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The role of education in promoting sustainable development and environmental awareness among senior secondary school students in Edo State Nigeria

Evelyn Egilense Ebireketa *, Canice N. Ikeoji and John F. O. Akpomedaye E.

Department of Vocational Education (Agric. Unit), Faculty of Education, Faculty of Education, Delta State University, Abraka, Delta State, Nigeria.

Abstract

This study assessed the role of education in promoting sustainable development and environmental awareness among senior secondary school students in Edo State. Three (3) research questions guided the study, using the survey research design, A random sample of 240 SSS3 students was purposively selected from twenty (20) different senior secondary schools in Edo South Senatorial District. However, one hundred and sixty (160) copies of the questionnaire were returned, yielding a return rate of 66.7%. The data collection tool was a structured questionnaire consisting of thirty (30) items developed after literature review. The collected questionnaire were analyzed using mean and grand mean to address the research questions. The results indicated that senior secondary school students have a positive perception of the significance of sustainable development and environmental education. Additionally, the findings showed that the lack of textbooks/technology, inadequate infrastructure, and insufficient teaching materials, among other factors, affect the effectiveness of environmental education. Furthermore, it was found that environmental education was incorporated in the school curriculum, which reflects current environmental challenges. It was recommended, among other things, that the government should ensure uniform implementation of environmental education content across relevant subjects in all schools.

Keywords: Education; Sustainable Development; Environmental Awareness; Incorporated; Curriculum

1. Introduction

Development is a diverse approach to social change that seeks to enhance the living conditions and quality of life for people, particularly for the majority of the poor and vulnerable in society. For development to be significant, it must be sustainable, meaning it should last a long time without harming the environment, benefiting both current and future generations. Julian and Susann (2017) proposed that sustainable progress is an ongoing effort that demands holistic approaches, innovation, adaptability, and analytical thinking." It focuses on creating lasting improvements in the quality of life for everyone by increasing real income per person, enhancing education, health, and overall quality of life, as well as improving the quality of natural resources.

According to Agwu (2016), development can simply mean enhancing the quality of life for individuals or providing a better standard of living. It also refers to the act or process of advancing to a more developed state, growth, or progress. Advancing knowledge in technology also means moving from subsistence farming to commercial agricultural production; shifting from human and animal labour to industrialization; and migrating from rural areas to urban centers. There are various types of development, including social, political, economic, educational, environmental, cultural, and green development. Therefore, development may also be interpreted as physical advancement, financial improvement, or the restructuring of societal organizations and facilitate.

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* Corresponding author: Ebireketa Egilense Evelyn

The main goal of all forms of development is to encourage true human development. Catherine (2011) supported this idea by noting that development has recently moved from focusing solely on economic growth to a more human-centered perspective that emphasizes individual well-being and quality of life, often called "integral and sustainable human development." This approach highlights the connections between economic and political, socio-cultural, and environmental aspects, as well as the needs, abilities, and potentials of human beings.

Sustainable means something that can be continued or maintained over time without harm to the environment, society, or economy. When something is sustainable, it avoids rapidly exhausting resources, prevents damage to the environment, and is capable of enduring over an extended period. Sustainable refers to something that can be kept going for a long time without destroying the system it depends on. It refers to satisfying our present requirements without endangering the potential of future generations to fulfill their own (Wordu, 2024)

The importance of sustainability include: to avoid resource shortage (like food or water), protect the environment and reduce climate change and, ensure that future generations can live healthy and productive lives (Onyenechere, 2023). Therefore, sustainable development is the responsible use of resources at a pace that will not harm future generations For example, Emeka-Nwobia (2015) suggested that sustainable development could also be described as "equitable and balanced." This means that for development to continue over time, it must take into account the interests of different groups within the same generation and across generations, while also addressing three key interrelated dimensions: financial, societal, and ecological.

