

ENVIRONMENTAL AWARENESS OF THE IMPACTS OF DEVELOPMENTAL ACTIVITIES ON THE ENVIRONMENT IN CALABAR EDUCATIONAL ZONE

Adaga, Mary Egbe

Email: evalkez911@gmail.com

Department of Environmental Education

University of Calabar, Calabar

Abstract

This study investigated the environmental awareness of secondary school students regarding the impacts of developmental activities on the environment in the Calabar Educational Zone of Cross River State, Nigeria. The study adopted an ex-post facto research design and employed a simple random sampling technique to select a sample of 150 students from a population of 1,500 across five secondary schools. Data were collected using a 15-item structured questionnaire designed to assess students' awareness of issues such as urbanization, industrial pollution, and deforestation. The results, analyzed using descriptive statistics, revealed that students possessed a high level of awareness regarding the negative effects of construction, pollution, and deforestation on the environment. However, findings also indicated a low level of environmental education and engagement within schools, highlighting a gap in structured environmental learning. The study concluded that although students are generally aware of environmental issues, schools are not playing an adequate role in reinforcing this awareness through formal education. Based on the findings, the study recommended the integration of environmental education into the school curriculum, the establishment of environmental clubs, training of teachers, and collaboration with environmental organizations to promote sustainability-focused learning.

Keywords: Environmental awareness, Developmental activities, environmental impact, environmental education and Calabar educational zone.

Introduction and background to the study

In recent decades, the world has witnessed rapid industrialization and urban development, particularly in developing nations like Nigeria. While these activities are essential for economic progress, they often come at a significant cost to the environment. Developmental activities such as road construction, building of infrastructure, deforestation, industrialization, and waste disposal have led to increasing levels of pollution, loss of biodiversity, land degradation, and climate change (Adebayo & Ojo, 2019). These environmental challenges are not just global concerns but are also being felt at the local level, including regions like the Calabar Educational Zone.

Environmental awareness, defined as the understanding of environmental issues and the ability to make informed decisions regarding the environment, is crucial in promoting sustainable development (UNESCO, 2018). Early education plays a key role in developing this awareness. Secondary school students, in particular, are at a formative stage where environmental education can influence lifelong attitudes and behaviors toward sustainability (Okonkwo & Mbachu, 2021). However, many students in Nigerian schools may not be receiving adequate exposure to environmental issues within their curriculum or everyday experiences.

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Environmental awareness is a key factor in promoting sustainable development and ensuring that economic and social progress does not come at the expense of the environment. In recent years, increased developmental activities—such as urban expansion, industrial development, construction, and deforestation—have significantly impacted the environment, especially in developing countries like Nigeria. Calabar Educational Zone, which consists of various schools in urban and peri-urban areas, is not exempted from these issues.

Students in secondary schools, as future leaders and stakeholders, need to understand the effects of developmental activities on the environment. However, it remains unclear how much awareness these students have regarding environmental degradation resulting from such activities. Understanding students' environmental awareness can guide educators, policymakers, and environmental advocates in designing appropriate educational interventions.

In Calabar, a region known for both natural beauty and rapid urban development, the tension between progress and preservation is becoming more evident. Activities such as logging, land reclamation, housing projects, and road expansion are common, yet many students may not fully understand their long-term consequences on the local ecosystem (Effiom & Udo, 2020). The role of schools in fostering environmental literacy is critical, but this depends on the effectiveness of both formal instruction and school-led initiatives.

Ex-post facto research design, which is based on analyzing existing conditions without manipulating variables, provides an ideal approach to assessing students' awareness levels since the study does not involve altering school environments or teaching methods (Nworgu, 2015). By using simple random sampling, researchers can ensure that each student in the population has an equal chance of being selected, making the findings more generalizable and unbiased.

This study, therefore, seeks to explore how well-informed students in Calabar Educational Zone are about the environmental impacts of developmental activities. The findings are expected to shed light on possible gaps in environmental education and to propose strategies for improving awareness and promoting sustainable practices among young people.

