International Journal of Multidisciplinary Research and Publications
ISSN (Online): 2581-6187

Integrating Climate Change Education into the Social Studies Curriculum in Nigerian Secondary Schools

Adeyanju Ademola Lateef (PhD)
Department of Social Science Education, College of Education, Ikere Ekiti
Bamidele Olumilua University of Education Science and Technology, Ikere Ekiti (Bouesti)
adeyanju.lateef@Bouesti.edu.ng

Abstract— *This study investigated the effects of climate change education on secondary school students' environmental awareness in Nigeria. Specifically, it examined students' knowledge, attitudes, and pro-environmental behaviors in relation to exposure to climate change education. The study adopted a descriptive survey research design, with a population comprising secondary school students from selected public and private schools across Nigeria. A sample of 1,500 students was drawn using stratified random sampling to ensure proportional representation. Data were collected using the Climate Change Education and Environmental Awareness Questionnaire (CCEEAQ), which was validated by experts and demonstrated high reliability (Cronbach's Alpha = 0.82). The collected data were analyzed using descriptive statistics (mean, frequency, and standard deviation) and inferential statistics (Pearson Product-Moment Correlation) to examine the relationships between climate change education and students' environmental awareness. Findings revealed that students generally had moderate levels of environmental awareness, with climate change education being occasionally integrated into the curriculum. The study also found that climate change education positively influenced students' knowledge of environmental issues, fostered positive attitudes toward environmental conservation, and encouraged engagement in pro-environmental behaviors. Furthermore, significant positive relationships were established between climate change education and students' knowledge, attitudes, and behaviors. Based on these findings, the study concludes that climate change education is an effective tool for enhancing environmental literacy among secondary school students and recommends its systematic integration into the curriculum, supported by participatory teaching methods and adequate resources.*

Keywords— *Climate Change Education, Environmental Attitudes, Environmental Awareness, Pro-environmental Behaviours.*

I. INTRODUCTION

Climate change is widely recognized as one of the most urgent global environmental challenges of the 21st century. It is primarily driven by human activities such as the burning of fossil fuels, deforestation, and unsustainable agricultural practices, which have increased the concentration of greenhouse gases in the atmosphere (IPCC, 2022; Zhang et al., 2022). These changes have resulted in rising global temperatures, melting ice caps, sea-level rise, and altered weather patterns, leading to more frequent and severe extreme weather events such as floods, droughts, storms, and heatwaves (Lu, 2024). The consequences of climate change are far-reaching, affecting ecosystems, biodiversity, human health, agriculture, and global economies. For example, disruptions in rainfall patterns and increasing temperatures threaten food production and water security, especially in regions dependent on rain-fed agriculture (Ogunjo et al., 2018). Furthermore, vulnerable populations living in coastal and flood-prone areas are particularly at risk of displacement, loss of livelihoods, and health hazards (Nwachi et al., 2024).

Addressing climate change requires a combination of policy, technological, and social interventions. Among these, education has been identified as a crucial tool for raising awareness, promoting environmental stewardship, and fostering sustainable behaviors among citizens (IPCC, 2022; Zhang et al., 2022). By equipping young people with knowledge and understanding of climate change, societies can build resilience and encourage proactive responses to environmental challenges. In light of these global realities, examining the role of climate change education particularly in secondary schools is essential to understand its impact on students' environmental awareness, attitudes, and pro-environmental behaviors, which form the focus of this study.

Climate change is relevant globally because it affects the planet's climate systems, ecosystems, and human societies on a large scale. Rising temperatures, changing precipitation patterns, sea-level rise, and extreme weather events threaten global food security, water availability, and biodiversity (IPCC, 2022; Zhang et al., 2022). The consequences of these changes are not confined to specific countries they have transboundary impacts, influencing trade, migration, health, and economic stability worldwide. For example, extreme weather events in one region can disrupt food supply chains, increase migration pressures, or contribute to conflicts over scarce resources in another region (Lu, 2024). Therefore, climate change is a global issue requiring coordinated international responses, including mitigation, adaptation, and public awareness.