Nnabuo and Asodike (2012) characterized sustainable development as a concept that envisions fulfilling the needs of the current generation without jeopardizing the needs of future generations. This means that while education addresses present needs, it should not hinder future generations' ability to meet their own needs. Akintoye and Opeyemi (2014) contended that ongoing sustainable development can only be achieved when there is a consensus and concrete actions are taken to improve literacy and numeracy levels in any society. Ahenkan and Osei-Kojo (2014) defined sustainable development as an approach that enhances human quality of life for the present generation while safeguarding the well-being of those to come. This definition implies that sustainable development takes into account the needs of both current and future generations simultaneously, focusing on the welfare and well-being of people.

Thus, sustainable development aims to create and maintain conditions that allow both current and future generations to thrive on this planet. As noted by Sims and Falkenberg (2013), from the outset, a multi-faceted approach to the concept of a sustainable society was adopted, which extended beyond merely addressing environmental destruction to also include the necessity of fulfilling the essential needs of all individuals in a sustainable manner, considering the requirements of future generations. Thus, for meaningful progress to take place and be sustained, there must be opportunities for individuals within a community or nation to participate in initiatives that produce beneficial results. Education serves as the primary means to raise awareness and instill positive attitudes in individuals. This is because education plays a vital and central role in mobilizing citizens for specific national development initiatives.

Sustainable development involves implementing business strategies and practices that satisfy the needs of the organization while enhancing the human and natural resources required for the future. Additionally, Todaro and Smith (1985) cited in Adebayo, (2020) argue that sustainable development serves as the guiding principle for achieving human development objectives, where current generations have a moral duty to make sure important needs for sustainable living conditions for their forthcoming generations.

Additionally, sustainable development is often understood as a blend of technological, subsistence, organizational and cultural progress that allows individuals to meet essential needs such as food, shelter and clothing. Sustainable development requires a careful balance between the human desire to enhance their lives and ecosystems essential for ongoing development. This idea entails economic development combined with environmental conservation, where both elements reinforce one another. Thus, the aim of sustainable development is to maintain a stable relationship between human activities and the natural environment, ensuring that future generations can enjoy a quality of life similar to that of the current generations.

Sustainable development has become crucial as the world confronts issues like climate change, environmental degradation, and social inequality. Education is important to sustainable development, providing individuals with the knowledge, skills, ability, and values important for making informed environmental decisions. The government acknowledged the significance of education in advancing sustainable development and incorporated environmental education into the national curriculum (Federal Ministry of Education, 2013). Despite this, numerous secondary school students in Nigeria remain unaware of environmental issues and sustainable practices (Adeyemi, 2017).

Education is crucial for promoting sustainable development in Nigeria. Education helps individuals with the knowledge and skills necessary to solve environmental challenges and encourage sustainable growth (Nweke, 2020). Quality education is important in achieving sustainable development. When students have access to the right resources, they can grow into productive adults who positively impact their communities and help reduce poverty. Education also fosters upward socioeconomic mobility.

Education involves teaching and learning that helps individuals gain knowledge, skills, and values. It is important for sustainable development and understanding environmental issues. Education allows individuals to make informed choices about environmental concerns and to practice sustainability. By including sustainable development and environmental education in secondary school programs, students can learn the skills necessary to tackle the complex environmental problems we face today. Additionally, education improves critical thinking, problem-solving, and communication skills, which are important for addressing these environmental challenges.

Anyachebelu and Achoru (2022) examined the influence of education on environmental awareness in Nigeria. Their study revealed that education significantly enhances environmental awareness and promotes sustainable practices (Federal Ministry of Education, 2013). Nevertheless, many secondary school students in Nigeria still lack understanding of environmental challenges and sustainable practices (Adeyemi, 2017).

The environment includes both living and non-living elements; it comprises biotic components (like plants, animals, and microbes) and abiotic components (such as soil, climate, and land forms). Humans rely on a healthy environment for survival. Recently, the environment has faced numerous pollution problems, making it unhealthy and unsafe for living. Population Matters (2022) states that the natural environment is experiencing greater strain than ever before.The need for food, water, and land, along with our growing energy demands, is destroying habitats, polluting air and water, and pushing species of plants and animals towards extinction. The environment encompasses everything in nature, both living and non-living. The well-being of plants and animals is influenced by the condition of their surroundings. All living organisms require clean air, water, shelter, improved living standards, and an appropriate habitat, as these elements impact their overall well-being. Ensuring a safe and healthy environment is crucial. The deterioration of the environment endangers animals, plants, micro organisms, and humans alike, putting their long-term health and survival at risk (Anderson, 2019).