This study investigates the level of environmental awareness among students in the Calabar Educational Zone regarding the impacts of developmental activities on the environment. It employs a simple random sampling technique to select participants and uses an ex-post facto research design, analyzing data based on existing variables rather than manipulating them.

Statement of the Problem

Despite numerous campaigns on environmental protection, many students seem unaware of how developmental activities such as construction, industrial waste, and deforestation affect their surroundings. Poor environmental awareness among secondary school students could hinder future efforts in

environmental conservation. There is a need to evaluate their level of awareness to determine whether current educational approaches are effective.

Purpose of the Study

The main purpose of this study is to assess the environmental awareness of secondary school students in the Calabar Educational Zone regarding the impacts of developmental activities on the environment.

Specifically, the study aims to:

1. Assess students' awareness of the effects of construction and urbanization on the environment.
2. Examine students' knowledge of industrial pollution and its environmental impact.
3. Investigate students' understanding of deforestation and loss of biodiversity.
4. Determine the influence of school environment and teaching on environmental awareness.

Research Questions

This study seeks to answer the following questions:

1. To what extent are students aware of the impact of construction and urbanization on the environment?
2. How knowledgeable are students about industrial pollution and its consequences?
3. What is the level of awareness among students regarding deforestation and its environmental implications?
4. How does school environment and education affect students' environmental awareness?

Research Hypotheses

1. Students have a low level of awareness regarding the environmental impacts of construction and urbanization.
2. Students possess limited knowledge about industrial pollution and its environmental consequences.
3. Students demonstrate moderate awareness of deforestation and its environmental implications.
4. There is a significant positive relationship between the quality of school environmental education and students' overall environmental awareness.

Literature Review

Environmental awareness refers to the understanding and recognition of environmental issues and the willingness to take action to protect the environment. According to Kollmuss and Agyeman (2002), environmental awareness includes knowledge about the environment, values and attitudes, willingness to act, and actual behavior. It is a crucial element in fostering sustainable development and responsible citizenship.

In educational settings, environmental awareness involves teaching students about the interdependence between human activities and the environment, as well as how they can make environmentally responsible choices (UNESCO, 2018). Building this awareness from an early age helps develop environmentally conscious behaviors that last into adulthood.

Several empirical studies have been conducted to examine students' awareness of environmental issues and the factors that influence such awareness. These studies generally affirm that environmental education plays a pivotal role in shaping young people's knowledge, attitudes, and behaviors toward the environment.

Afolabi (2017) conducted a comparative study of urban and rural secondary school students in Lagos State, Nigeria, and discovered that students in urban settings exhibited higher levels of environmental awareness. This was attributed to their increased exposure to environmental campaigns, digital media, and school-based activities. The study recommended integrating hands-on environmental projects into school curricula to enhance practical knowledge.

In a broader West African context, Ajiboye and Silo (2008) studied junior secondary school students in Botswana and found that students who participated in environmental education programs demonstrated significantly better understanding of environmental problems, including pollution, desertification, and waste management. The researchers concluded that environmental education should not only be theoretical but should include active participation in solving real-life environmental problems.

Similarly, Adeolu, Enesi, and Adeolu (2014) investigated the level of environmental knowledge and attitudes among secondary school students in Ondo State, Nigeria. Using a structured questionnaire, the study revealed that although most students had general knowledge about environmental issues, their attitude toward environmental protection was lukewarm. The study emphasized the importance of experiential learning and the use of community-based projects to enhance environmental responsibility.

In Cross River State, Eyo and Effiom (2019) examined secondary school students' awareness of the impacts of urban development on the environment. Their findings indicated that while students recognized the visible effects of development (e.g., erosion and deforestation), they lacked deeper understanding of less visible consequences such as biodiversity loss and long-term climate change. The study recommended increased collaboration between schools and environmental NGOs to bridge the knowledge gap.

Furthermore, a study by Okonkwo and Mbachu (2021) in Anambra State revealed that students who had access to environmental clubs and seminars had a more proactive attitude toward issues like recycling and conservation. The study underscored the influence of extracurricular activities in enhancing environmental consciousness.