At the national level in Nigeria, climate change is particularly relevant due to the country's geographic, economic, and social characteristics. Nigeria's population is heavily dependent on agriculture, which is sensitive to climate variability. Shifts in rainfall, rising temperatures, and prolonged droughts threaten crop yields, livestock productivity, and food security (Ogunjo et al., 2018). Coastal areas are also vulnerable to sea-level rise and flooding, which threaten settlements, infrastructure, and ecosystems (Nwachi et al., 2024). Additionally, environmental degradation exacerbates health risks, economic vulnerability, and social inequalities. These national realities make it essential for Nigeria to develop strategies for adaptation, awareness, and mitigation, particularly through education, which equips citizens—especially young people with the knowledge and skills to

Adeyanju Ademola Lateef, "Integrating Climate Change Education into the Social Studies Curriculum in Nigerian Secondary Schools," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 8, Issue 9, pp. 98-105, 2026.

engage in sustainable environmental practices. Thus, understanding the effects of climate change education on environmental awareness among secondary school students is timely and relevant. It addresses both global and national concerns by preparing the younger generation to respond responsibly to climate challenges and fostering sustainable behaviors that can contribute to national resilience and environmental sustainability.

Nigeria is particularly vulnerable to the adverse effects of climate change due to its diverse climatic zones, large population, and reliance on climate-sensitive sectors such as agriculture and fisheries (Ogunjo et al., 2018; Nwachi et al., 2024). Across the country, rising temperatures, shifting rainfall patterns, and extreme weather events are increasingly evident. Northern Nigeria has experienced prolonged droughts and desertification, leading to the loss of arable land, reduced crop yields, and heightened food insecurity. In contrast, southern and coastal regions face increased flooding, coastal erosion, and saltwater intrusion, which threaten communities, farmlands, infrastructure, and livelihoods (Nasiru et al., 2024). The environmental impacts of climate change in Nigeria are significant. Biodiversity is under threat as changing climates disrupt ecosystems and natural habitats. Soil erosion, deforestation, and desert encroachment degrade the land, reducing its productivity and resilience. Water resources are also affected, with some areas experiencing scarcity while others face flooding that contaminates drinking water and spreads waterborne diseases.

Societally, these environmental changes translate into serious challenges. Communities reliant on agriculture, fishing, or natural resources experience loss of income, food insecurity, and migration pressures. Climate change also exacerbates social inequalities, as poorer households often have fewer resources to adapt to environmental stressors. Public health is affected through heat stress, malnutrition, and the spread of climate-sensitive diseases such as malaria and cholera (Ogunjo et al., 2018).

Education is indirectly impacted by climate change in multiple ways. Extreme weather events disrupt school schedules, destroy infrastructure, and limit students' access to educational resources. Moreover, without climate awareness and education, students may not understand the causes or consequences of climate change, limiting their ability to engage in sustainable environmental practices or contribute to community resilience. Integrating climate change education into secondary schools is therefore essential to equip students with the knowledge, skills, and attitudes needed to respond effectively to environmental challenges and participate in sustainable development.

Despite the growing recognition of climate change as a critical global and national issue, several gaps and challenges remain in Nigeria regarding the education of young people on this topic. One major challenge is the insufficient awareness among secondary school students about the causes, consequences, and mitigation strategies of climate change. Studies indicate that while students may have heard of climate change, their understanding of its scientific basis, environmental impacts, and personal responsibilities remains limited (Ogunjo et al., 2018; Nasiru et al., 2024). Another significant gap is the inadequate integration of climate change education into the secondary school curriculum. In many schools, environmental education is treated superficially, often limited to a few lessons within Social Studies, Geography, or Civic Education, without a structured or comprehensive approach. This lack of formal integration reduces students' exposure to key concepts and practical knowledge about climate change and environmental sustainability (Nwachi et al., 2024).

There is a shortage of trained teachers capable of delivering climate change content effectively. Many educators lack specialized training in environmental education, climate science, or pedagogical strategies that can foster students' critical thinking, problem-solving, and environmentally responsible behaviors. Coupled with inadequate teaching resources and learning materials, this challenge limits the effectiveness of climate change education in raising environmental awareness among students. These gaps create a compelling need for research to examine the actual effects of climate change education on students' environmental awareness, attitudes, and behaviors, particularly in the Nigerian context. Understanding these effects can inform curriculum development, teacher training, and educational policy, ultimately contributing to the development of environmentally conscious citizens who can address the challenges of climate change.

Examining the effects of climate change education on students' environmental awareness is crucial for several reasons. Secondary school students represent a critical segment of society that will inherit the responsibility of managing environmental resources and addressing climate-related challenges in the future. Understanding how education shapes their knowledge, attitudes, and behaviors can help identify the effectiveness of current teaching strategies and areas that require improvement Education is a key tool for building climate literacy, which enables students to understand the causes and consequences of climate change, evaluate environmental problems critically, and adopt sustainable behaviors. Without targeted education, students may remain unaware of the environmental threats facing their communities, limiting their ability to participate in mitigation and adaptation efforts.