Environmental awareness is the gradual understanding of environmental issues and recognizing the links between human actions, development, sustainability, and responsibility in these areas. It involves realizing that humans and ecosystems share a common environment, which is the biosphere. This movement emphasizes the importance of respecting and protecting the natural environment. Human waste accumulates in the environment, affecting soil, wildlife, and water. Promoting environmental consciousness is essential to demonstrate how people can protect and sustainably manage their natural resources. Informing individuals can aid in decreasing plastic consumption and water misuse, while also supporting recycling efforts to reduce the volume of waste in landfills. Environmental awareness is crucial as it helps us recognize the effects of human activities on Earth, contributing to global warming. It also aids in creating a more sustainable world by advocating for renewable resources like solar, wind, and water.

Educational reforms are crucial for advancing sustainable development, and an impactful approach is embedding sustainability and environmental learning into school programs. By integrating environmental themes into subjects such as geography, science, and social studies, education systems can prepare students with the understanding and abilities required to address pressing environmental challenges. Nigeria has started to include climate change education in its secondary school syllabus as part of its educational changes focused on fostering a sustainable future (Ogunyemi, 2021). These curriculum changes are crucial for ensuring that future generations are equipped to face environmental challenges and advocate for sustainable living. Schools serve as excellent venues for initiating environmental awareness, engage students in environmental initiatives, clubs, and contests to foster a sense of ecological responsibility. Nurturing awareness in young students helps develop environmentally mindful individuals for life. Students can spread environmental awareness within their homes and local communities. Students' environmental awareness includes their knowledge, understanding, and attitudes towards environmental issues, the effects of human actions, and the necessity of sustainable practices. It entails recognizing the connections between ecosystems, the challenges confronting the environment, and the individual's role in its protection. Students acquire factual knowledge about environmental topics, such as climate change, pollution, and biodiversity loss. They begin to connect environmental challenges to their personal experiences and behaviors, and to understand the complex interconnections within ecosystems. Students cultivate a positive view of the environment, appreciating its significance and understanding the necessity for its protection.Awareness fosters eco-friendly actions, like recycling, minimizing waste, and making sustainable decisions.Students feel inspired to act in defense of the environment, whether through personal initiatives or by pushing for change.

Environmental consciousness equips students with the skills to address worldwide challenges and become active participants in building a sustainable future. As they learn about environmental challenges, they become more capable of grasping complex issues such as climate change, deforestation, and pollution. This knowledge allows them to critically evaluate solutions and innovations that can lessen the impact of these problems. Integrating environmental awareness into the curriculum motivates students to participate in projects and activities with real-world significance. For instance, students might join local clean-up efforts, create recycling initiatives, or advocate for policy reforms in their neighborhoods. By taking action, students discover their ability to effect change, reinforcing the belief that collective efforts are vital for environmental conservation.

2. Theoretical Framework

The study uses the following theoretical framework

Social Cognitive Theory (SCT): The theory posits that learning happens through observation, imitation, and reinforcement (Bandura, 1977). It shows how students learn about environmental education and sustainable practices by watching teachers, peers, or role models who practice eco-friendly behaviors like recycling, conserving energy, or minimizing waste. Students are likely to replicate these behaviors in their daily lives. When they participate in environmentally friendly activities, they often receive rewards, praise, or acknowledgment, which encourages them to keep going.

By utilizing Social Cognitive Theory, educators can create environmental education programs that focus on observation, imitation, and reinforcement, thus promoting a culture of sustainability among students. Environmental Education Theory stresses the significant role of teaching in building environmental consciousness, understanding, and mindsets (Lucas, 1979). It emphasizes the need to teach individuals about environmental issues and sustainable practices. Students should learn about environmental concepts through outdoor activities, field trips, and community projects. This practical approach aids them in developing critical thinking skills essential for addressing environmental challenges.

