



# An Assessment of Environmental Education Awareness, Attitudes and Engagements for Environmental Sustainability in Nigeria: A Case Study of LAUTECH Students

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**Abstract:** Environmental sustainability necessitates awareness, an attitude regarding oneself and the environment, along with proper conduct and ethical values, which Environmental Education (EE) provides. Therefore, EE is critical in developing countries such as Nigeria, which are confronted by significant environmental problems such as deteriorating ecosystems, erosion, flooding, loss of biodiversity, and climate change. Because the ability to handle environmental challenges depends heavily on the young, as it is easiest to attain greater consciousness among them, this study assessed students' EE exposure and awareness, knowledge of environmental problems, attitude and perceptions towards environmental sustainability, engagement to promote environmental sustainability and barriers to engagement. Using a questionnaire survey and convenience sampling, this study sampled 300 LAUTECH students from various academic disciplines, levels and demographic backgrounds. The collected data were analysed using IBM SPSS to generate descriptive statistics such as frequency, percentage and mean. The findings revealed that most of the respondents have heard of EE (4.19), primarily through informal education (3.77). Also, the environmental problems the respondents are mostly familiar with are pollution and waste management problems (4.22). While the students are highly interested in pursuing actions that promote environmental sustainability, they are constrained by restricted access to information on environmental issues (3.46) and organisations that promote environmental sustainability in Nigeria (3.24). The study recommended that Education for Sustainable Development, which includes EE and sustainability

topics, should be incorporated into core subjects of the National Education Curriculum in Nigeria. Also, EE should be intensified formally and promoted informally through online sources, study groups, environmental clubs and partnerships with environmental NGOs.

**Keywords:** Environmental Education, environmental problems, environmental sustainability, LAUTECH, sustainable development.

## 1. INTRODUCTION

This Environmental Education (EE) in Nigeria is becoming more important due to the extreme severity of environmental problems that is happening in all parts of the country today. Olujimi *et al.* [1] described environmental problems as several unfavourable modifications to the physical, chemical, and biological properties of land, air, and water bodies that may be harmful or antagonistic to human existence and living situations are known as environmental problems. Nigeria has many environmental problems that threatens sustainable livelihoods [2]. These problems include deteriorating ecosystem, erosion, flooding, fire disasters, inadequate management of solid and industrial wastes, air, land, and water pollution, deforestation, oil spills, desertification, drought, loss of biodiversity, and climate change [3, 4, 5, 6, 7]. These

environmental problems are complex, interconnected and threaten Nigeria's sustainable livelihoods and overall development [8, 9, 2, 10]. Therefore, Environmental education is especially vital in developing countries such as Nigeria, which are confronting significant environmental challenges [11].

Environmental sustainability is one of the foundational pillars of sustainable development, alongside social sustainability and economic sustainability. It is a facet of the development process that prioritises the use of natural and social resources, with significant emphasis on sustainability and future implications [12]. Environmental challenges resulting from extensive human interference, including pollution, global warming, land degradation, and diminishing biodiversity, exert pressure on the ecosystem's ability to withstand and stay productive [13]. Therefore, environmental sustainability necessitates awareness, an attitude regarding oneself and the environment, along with proper conduct and ethical values [14] which EE provides. EE provides an avenue to environmental sustainability amidst the environmental problems facing the country [15, 16, 17, 18, 19]. This is because EE enables individuals to engage with the natural world while also learning how to utilise the abundance of resources found there. Following this, individuals may commit to guarding the environment and preserving its resources for the good of current and future generations [20].

Ibimilua [8], expressed that EE represents a strategy for establishing an environment that is sustainable on both an ecological and social level. It enhances individuals' understanding of the significance and aesthetic value of the environment and the necessity for its preservation. Hence, the objective of EE is to enlighten individuals on environmental problems, and proffer innovative, sustainable ways to solve those problems [21]. According to the Belgrade Charter of 1975, EE's objective is to: create a community with the information, abilities, attitudes, drive, and dedication to addressing current challenges independently and together to prevent the formation of future problems; to educate people about environmental issues and the problems they are connected with [4].

In the developed nations, EE has significantly improved public health and the condition of the environment; however, in less developed regions, individuals confront substantial hurdles in attaining environmental sustainability [22]. In Nigeria where education has not yet had a major influence on environmental consciousness, the environmental hazards to human well-being and livelihood are intensified [8]. Although, since Nigeria gained its independence in 1960, the country has established and executed several policies, programmes, and campaigns for environmental sustainability [4, 22, 23]. However, rather than proactive and attempting to stop the problem before it occurs; most of these initiatives are reactive, concentrating on addressing the problem after it has already surfaced [24]. The importance of EE to environmental sustainability in Nigeria becomes a matter of urgent concern to environmentalists. By educating affected individuals about these pressing

environmental issues and the new measures being implemented, we can foster environmental stewardship [22].