Examining the impact of climate change education helps policymakers, curriculum developers, and educators design more effective interventions. Evidence-based insights can guide the integration of climate change topics into school curricula, inform teacher training programs, and provide practical learning resources that enhance students' engagement and environmental consciousness. Understanding the effects of climate change education at the secondary school level contributes to broader societal goals of sustainability and resilience. Students who are environmentally aware are more likely to adopt pro-environmental behaviors, influence their communities positively, and participate in climate action initiatives. This makes research on the topic essential for fostering an informed and proactive generation capable of responding to both local and global climate challenges.

Adeyanju Ademola Lateef, "Integrating Climate Change Education into the Social Studies Curriculum in Nigerian Secondary Schools," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 8, Issue 9, pp. 98-105, 2026.

It is important to examine the effects of climate change education on students' environmental awareness because secondary school students represent a critical segment of society that will inherit the responsibility of managing environmental resources and responding to climate-related challenges. Understanding how education influences their knowledge, attitudes, and behaviors enables educators and policymakers to identify effective teaching strategies and curriculum gaps (Ogunjo et al., 2018; Ajagbe, 2025; Oguejiofor et al., 2025). Without targeted climate-change education, students may remain unaware of environmental risks and their personal role in addressing them, limiting their ability to adopt sustainable behaviors and contribute to local and national climate action efforts (Eneji et al., 2021). The significance of this study extends to social outcomes. Environmentally aware students can influence their families and communities, promoting sustainable behaviors, supporting climate action initiatives, and fostering resilience to climate-related hazards (Nasiru et al., 2024; Oruonye & Oruonye, 2023). By cultivating informed citizens, the study contributes to social development and community engagement in environmental conservation.

In terms of educational outcomes, the study provides insights for curriculum developers, educators, and policymakers about how climate change education affects students' knowledge, attitudes, and behaviors. Findings can inform the design of teaching strategies, learning resources, and teacher training programs to ensure that environmental education is effectively delivered in secondary schools (Ekpo & Aiyedun, 2019). Finally, the study has clear environmental outcomes. Students with higher environmental awareness are more likely to engage in pro-environmental behaviors, such as waste reduction, tree planting, energy conservation, and water management. Collectively, these actions contribute to mitigating the impacts of climate change and promoting sustainable environmental practices (Usang et al., 2024). Examining the effects of climate change education on students' environmental awareness is therefore essential not only for improving knowledge and attitudes but also for supporting broader societal goals of sustainability, resilience, and environmental stewardship. The findings can guide policy, curriculum development, and community-based interventions that prepare a generation of environmentally conscious youth capable of responding effectively to both local and global environmental challenges.

Statement of the Problem

Climate change has become an important global concern, with potential impacts on ecosystems, human health, agriculture, and socio-economic systems. In Nigeria, where agriculture supports the livelihoods of a large portion of the population, changes in rainfall patterns, rising temperatures, and extreme weather events may affect crop yields, water availability, and community resilience. These environmental changes can interact with social and economic factors, influencing living conditions, health outcomes, and educational experiences.

Within the educational context, secondary school students may have varying levels of awareness and understanding of climate change and environmental issues. Climate change education in schools is often included as part of broader subjects, which might provide limited opportunities for students to develop detailed knowledge, attitudes, or behaviors related to environmental conservation. The extent to which climate change education influences students' environmental awareness, attitudes, and practices remains unclear, particularly within the Nigerian context.

This situation highlights the need to explore the potential effects of climate change education on students' environmental awareness. Understanding these effects could provide insight into how educational practices, teaching approaches, and learning resources contribute to students' knowledge of climate issues, their attitudes toward environmental stewardship, and their engagement in pro-environmental behaviors.