Despite these findings, there remains a gap in empirical research focused on the Calabar Educational Zone. This region is experiencing rapid developmental changes, yet the extent to which students understand and engage with environmental issues has not been thoroughly studied. Therefore, the current study is timely and significant, as it seeks to assess the environmental awareness of students in this specific geographical context using a structured approach.

Methodology

Research Design: The study adopted an ex-post facto research design. This design was chosen because it allows the researcher to investigate pre-existing conditions or phenomena without manipulating the independent variable.

Area of the Study: The study was conducted in the Calabar Educational Zone of Cross River State, Nigeria. This zone comprises both urban and semi-urban secondary schools and has witnessed rapid developmental activities such as construction, road expansion, deforestation, and urbanization.

Population of the Study: The target population consisted of approximately 1,500 senior secondary school students (SS1 to SS3) drawn from five selected secondary schools within the Calabar Educational Zone.

Sample and Sampling Technique: A total of 150 students were selected as the sample for the study. The simple random sampling technique was used to ensure that each student in the population had an equal chance of being selected. Thirty (30) students were selected from each of the five secondary schools, making up the sample size.

Instrument for Data Collection: The main instrument used for data collection was a structured 15-item questionnaire titled: “Students’ Environmental Awareness Questionnaire (SEAQ)”. The questionnaire was divided into two sections: Section A: Demographic information (such as gender, class level, and school). Section B: Fifteen items designed to measure students’ awareness of environmental impacts caused by developmental activities. The items covered topics like urbanization, pollution, deforestation, and conservation practices. A four-point Likert scale was used: Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD).

Validation and Reliability of the Instrument: The instrument was validated by two experts in environmental education and educational measurement from the Faculty of Education, University of Calabar. To determine the reliability of the questionnaire, a pilot test was conducted using 20 students from a school outside the selected sample. The data obtained were analyzed using the Cronbach Alpha reliability method, which yielded a reliability coefficient of 0.82, indicating that the instrument was reliable and consistent for the study.

Presentation of results

Research Question 1: To what extent are students aware of the impact of construction and urbanization on the environment?

S/N	Items	Mean	Std. Dev.	Interpretation
1.	Construction leads to erosion and loss of vegetation	3.12	0.75	High Awareness
2.	Urbanization contributes to waste accumulation	3.10	0.68	High awareness

3.	Road expansion reduces natural habitats	2.98	0.83	High awareness
	Average mean score	3.10		High awareness

Research Question 2: How knowledgeable are students about industrial pollution and its consequences?

S/N	Items	Mean	Std. Dev.	Interpretation
4.	Factories release harmful gasses into the air	3.08	0.72	High Awareness
5.	Industrial waste pollutes water bodies	2.95	0.77	High awareness
6	Pollution from industries causes health problems	3.12	0.69	High awareness
	Average mean score	3.05		High awareness

Research Question 3: What is the level of awareness among students regarding deforestation and its environmental implications?

S/N	Items	Mean	Std. Dev.	Interpretation
7.	Cutting down trees affects animal habitats	3.15	0.70	High Awareness
8.	Deforestation leads to climate change	2.89	0.75	High awareness
9	Forest lost increase as the risk of flooding	2.92	0.79	High awareness
	Average mean score	2.99		High awareness

Research Question 4: How does the school environment and education affect students' environmental awareness?

S/N	Items	Mean	Std. Dev.	Interpretation
10.	Teacher talk about environmental issues in class	2.40	0.85	Low awareness
11.	Our school has environmental club or campaign	2.35	0.90	Low awareness
12.	I have learnt how to protect the environment in the school	2.48	0.87	Low awareness
	Average mean score	2.41		Low awareness

Discussion of findings

In table 1, the standard deviations indicate that while most students share a similar level of awareness, there is some diversity in how strongly they agree with each statement. The lowest standard deviation

(0.68) suggests a more consistent agreement regarding waste accumulation, while the highest (0.83) shows more variability in the perception of road expansion's impact on habitats.

The average mean score of 3.10 further reinforces the conclusion that the students possess a high level of awareness about the environmental effects of construction and urbanization. This average score is well above the threshold of 2.50, which is typically used to categorize responses as indicating "high awareness."