The theory shows how education enhanced environmental awareness and support sustainable development. By implementing Environmental Education in senior secondary schools in Edo State, education enhances environmental awareness and sustainable development practices, ultimately leading to a more sustainable future.

Secondary school students in Edo State lack sufficient knowledge and abilities to make well-informed decisions concerning the environment, despite the fact that education plays a key role in advancing sustainable development and environmental awareness.. This gap in understanding has led to low environmental awareness and poor sustainable practices among these students. Hence, this study investigates the role education plays in improving sustainable development and environmental awareness among public senior secondary school students in Edo State.

2.1. Purpose of the Study

The main purpose of this study was to investigate the role of education in promoting sustainable development and environmental awareness among senior secondary school students in Edo State. Specifically, the study was guided by the following objectives, to:

- Examine the perception of senior secondary school students regarding sustainable development and environmental education in secondary schools within Edo State.
- Determine factors influencing the effectiveness of environmental education in senior secondary schools in Edo State.
- Assess the extent to which environmental education is incorporated into the senior secondary schools curriculum in Edo State.

2.2. Research Questions

The following questions were answered in the study:

- What are the perceptions of senior secondary school students in Edo State concerning the importance of sustainable development and environmental education?
- What are the factors influencing the effectiveness of environmental education in senior secondary schools in Edo State?

- To what extent is environmental education incorporated into the senior secondary schools curriculum in Edo State?

3. Methodology

The study adopted the survey research design. This method enables researchers to address research questions by gathering, examining, and interpreting data using questionnaires..Participants were provided data via questionnaire, and the research was conducted in Edo State. The target population was all students in public senior secondary schools in Edo South Senatorial District of Edo State with total population of 23,972 (Edo State Ministry of Education database 2024) Twelve (12) SSS3 students were selected randomly from 20 different senior secondary schools in Edo Senatorial District, given a total number of two hundred and forty (240) respondents. The questionnaire was divided into three (3) sections, each section containing items covering the research questions. Respondents used a four-point rating scale with options: Strongly Agree (SA), Agree (A), Disagree (DA), and Strongly Disagree (SD) to indicate their opinions. A total of two hundred and forty (240) copies of questionnaire were distributed to the respondents, however, only one hundred and sixty (160) copies of questionnaire were retrieved giving a return rate of 66.7% .

3.1. Data Analysis

Data collected were analyzed using means and grand means to answer the research questions. The real limits of the scale establish the role of education in promoting sustainable development and environmental awareness among public senior secondary school students in Edo State, categorized as follows: 3.50 - 4.45 Strongly Agree, 2.50 - 3.49 Agree, 1.50 - 2.49 Disagree, and 1.00 - 1.49 Strongly Disagree. For decision-making purposes, any group of items with a grand mean of 2.50 or higher were considered as agreed, while those below 2.50 were regarded as disagreed. The instruments were administered by three research assistants and it was administered within one week.

4. Results

The results of this study are as presented in tables 1 - 3.

4.1. Research Question 1

What are the perceptions of senior secondary school students in Edo State regarding the significance of sustainable development and environmental education?

Table 1 Mean Ratings and Grand Mean of Senior Secondary School Students in Edo State regarding the significance of Sustainable Development and Environmental Education. **(n = 160)**

S/N	Items	X	Remark
1	Sustainable development is significant to students Edo State.	3.06	Agreed
2	Environmental Education must be a required subject in senior secondary schools in Edo State.	3.73	Agreed
3	Incorporating environmental education into the senior secondary schools curriculum has its advantages.	3.93	Agreed
4	Recycling or conversing water can reduce environmental impact.	2.85	Agreed
5	The government has taken sufficient measures to enhance environmental consciousness and promote sustainability.	2.46	Disagreed
6	Education can help address the challenges facing Edo State.	3.97	Agreed
7	Inculcating environmental awareness into senior secondary School curriculum will make positive impact on the environment.	3.33	Agreed
8	Teachers are knowledgeable about environmental issues and sustainability.	3.88	Agreed
9	Environmental education can be made more engaging and interactive in senior secondary schools in Edo State.	3.20	Agreed