Conceptual Framework

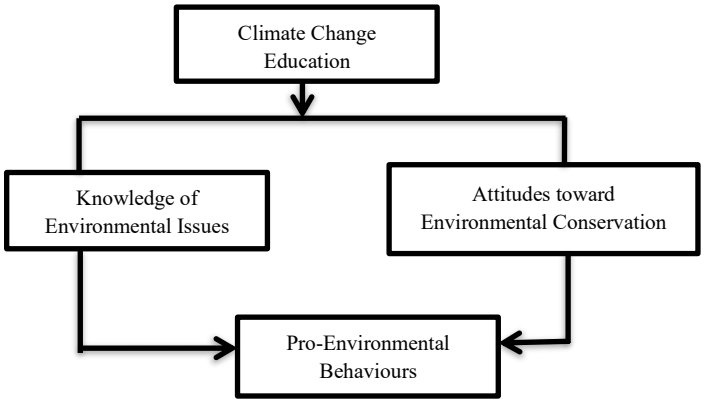

Figure 1: Conceptual Framework of the relationship between climate change education and environmental awareness among secondary school students in Nigeria.

(Source: Researcher's Design)

The conceptual framework of this study is anchored on the relationship between climate change education and the environmental awareness of secondary school students in Nigeria. It posits that the integration of climate change education into the school curriculum can significantly influence students' knowledge, attitudes, and behaviours toward environmental conservation. In this framework, climate change education serves as the independent variable, encompassing the extent of its integration into the curriculum, as well as the teaching methods and resources employed. Environmental awareness, the dependent variable, is reflected in students' knowledge of environmental issues, their attitudes toward conservation, and their engagement in pro-environmental behaviours. The framework assumes that effective climate change education enhances students' understanding of environmental issues, fosters positive attitudes toward sustainability, and encourages the adoption of environmentally responsible behaviors. Consequently, the study seeks to examine not only the level of environmental awareness among students but also the impact of climate change education in shaping their knowledge, attitudes, and behaviors toward environmental conservation.

Purpose of the Study

The purpose of this study is to examine the effects of climate change education on the environmental awareness of secondary school students in Nigeria. The objective is specifically:

1. To determine the level of environmental awareness among secondary school students in Nigeria.
2. To assess the extent to which climate change education has been integrated into the secondary school curriculum.
3. To evaluate the influence of climate change education on students' knowledge of environmental issues.
4. To examine the impact of climate change education on students' attitudes toward environmental conservation.
5. To investigate the role of climate change education in shaping students' pro-environmental behaviors.

Research Questions

The following research questions were raised to guide this study:

1. What is the level of environmental awareness among secondary school students in Nigeria?
2. To what extent has climate change education been integrated into the secondary school curriculum?
3. What is the influence of climate change education on students' knowledge of environmental issues?
4. How does climate change education affect students' attitudes toward environmental conservation?
5. What is the role of climate change education in shaping students' pro-environmental behaviors?

Research Hypotheses

The following research hypotheses were formulated for this study:

1. There is no significant relationship between climate change education and students' knowledge of environmental issues.
2. Climate change education does not have a significant relationship with students' attitudes toward environmental conservation.
3. Climate change education does not significantly relationship with students' pro-environmental behaviours.

II. METHODOLOGY

This study adopted a descriptive survey research design to investigate the effects of climate change education on secondary school students' environmental awareness in Nigeria, as this design allowed for the collection and analysis of information on students' knowledge, attitudes, and behaviors without manipulating any variables. The population comprised all secondary school students in Nigeria, including those in public and private schools across selected states, as they are directly exposed to climate change education and capable of expressing their environmental awareness. A sample of 1,500 students was drawn using stratified random sampling to ensure proportional representation across different classes, genders, and school types, providing reliable and generalizable findings. Data were collected using the Climate Change Education and Environmental Awareness Questionnaire (CCEEAQ), which measured students' knowledge, attitudes, and behaviors regarding climate change using Likert-scale items developed from relevant literature and the study objectives. The instrument's validity was ensured through face and content validation by experts in Environmental Education and Social Studies, and necessary modifications were made based on their feedback. Reliability was established via a pilot study with 50 students outside the main sample, yielding a Cronbach's Alpha of 0.82, indicating high internal consistency. The questionnaires were administered in person by the researcher and trained assistants, with clear instructions provided and adequate time allowed for completion, ensuring high response rates and accuracy. The data collected were coded and analyzed using descriptive statistics (frequency count and percentages) to summarize respondents' responses, while inferential statistics of Pearson Product-Moment Correlation (PPMC), were employed to examine the relationship between climate change education and students' environmental awareness. All hypotheses were tested at 0.05 significant level.

III. RESULTS

Research Question 1: What is the level of environmental awareness among secondary school students in Nigeria?