The current environmental challenges in Nigeria highlight the need for a pragmatic approach. Raising students' awareness and equipping them with practical skills is essential for promoting sustainable development in their communities. Onyekachi [25] noted that young people in Nigeria are disproportionately susceptible to the adverse impacts of climate change, putting their safety, well-being, and access to education at jeopardy. Therefore, it is imperative that EE and management be prioritised if Nigeria is to achieve environmental sustainability. The United Nations [19] also emphasised that the development of local, regional, national, and international ability to handle environmental challenges depends heavily on the young as it is easiest to attain greater consciousness among the younger generations. Therefore, since participation was stressed as the fifth goal of EE in the Tbilisi Declaration (1977) [30], this study assessed students' EE exposure and awareness, knowledge of environmental problems in Nigeria, attitudes and perceptions towards environmental sustainability, engagement to promote environmental sustainability by the students and barriers to engaging activities that promote environmental sustainability. The implications of this study are for environmental policy makers and practitioners to build future leaders in environmental sustainability that are not only knowledgeable but also possesses the skills to steer sustainable development in Nigeria.

## 2. LITERATURE REVIEW

### 2.1 Definition and Scope of Environmental Education

Environmental Education is an extensive framework that examines human interactions with both natural and manmade surroundings. It encompasses aspects influencing ecosystems, cognitive and physical growth, living conditions, urban decay, and demographic challenges. The goal is to enhance public awareness of the environment, our connection to it, and the ethical measures necessary to secure our survival while improving quality of life [26]. Moseley [27] characterised EE as an interdisciplinary subject designed to produce global citizens throughout an individual's lifetime. When people consider environmental issues, it can help address injustices that currently exist in the environment and encourage the growth of new learning, behaviour, social and personal responsibilities.

EE's focus is on how humans interact with and affect the natural world [21]. The goal of education is to develop individuals who engage thoughtfully with their environment. Therefore, EE plays a crucial role in increasing public awareness of the long-term negative impacts of environmental degradation and unregulated development [28]. The study of EE covers fundamental terminologies and principles including biodiversity, sustainable agriculture, forestry, soil conservation, water use and non-renewable resources. Others are climate change, pollution mitigation, waste reduction, sustainable urban development, economic and political frameworks, environmental ethics, and diverse

perspectives [29]. The five objectives of EE according to the Tbilisi Declaration of 1977 are:

1) *Awareness*: To aid organisations and individuals in enhancing their sensitivity and awareness of the environment and its associated concerns.

2) *Knowledge*: To assist organisations and individuals in cultivating a diverse array of experiences and a basic knowledge of the environment and its associated concerns.

3) *Attitudes*: To foster a sense of responsibility and a positive outlook toward environmental conservation, inspiring individuals and organisations to adopt sustainable behaviours.

4) *Skill*: To aid companies and individuals in cultivating the skills to identify and tackle environmental challenges.

5) *Participation*: To enable companies and individuals to actively engage in the resolution of environmental concerns at all stages [30].

## 2.2 Environmental Education and Environmental Sustainability

Environmental sustainability, while linked to social and economic sustainability, primarily focuses on preserving natural resources [31]. It is the capacity to furnish the resources and services required by present and future generations without compromising the integrity of the ecosystems that support them, therefore preserving the qualities of the natural environment [32]. Adequate knowledge acquired via formal as well as informal learning is essential for ensuring sustainable development in developing nations, since it may mitigate and alleviate some environmental problems [33]. Education is a crucial driver of sustainability, equipping individuals with the knowledge, values, and skills needed to engage in responsible decision-making at personal, collective and global levels [15]. The struggle for sustainability has acclaimed education as a key component because it facilitates individuals' knowledge, attitudes, and abilities required to partake in decision-making on a person, collective, and global scale [16]. This is because education's main goal is to provide students the skills they need to become lifelong learners [22]. Therefore, by incorporating EE into sustainability, people may choose to live more sustainably, empowering people to make informed decisions [34]. In addition, EE is essential for cultivating in society members a positive attitude and behaviour, as well as a knowledge of the environment. Through environmental education, individuals develop a deeper understanding of their relationship with nature and the consequences of their actions [35]. Education may create innovative tactics for fostering a positive mindset and positive character traits to counteract environmentally damaging behaviours, therefore encouraging people to preserve and take care of their environment [24].