10	The current school's curriculum does enough in promoting sustainable development and environmental awareness.	2.42	Disagreed
11	Individuals have role to play in promoting sustainable development and environmental protection.	3.93	Agreed
12	Quality education is essential for achieving sustainable development in Edo State.	3.93	Agreed

Grand Mean Value is 3.39 indicating that, the respondents agreed with the items. **Key:** X = Mean, n= number of respondents.

In Table 1, the data indicates that 10 out of 12 items had mean values between 2.85 and 3.97, which are above the cutoff point of 2.50. This suggests that the respondents agreed to these items as reflecting students' views on the significance of sustainable development and environmental education in Edo State. Conversely, 2 out of the 12 items had mean values below the cutoff point of 2.50. This indicates that the respondents disagreed with those items (item 4, which states that the government has done enough to promote environmental awareness, and item 10, which claims that the current school curriculum sufficiently promotes sustainable development and environmental awareness), as they did not represent students' perceptions of the items on sustainable development and environmental education in Edo State. The top highest ranked items includes items 6, 3, 11 and 12 which were on education can help address challenges facing Edo State, incorporating environmental education has its advantages, individuals have roles to play in promoting sustainable development and environmental protection, and quality education is essential for achieving sustainable development in Edo State respectively. These items had mean scores of 3.97, 3.93, 3.93 and 3.93 respectively.

The grand mean of 3.39 indicates that senior secondary school students in Edo State generally agree on the importance of sustainable development and environmental education. This shows a strong positive perception and awareness among students. The relatively high grand mean also reinforces the finding that most students are aware of environmental issues, and they are also concerned about the issues, even though they believe that the government and current school curriculum have not done enough to support these efforts (as seen in the two items with mean values below 2.50).

4.2. Research Question 2

What factors affect the effectiveness of environmental education in senior secondary schools in Edo State?

Table 2 Mean Ratings from Respondents on factors affecting the effectiveness of environmental education in senior secondary schools in Edo State. (n= 160)

S/N	Items	X	Remark
1	Inappropriate professional teacher development delivering environmental education.	3.00	Agreed
2	Non availability of textbooks/ technology on environmental education.	3.95	Agreed
3	Lack of supportive leadership on environmental education.	3.87	Agreed
4	Insufficient infrastructure e.g sewage system and waste management facilities.	3.30	Agreed
5	Insufficient time allocated for environmental topics in school.	3.30	Agreed
6	Inadequate teaching materials used for environmental education.	3.97	Agreed
7	Weak policies and enforcement of environmental education.	3.73	Agreed
8	High population contributes to environmental decline.	3.60	Agreed

The Grand Mean Value is 3.59, indicating that the respondents were in agreement with the items.; Key: X = Mean, n = number of respondents.

The data in Table 2 indicates that the mean values for all 8 items ranged from 3.00 to 3.95, which are all above the cutoff point of 2.50. This suggests that the respondents believed these items were factors affecting the effectiveness of environmental education in senior secondary schools in Edo State. The top highest ranked items includes items 6, 2 and 3 which were on inadequate teaching materials used for environmental education, non availability of textbooks/technology on environmental education and lack of supportive leadership on environmental education are factors affecting the effectiveness of environmental education in senior secondary schools in Edo State respectively. These items had mean scores of 3.97, 3.95, and 3.87 respectively.

The grand mean value of 3.59 represents the overall average of respondents' ratings across all the identified factors affecting the effectiveness of environmental education in senior secondary schools in Edo State. Since this value is significantly above the decision benchmark of 2.50. It indicates a general consensus among respondents that the listed factors do indeed affects the effectiveness of environmental education in senior secondary schools in Edo State.