TABLE 1: Distribution of Environmental Awareness Levels among Secondary School Students (N = 1500)

Level of Environmental Awareness	Frequency (f)	Percentage (%)
Low	450	30.0
Moderate	750	50.0
High	300	20.0
Total	**1500**	**100**

Table 1 shows the table shows that half of the students (50%) have a moderate level of environmental awareness, 30% have a low level, and only 20% demonstrate high awareness. This suggests that while a significant number of students have some understanding of environmental issues, there is a need for more targeted climate change education to increase overall awareness and encourage pro-environmental behaviours.

Research Question 2: To what extent has climate change education been integrated into the secondary school curriculum?

TABLE 2.

Extent of Integration	Frequency (f)	Percentage (%)
Not integrated	300	20.0
Occasionally integrated	900	60.0
Fully integrated	300	20.0
Total	**1500**	**100**

Table 2 indicates that 60% of students experience climate change education occasionally, while only 20% report full integration into the curriculum. This highlights the need for a more systematic approach to incorporating climate change education in Nigerian secondary schools.

Research Question 3: What is the influence of climate change education on students' knowledge of environmental issues?

Table 3 indicates that 50% of students have moderate knowledge of environmental issues, while 25% exhibit high knowledge and 25% show low knowledge. This distribution suggests that climate change education has a measurable

Adeyanju Ademola Lateef, "Integrating Climate Change Education into the Social Studies Curriculum in Nigerian Secondary Schools," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 8, Issue 9, pp. 98-105, 2026.

positive effect on students' understanding of environmental issues, though more efforts are needed to raise overall knowledge levels among all students.

TABLE 3: Influence of Climate Change Education on Students' Knowledge of Environmental Issues (N = 1500)

Level of Knowledge	Frequency (f)	Percentage (%)
Low knowledge	375	25.0
Moderate knowledge	750	50.0
High knowledge	375	25.0
Total	**1500**	**100**

Research Question 4: How does climate change education affect students' attitudes toward environmental conservation?

TABLE 4: Effect of Climate Change Education on Students' Attitudes Toward Environmental Conservation (N = 1500)

Attitude Level	Frequency (f)	Percentage (%)
Negative attitude	300	20.0
Neutral attitude	600	40.0
Positive attitude	600	40.0
Total	**1500**	**100**

Table 4 shows that 40% of students have positive attitudes toward environmental conservation, while another 40% maintain a neutral attitude. Only 20% exhibit negative attitudes. This distribution indicates that climate change education contributes significantly toward fostering positive attitudes among students, although more consistent and engaging instruction may be needed to shift neutral attitudes toward stronger environmental commitment.

Research Question 5: What is the role of climate change education in shaping students' pro-environmental behaviors?

TABLE 5: Role of Climate Change Education in Shaping Students' Pro-Environmental Behaviors (N = 1500)

Level of Pro-Environmental Behavior	Frequency (f)	Percentage (%)
Low behavior	450	30.0
Moderate behavior	750	50.0
High behavior	300	20.0
Total	**1500**	**100**

Table 5 shows that 50% of students demonstrate moderate pro-environmental behaviors, 20% exhibit high levels of such behaviors, while 30% show low engagement. This pattern indicates that climate change education contributes meaningfully to encouraging students' environmentally responsible actions, but there is still room to strengthen educational strategies that promote higher behavioral commitment.

Testing of Hypotheses

Hypothesis 1: There is no significant relationship between climate change education and students' knowledge of environmental issues.

The correlation analysis in Table 6 shows a positive and significant relationship between climate change education and students' knowledge of environmental issues ($r = 0.42$, $df = 1498$, $p < 0.05$). This indicates that increased exposure to climate change education is associated with higher levels of environmental knowledge among students. Consequently, the null hypothesis is rejected.

TABLE 6: Correlation Analysis of the relationship Between Climate Change Education and Students' Knowledge of Environmental Issues

Variables	N	Mean	S.D.	df	r	p
Climate Change Education	1500	3.42	0.88	1498	0.42	0.000
Students' Knowledge of Environmental Issues	1500	3.67	0.91			

$p<0.05$

Hypothesis 2: Climate change education does not have a significant relationship with students' attitudes toward environmental conservation.