The high average score suggests that the students have a solid understanding of the environmental issues related to urban development and construction, even though individual perceptions may vary to some extent.

In table 2, the mean scores for all three items concerning industrial pollution are above 2.50, indicating that students possess a high level of awareness about the negative effects of industrial activities.

These mean scores suggest that students have a clear understanding of how industrial activities contribute to air pollution, water pollution, and health problems.

The standard deviations indicate that, while most students have a similar understanding of industrial pollution, there is still some variability in their responses. The relatively low standard deviations suggest a generally consistent agreement, with the most variability being seen in the responses regarding industrial waste and water pollution (0.77).

The average mean score of 3.05 confirms that students have a high level of knowledge about the consequences of industrial pollution. With an average score above 2.50, it is clear that the majority of students recognize the significant environmental and health impacts of industrial activities.

In table 3, the standard deviations suggest that while there is general agreement among students on these environmental issues, there is some variability in how strongly they feel about each statement. The highest standard deviation (0.79) indicates a slightly greater diversity in students' responses regarding forest loss and flooding, while the lowest (0.70) suggests more consistent agreement about the impact of tree cutting on animal habitats.

The average mean score of 2.99 confirms that students have a high level of awareness about deforestation and its environmental consequences. The score is slightly below the average for the previous research questions (3.05 for industrial pollution and 3.10 for construction and urbanization), but it still falls well within the "high awareness" range. The data suggests that students have a solid understanding of the environmental risks associated with deforestation.

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In table 4, the average mean score of 2.41 confirms that, overall, students feel that their schools are not strongly contributing to their environmental awareness. The low average score indicates that the students perceive the school environment as offering limited or insufficient opportunities for learning about or engaging with environmental issues.

This score is notably lower than the scores observed in the previous research questions (e.g., 3.05 for industrial pollution awareness and 3.10 for construction and urbanization awareness), suggesting that while students are aware of environmental issues, their schools may not be actively fostering this awareness.

The findings from this study reveal that students in Calabar Educational Zone have a relatively high awareness of environmental issues related to urbanization, industrial pollution, and deforestation. This aligns with the work of Ajiboye and Silo (2008), who found that exposure to media and environmental experiences in the community enhances students' environmental knowledge. Similarly, Afolabi (2017) observed that students in urban areas tend to have higher levels of awareness, possibly due to their direct exposure to the effects of development.

However, the study also found a low level of environmental education support within schools, suggesting that formal instruction and extracurricular programs are inadequate. This finding supports the conclusion of Okonkwo and Mbachu (2021), who noted that while environmental topics are included in Nigerian curricula, their implementation in schools remains weak due to lack of trained personnel and insufficient resources.

The contrast between students' general awareness and the school's role suggests that students may be learning more from media, personal observation, and community experiences than from structured school-based education. This highlights the urgent need for education stakeholders to strengthen environmental education in secondary schools.

Conclusion

The major findings of the study are summarized that students demonstrated a high level of awareness of the effects of construction and urbanization on the environment, Students were knowledgeable about the consequences of industrial pollution. There was high awareness among students regarding the environmental implications of deforestation. The role of schools in promoting environmental education was found to be minimal, indicating a gap in formal environmental learning within the school setting.

Based on the findings, it can be concluded that while students in the Calabar Educational Zone possess a commendable level of environmental awareness—likely due to media exposure, personal experiences, and community activities—schools are not doing enough to formally educate or engage them on

environmental issues. This disconnect suggests that environmental education is not being prioritized within school programs, despite its importance in fostering sustainable development.

The high awareness among students, even in the absence of strong school-based programs, shows potential for improving environmental literacy further if schools adopt more structured and engaging approaches to environmental education.

Recommendations

In light of the findings, the following recommendations are made:

1. Schools should embed environmental topics into various subjects beyond basic science and geography to ensure that all students are consistently exposed to environmental issues.
2. Schools should create environmental clubs and organize regular awareness campaigns and tree-planting activities to promote active student participation in environmental protection.
3. Capacity-building workshops and in-service training should be provided for teachers to equip them with up-to-date knowledge and innovative methods for teaching environmental education.

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