4.3. Research Questions 3

To what extent is environmental education incorporated into the senior secondary schools' curriculum in Edo State?

Table 3 Mean Ratings from Respondents on extent to which environmental education is included in senior secondary schools' curriculum in Edo State. **(n = 160).**

S/N	Items	X	Remark
1	Students are taught sustainable development in schools.	2.14	Disagreed
2	Environmental education goes beyond the classroom into real-life practices.	2.72	Agreed
3	Students are encouraged to practice sustainability in schools.	2.73	Agreed
4	Environmental clubs such as conservation or recycling, are operated in schools.	2.80	Agreed
5	Environmental education is part of school curriculum.	3.46	Agreed
6	Environmental problems are discussed in various subjects such as Geography, Agricultural Science, Basic Science.	3.86	Agreed
7	Curriculum reflects current environmental challenges such as climate change, pollution.	3.89	Agreed
8	Making environmental education a require subject in the curriculum.	2.69	Agreed
9	Incorporating themes of environmental sustainability into school extracurricular activities.	3.33	Agreed
10	Integrating environmental education into senior secondary schools' curriculum in Edo State	2.68	Agreed

The Grand Mean Value is 3.03. This means that the respondents agreed with the items. **Key:** X = Mean, n = number of respondents.

Table 3 indicates that the mean of 9 out of 10 items had mean values between 2.68 and 3.89, all of which are above the cutoff point of 2.50. This suggests that the respondents felt these items reflected how much environmental education is included in the senior secondary school curriculum. Only 1 out of the 10 items had a mean value of 2.14, which is below the cutoff point. This indicates that the respondents disagreed with the item (students are taught sustainable development in schools), suggesting that students are not being taught sustainable development as a subject in senior secondary schools in Edo State. The top three (3) highest ranked items includes items 7, 6 and 5 which were on curriculum reflects current environmental challenges such as climate change and pollution, environmental problems are discussed in various subjects such as Geography, Agricultural science, Basic Science and environmental education is part of school curriculum. These items had mean scores of 3.89, 3.86 and 3.46 respectively. These Shows the extent to which environmental education is incorporated into the senior secondary schools curriculum in Edo State. Although respondents agreed that environmental education is integrated to some degree (e.g., with items like "Environmental clubs are operated in schools" and "Students are encouraged to practice sustainability"), the relatively lower means (around 2.68–2.80) point to limited implementation. These findings imply that environmental education is present, but not institutionalized or emphasized as a core part of the curriculum.

The grand mean value of 3.03 indicates an overall moderate level of agreement among respondents that environmental education is included in the senior secondary school curriculum in Edo State. Since the value is clearly above the decision benchmark of 2.50 this suggests that most respondents perceive that environmental topics are being addressed in some form across the curriculum.

5. Discussion of Results

In **Table 1,** the results indicated that senior secondary school students have a positive view on the significance of sustainable development and environmental education. The findings showed that students consider sustainable development important, that environmental education should be mandatory, and that there are advantages to including environmental education in the secondary school curriculum, among other points. These findings align with those of

Abdulyakeen and Nurain (2024), was who found that most respondents are aware of sustainable development. This finding also aligns with UNESCO' s (2017) emphasis that integrating environmental education into the school curriculum fosters responsible attitudes and sustainable behaviors among students. Most respondents agreed that education plays a key role in addressing environmental challenges. The findings also support the view of Tilbury' s (2011) who argued that education is central to equipping learners with the knowledge, skills, values, and attitudes necessary to shape a sustainable future.

In **Table 2,** the results identified factors affecting the effectiveness of environmental education in senior secondary schools in Edo State. Some of these factors include inadequate professional teacher development, lack of textbooks/technology, insufficient infrastructure, and inadequate teaching materials, among others. This is consistent with Okebukola's (2025) study, which reported that under-resourced schools, poor teaching quality, and diluted curricula are challenges facing environmental education in Nigeria. Ogbu (2021) supports this view, noting that resource scarcity in Nigerian schools impairs students' ability to grasp practical and abstract environmental topics, leading to superficial understanding and reduced engagement. The findings also align with Eze and Uche (2020), which says that, strong leadership is crucial for the allocation of funds, curriculum design, training opportunities, and effective supervision all of which are vital for embedding environmental literacy in schools. This corroborates findings by Okonkwo and Udeh (2021), who noted that despite the existence of policies promoting environmental education in Nigeria, lack of implementation strategies and enforcement mechanisms at the school level continue to limit their impact.