TABLE 7: Correlation Analysis of the relationship Between Climate Change Education and Students' attitudes toward environmental conservation

Variables	N	Mean	S.D.	df	r	p
Climate Change Education	1500	3.42	0.88	1498	0.38	0.000
Students' Attitudes Toward Environmental Conservation	1500	3.55	0.94			

$p<0.05$

The correlation analysis in Table 7 indicates a positive and significant relationship between climate change education and students' attitudes toward environmental conservation ($r = 0.38$, $df = 1498$, $p < 0.05$). This suggests that students who are more exposed to climate change education tend to exhibit more positive attitudes toward environmental conservation. Therefore, the null hypothesis is rejected.

Hypothesis 3: Climate change education does not significantly relationship between students' pro-environmental behaviours.

TABLE 8: Correlation Analysis of the relationship Between Climate Change Education and Students' Pro-Environmental Behaviour

Variables	N	Mean	S.D.	df	r	p
Climate Change Education	1500	3.42	0.88	1498	0.36	0.000
Students' Pro-Environmental Behaviours	1500	3.48	0.93			

$p<0.05$

The correlation analysis in Table 8 shows a positive and significant relationship between climate change education and students' pro-environmental behaviours ($r = 0.36$, $df = 1498$, $p < 0.05$). This indicates that students who receive greater exposure to climate change education are more likely to engage in pro-environmental actions. As a result, the null hypothesis is rejected.

IV. Discussion

The study revealed that students generally have a moderate level of environmental awareness, indicating that while they possess some understanding of climate-related issues, their knowledge and engagement remain limited. This finding aligns with Ajagbe (2025), who noted that climate change awareness among Nigerian students is uneven, and with Ekpo and Aiyedun (2019), who emphasized that environmental education programs have improved awareness but are constrained by

Adeyanju Ademola Lateef, "Integrating Climate Change Education into the Social Studies Curriculum in Nigerian Secondary Schools," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 8, Issue 9, pp. 98-105, 2026.

limited curricular integration. Eneji et al. (2021) similarly highlighted variations in climate change knowledge across different populations, while Oruonye and Oruonye (2023) and Oguejiofor et al. (2025) reported that secondary school students often lack sufficient depth in understanding and applying climate knowledge. Local environmental challenges, such as coastal ecosystem degradation and flooding, further underscore the need for context-specific climate education (Nasiru et al., 2024; Nwachi et al., 2024). Global perspectives also support this view, with Lu (2024) and Zhang et al. (2022) emphasizing the role of structured climate education in fostering adaptive capacities, and Usang et al. (2024) highlighting the value of nature-based learning for sustainability. Historical climate trends in Nigeria (Ogunjo et al., 2018) and the IPCC (2022) reinforce the importance of improving awareness to enhance climate adaptation and resilience. Collectively, these studies suggest that strengthening climate change education, integrating locally relevant content, and adopting participatory teaching strategies could enhance students' environmental knowledge and engagement.

The finding of the study showed that climate change education is mostly integrated into the curriculum occasionally rather than fully, suggesting that students exposure to climate-related topics is inconsistent. This aligns with the observations of Oruonye and Oruonye (2023), who noted that climate change education in Nigerian basic education system is often introduced superficially and lacks systematic implementation. Similarly, Oguejiofor et al. (2025) reported that while secondary school students are aware of climate change, the curriculum does not consistently provide comprehensive or structured instruction. Ajagbe (2025) and Ekpo and Aiyedun (2019) further emphasized that limited integration of climate education reduces its effectiveness in fostering environmental knowledge and adaptive capacity. The occasional nature of integration may also contribute to the moderate levels of environmental awareness observed among students, as irregular exposure can hinder the development of in-depth understanding and practical engagement (Eneji et al., 2021; Usang et al., 2024). These findings indicate the need for more systematic and thorough integration of climate change education into the secondary school curriculum to enhance students' knowledge, attitudes, and pro-environmental behaviours

The finding of the study revealed that climate change education positively influences students knowledge of environmental issues, indicating that exposure to climate-related topics enhances their understanding of environmental challenges and solutions. This is consistent with the work of Ajagbe (2025), who reported that students exposed to climate change education demonstrate greater awareness of environmental issues. Ekpo and Aiyedun (2019) also emphasized that structured environmental education improves students knowledge and equips them with the skills to understand climate impacts and adaptation strategies. Similarly, Oguejiofor et al. (2025) found that secondary school students who receive climate education are better informed about the causes and consequences of climate change. Eneji et al. (2021) highlighted that knowledge acquisition through education is critical in enabling learners to make informed decisions about environmental conservation. Moreover, Lu (2024) and Zhang et al. (2022) noted that climate education fosters not only awareness but also the cognitive capacity to engage with environmental problems critically. These findings suggest that consistent and comprehensive climate change education can significantly improve students knowledge, laying the foundation for positive attitudes and pro-environmental behaviours.

