Governance

Governments at federal, state, and local levels should strengthen educational governance through evidence-based policymaking, institutional accountability, policy continuity, and effective monitoring and evaluation mechanisms. Sustainable educational development requires long-term planning that transcends political transitions and administrative changes.

Digital Transformation and Technology Integration

There is an urgent need to expand investments in educational technology infrastructure, internet connectivity, digital learning resources, and teacher digital competencies. Schools and higher education institutions should leverage emerging technologies to improve access, instructional quality, learner engagement, and administrative efficiency.

Sustainable Education Financing

Alternative and innovative funding mechanisms should complement public expenditure on education. Public-private partnerships, donor-supported initiatives, educational endowments, corporate social responsibility investments, and community participation can contribute to sustainable financing and improved educational outcomes.

Teacher Development and Professional Capacity Building

Continuous professional development should become an integral component of educational reform. Teachers must be equipped with contemporary pedagogical skills, technological competencies, research capabilities, and learner-centered instructional approaches necessary for twenty-first-century education.

Equity, Inclusion, and Access

Educational policies and interventions should prioritize disadvantaged populations, including learners in rural communities, girls, persons with disabilities, internally displaced persons, and

economically vulnerable groups. Sustainable education requires ensuring that no learner is excluded from quality educational opportunities.

Research, Innovation, and Data-Driven Decision Making

Educational institutions should strengthen research culture and promote evidence-based decision-making. Reliable educational data systems are essential for planning, resource allocation, performance assessment, and policy evaluation.

Infrastructure Development and Learning Environment Improvement

Governments and stakeholders should prioritize investments in school infrastructure, including classrooms, laboratories, libraries, digital facilities, sanitation systems, and renewable energy solutions. Safe and conducive learning environments are critical for educational sustainability.

Institutional Resilience and Crisis Preparedness

Educational systems should develop adaptive capacities to withstand disruptions arising from pandemics, economic crises, natural disasters, and security challenges. Flexible learning models, blended education approaches, and emergency response frameworks should be integrated into educational planning.

Multi-Stakeholder Collaboration

The sustainable transformation of education in Nigeria requires collaborative engagement among government agencies, educational institutions, private sector organizations, civil society groups, communities, and international development partners. Effective partnerships can mobilize resources, expertise, and innovation necessary for long-term educational advancement.

Editors' Note

The editors are pleased to present this volume on *Sustainable Education in Nigeria*, a scholarly contribution designed to address critical issues shaping the future of education within the country.

We express our sincere gratitude to the contributing authors whose research and professional insights have enriched this publication. Their diverse perspectives provide valuable understanding of the opportunities, challenges, and emerging trends influencing educational development in Nigeria.

We also acknowledge the dedicated efforts of peer reviewers, editorial board members, and institutional partners whose commitment to academic excellence has enhanced the quality, credibility, and relevance of this volume. Their contributions have ensured that the publication meets the highest standards of scholarly rigor and professional integrity.

This volume is intended to serve not only as an academic resource but also as a practical guide for policymakers, educational leaders, practitioners, researchers, and development organizations seeking innovative solutions to contemporary educational challenges.

It is our hope that the ideas, findings, and recommendations presented herein will stimulate further research, inform policy formulation, encourage collaboration, and inspire transformative action toward building an educational system that is equitable, innovative, resilient, and sustainable.

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