In **Table 3,** the results showed how much environmental education is integrated into the senior secondary school curriculum in Edo State. The findings shows that environmental education is incorporated into the senior secondary schools curriculum, that the curriculum covers current environmental challenges e.g climate change and pollution, and that environmental topics are taught in some subjects, e.g Geography, Agricultural Science. This result supports the views of Udofia & Udo's (2014) study which stated that, Environmental topics are mostly introduced through subjects like Integrated Science, Geography, and Agriculture. The result also correspond with the findings of Ogunyemi (2021) which stated that, Nigeria has started to include climate change education in its secondary school syllabus as part of its educational changes focused on fostering a sustainable future. The result also align with the findings Ajayi (2017) who emphasized the need to embed environmental learning access disciplines to promote critical thinking and interdisciplinary understanding. The result as well coincide with Eze and Uche (2020) findings that states that, learning that goes beyond the classroom and includes clubs, activities and real life applications can deepen students engagement and reinforce environmentally responsible behavior.

Educational implications of the study

The results of this study have implications for educational practice in Nigeria, as follows:

- Curriculum Improvement and Integration. There is a clear need to revise and enrich the senior secondary school curriculum to include environmental education and sustainable development more fully. Environmental topics should be incorporated across multiple subjects and linked to real-life issues in Edo State.
- Teacher Training and Development: Teachers require continuous professional development to effectively teach environmental education using engaging, practical methods. Training should focus on current environmental issues, sustainability, and active teaching strategies.
- Strengthening Awareness Channels: Although students are aware of environmental education, schools are not the primary source of this awareness. Schools should take a central role by providing structured content and using media, clubs, and external partnerships to promote sustainability knowledge.
- Government and Policy Support: Students perceive a lack of government effort in promoting environmental education. This calls for stronger policies, funding, and implementation strategies from government and education authorities to support environmental education in schools.
- Student Empowerment and Participation: Students recognize their role in promoting sustainability and are open to interactive learning. Schools should encourage eco-clubs, environmental projects, and community activities to foster active student involvement.
- Assessment and Monitoring: The limited inclusion of environmental education in schools indicates a lack of monitoring and accountability. Schools should develop assessment tools to evaluate both environmental knowledge and sustainable behaviors among students.
- Interdisciplinary and Practical Learning: To improve engagement and relevance, schools should adopt an interdisciplinary approach that connects environmental education to subjects like science, health, and social studies.

The findings show that students value environmental education but face systemic limitations. Addressing these implications through curriculum reforms, teachers support, government actions, and students involvement will strengthen environmental education and contribute to sustainable development in Edo State.

6. Conclusion

Education is crucial for promoting sustainable development and environmental awareness among senior secondary school students. By integrating environmental education into the curriculum, students acquire knowledge, attitudes, and skills needed to know and handle urgent environmental challenges. Education for Sustainable development is a lifelong journey, as it is essential for mobilizing citizens towards specific national development initiatives.

Recommendations

These Recommendations were made based on the findings:

- The government should support environmental education through experiential learning opportunities, such as community clean-ups and school environmental programs, to solidify students' positive perspectives.
- The Ministry of Education should offer regular training for teachers in environmental education and provide sufficient teaching materials to schools, along with infrastructural support for practical teaching.
- Policymakers and curriculum specialists should clearly specify sustainability education as a vital element of the national educational syllabus. They should ensure that all schools implement environmental education in all relevant subjects.
- The government should maintain its contributions towards achieving sustainable development. Financial and other investments in education aimed at sustainable development should not be redirected for other uses.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained

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