The finding of the study showed that climate change education contributes to students having positive attitudes toward environmental conservation, indicating that exposure to climate-related topics shapes how students perceive and value environmental protection. This aligns with Ajagbe (2025), who noted that climate change education fosters environmental responsibility among students, and with Ekpo and Aiyedun (2019), who emphasized that environmental education encourages positive attitudes necessary for sustainable practices. Oguejiofor et al. (2025) also reported that students who receive consistent climate education are more likely to develop favorable attitudes toward conservation and sustainability. Additionally, Usang et al. (2024) highlighted that nature-based learning strengthens students appreciation for the environment, while Eneji et al. (2021) suggested that improved awareness through education translates into attitudinal shifts toward environmental stewardship. Collectively, these studies indicate that integrating climate change education into the curriculum is instrumental in cultivating positive environmental attitudes, which is essential for promoting long-term pro-environmental behaviours.

The finding of the study revealed that climate change education encourages students to engage in pro-environmental behaviors, suggesting that knowledge and awareness gained through education translate into practical actions to protect the environment. This is consistent with the findings of Ajagbe (2025), who noted that students exposed to climate change education are more likely to adopt environmentally responsible practices. Ekpo and Aiyedun (2019) also emphasized that environmental education fosters behaviors such as waste reduction, recycling, and conservation of natural resources. Oguejiofor et al. (2025) reported that secondary school students who receive climate education are better equipped to implement adaptive and sustainable practices in their daily lives. Similarly, Usang et al. (2024) highlighted that hands-on and participatory environmental education enhances students engagement with pro-environmental activities. These findings collectively indicate that integrating climate change education into the curriculum is not only important for raising awareness and shaping attitudes but also for promoting concrete behaviors that support environmental sustainability.

The study found that climate change education has a significant positive relationship with students knowledge of environmental issues, indicating that increased exposure to climate-related topics is associated with greater understanding and awareness among students. This finding is consistent with Ajagbe (2025), who reported that students who receive climate change education demonstrate higher levels of environmental knowledge. Similarly, Ekpo and Aiyedun (2019) emphasized that structured environmental education enhances students

Adeyanju Ademola Lateef, "Integrating Climate Change Education into the Social Studies Curriculum in Nigerian Secondary Schools," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 8, Issue 9, pp. 98-105, 2026.

comprehension of climate impacts and adaptation strategies. Oguejiofor et al. (2025) also noted that secondary school students with consistent exposure to climate education are better informed about environmental challenges and solutions. Additionally, Eneji et al. (2021) highlighted that knowledge gained through education is crucial for enabling students to make informed decisions regarding environmental conservation. These studies suggest that climate change education plays a critical role in equipping students with the knowledge necessary to understand, respond to, and actively engage with environmental issues.

The study revealed that climate change education has a significant positive relationship with students' attitudes toward environmental conservation, suggesting that increased exposure to climate-related topics fosters more favorable perceptions and appreciation for environmental protection. This aligns with Ajagbe (2025), who reported that students who receive climate change education tend to develop more responsible attitudes toward sustainability. Ekpo and Aiyedun (2019) also emphasized that environmental education is instrumental in shaping students' attitudes, encouraging them to value and support conservation practices. Oguejiofor et al. (2025) found that secondary school students with consistent climate education demonstrate stronger commitment to environmental stewardship. Furthermore, Usang et al. (2024) highlighted that participatory and experiential learning approaches reinforce positive environmental attitudes. Collectively, these findings indicate that climate change education not only improves knowledge but also plays a crucial role in cultivating attitudes that support sustainable behaviours.

The study revealed that climate change education has a significant positive relationship with students' pro-environmental behaviors, indicating that students who are more exposed to climate-related education are more likely to engage in actions that protect and sustain the environment. This finding is consistent with Ajagbe (2025), who noted that students with access to climate education tend to adopt environmentally responsible practices. Ekpo and Aiyedun (2019) emphasized that environmental education encourages behaviors such as recycling, proper waste management, and conservation of natural resources. Oguejiofor et al. (2025) also reported that secondary school students who consistently receive climate education are more inclined to translate knowledge and positive attitudes into concrete environmental actions. Additionally, Usang et al. (2024) highlighted that experiential and participatory learning approaches strengthen students' engagement with pro-environmental behaviors. These findings collectively suggest that climate change education is crucial not only for improving knowledge and attitudes but also for fostering tangible behavioral changes that support environmental sustainability.

V. Conclusion

Based on the findings of this study, it can be concluded that climate change education is a vital tool for developing students' environmental literacy in Nigerian secondary schools. The moderate level of environmental awareness among students suggests that while some understanding exists, there is room for improvement. The occasional integration of climate change education into the curriculum indicates that students do not consistently receive the full benefits of such instruction. The study further shows that climate change education positively affects students' knowledge, attitudes, and pro-environmental behaviors, demonstrating that exposure to structured climate education can shape environmentally responsible thinking and actions. Therefore, it is evident that for students to become more knowledgeable, develop positive environmental attitudes, and engage actively in sustainable behaviors, climate change education must be systematically and effectively incorporated into the school curriculum.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Educational policymakers should ensure that climate change education is fully and consistently integrated into the secondary school curriculum to provide students with regular and comprehensive exposure to environmental issues.
2. Teachers should be trained and equipped with the necessary knowledge, skills, and instructional materials to effectively deliver climate change education and engage students in meaningful learning activities.
3. Schools should adopt participatory and hands-on teaching strategies, such as environmental clubs, field trips, and community projects, to help students translate knowledge and attitudes into pro-environmental behaviors.
4. Climate change education should incorporate locally relevant examples, challenges, and solutions to make the lessons more relatable and actionable for students.
5. Schools and educational authorities should organize regular campaigns, workshops, and seminars to reinforce environmental awareness and encourage positive attitudes toward conservation and sustainability.
6. There should be systematic monitoring and evaluation of how climate change education is delivered and its impact on students' knowledge, attitudes, and behaviors to identify gaps and improve effectiveness.

References

[1]. Ajagbe, C. A. (2025). *Climate change awareness and education in Nigeria*. FNAS Journal of Behavioural Education Research.
[2]. Ekpo, C. G., & Aiyedun, T. G. (2019). Environmental education for adaptation to climate change in Nigeria. *IOSR Journal of Research & Methods in Education*.
[3]. Eneji, C.-V. O., Onnoghen, N., Acha, J. O., & Eneyo, O. (2021). Climate change awareness among rural farmers in Cross River State, Nigeria. *Global Public Health Journal*.
[4]. IPCC. (2022). *Climate change 2022: Impacts, adaptation, and vulnerability*. Intergovernmental Panel on Climate Change.
[5]. Lu, S. (2024). *The reality of climate change: Evidence, impacts and engineering solutions*. arXiv. https://arxiv.org/abs/2410.12412
[6]. Nasiru, U., Bissala, A. C., Liam, E. F., & Wushish, M. U. (2024). The impact of climate change on coastal ecosystems in Bayelsa State, Nigeria. *SSAAP Publications*.
[7]. Nwachi, C. C., Ogbonna, C. G., Ekwe, C. A., & Umegboro, J. I. (2024). Effects of climatic variations and changing land use/land cover on flooding in Southern Nigeria. *IJOEMS Journal*.
[8]. Oguejiofor, C. N., Okafor, P. C., Ani, A. N., Nwogbo, M. O., & Chukwu, P. O. (2025). Awareness of climate change and adaptation strategies

among secondary school students in Anambra State, Nigeria. *European Scientific Journal*.

[9]. Ogunjo, S. T., Ife-Adediran, O. O., Owoola, E. O., & Fuwape, I. A. (2018). Quantification of historical drought conditions over different climatic zones of Nigeria. *arXiv*. https://arxiv.org/abs/1810.00317

[10]. Oruonye, E. D., & Oruonye, I. M. (2023). Climate change and environmental education in Nigeria's basic education system. *Journal of Junior Secondary School Management Studies*.

[11]. Usang, N., Onnoghen, D., Idika, D., Anabaraonye, B., Ewa, B., & Hope, J. (2024). Nature education as a foundation for environmental sustainability in Nigeria. *Journal of Public Health and Sustainability*.

[12]. Zhang, J., Zhang, K., Zhang, M., Jiang, J. H., Rosen, P. E., & Fahy, K. A. (2022). Avoiding the "Great Filter": An assessment of climate change solutions and combinations for effective implementation. arXiv. https://arxiv.org/abs/2205.00133