## 2.3 Historical Development of Environmental Education in Nigeria

Research has demonstrated that EE in Nigeria dates to the pre-colonial period, when the government of Nigeria implemented several environmental management laws,

rules, and programmes [4, 22, 23, 11]. Jekayinfa and Yusuf [11] identified that the enactment of environmental laws, policies, forest restoration initiatives, game reserves, national parks, environmental sanitation day activities, and the establishment of task forces for environmental cleanliness in some states are few examples of the initiatives on EE implemented in the past. The enactment of policies such as 1937 Forest Ordinance, which resulted in the creation of several forest reserves around the nation and the 1958 Criminal Code, which forbade interment in homes in order to reduce water contamination are examples of pre-colonial initiatives towards EE. The Petroleum Refining Regulation Act was also passed in 1974 with the intention of reducing oil pollution, particularly in the Nigeria Delta Wetland [4, 23]. Currently, the National Environmental Standard Regulation Agency (NESRA) oversees the preservation of biodiversity, protecting the environment, and advancing Nigeria's natural resources, environment, and technology. It also organises and holds interactions with relevant stakeholders both within and beyond Nigeria about the implementation of environmental standards, policies, laws, and guidelines [4]. While these initiatives have helped mitigate some environmental challenges in Nigeria, new problems continue to emerge because the root causes remain unresolved [35].

In the 1960s, EE was presented in schools via hygiene and nature studies to align with the increasing global interest in this subject. However, the events in British society served as the basis for the material [36]. According to Global Environmental Education Partnership (GEEP) [37], EE in Nigeria has benefited from donations from the public, business, non-profit, and educational sectors. Through teacher training programmes offered by various institutions, K12 educators can specialise in EE (EE). Educational, health, and conservation non-governmental organisations (NGOs) have successfully incorporated EE into their programmes, emphasising the importance of EE in Nigeria for the environment as well as individual and community well-being.

Erhabor [35] identified that by working together with WWF-UK and Nigeria Conservation Foundation (NCF), the University of Calabar's Institute of Education developed the EE unit, establishing it as the first national higher education school to achieve this status. In addition to offering a specialisation in EE, the degree equips K–12 educators with the skills and information needed to include environmental problems into their teaching. Today, numerous academic EE programmes are also offered by other universities, such as the Department of Health Safety and EE at the University of Benin's Faculty of Education and the Centre for Environment and Science Education at the University of Lagos [35, 37]. These university programmes also host many EE conferences, seminars, and workshops annually; however, Nigerians do not often have access to these professional development opportunities [37]. The national EE curriculum is based on four themes, which are included into many disciplines taught in elementary and secondary education. These themes include ecological basis, human

environment and development, environmental change and impact, and sustainable development [35].

GEEP [37] noted that although EE isn't specifically included in the national curriculum, it is incorporated in the variety of instructional strategies used in primary school. Similarly, private as well as public schools have implemented EE through outdoor learning initiatives. Most of the EE content used in K–12 classrooms come from companies and organisations that are not affiliated with the traditional educational system. For instance, the Hacey Health Initiative's Student Environmental Education Programme (SEEP) attempts to empower students to make life-skills-based changes that will improve their perception of the environment and empower them to take responsibility for the environment and their neighbourhoods. In addition, environmental NGOs oversee the majority of EE programmes, and with grants and donations they constitute an important component of EE in Nigeria. Additionally, there are instances where the corporate social responsibility endeavours of the business sector, are spearheading EE projects. For instance, NCF actively supports a variety of NCF School Conservation Clubs by providing a multitude of environmental resources to educators and students through its EE project [37].

## 2.4 Challenges Facing Environmental Education in Nigeria

Robinson [2] discovered several factors that led to lack of awareness and concern for the environment among Nigerians. These include inadequate education and training, as well as a lack of awareness and information. Moreover, information on the nation's environmental problems are scarce and the findings of research are seldom made public. Additionally, because of budget limitations, organisations that engage in environmental intervention frequently respond slowly to environmental issues. When that happens, responses are frequently too long or inadequate. Also, most people lack enough knowledge about environmental regulations, EE, and the effects of human actions on the environment to voluntarily try to improve or conserve the environment. According to Kwale [38], EE related policies in Nigeria are still being undermined by a few factors, including the difficult interdisciplinary nature of EE, the shortage of trained teachers to teach it in schools, and the environmental constraints of urbanisation. Poverty and ignorance also impact EE in Nigeria. Njar and Enagu [3] noted the consequences of illiteracy on EE. Kobani [39] identified among other things, the absence of public funding, the commercialisation, privatisation, and marginalisation of adult non-formal education are the main obstacles to EE. Poor management, incompetent instructors, poor working conditions (which might promote negligence and indifference), disability, a shortage of suitable teaching and learning tools as a result of insufficient funding, and ineffective implementation were identified by Bosah [22].

Akinsemolu and Arijeniwa [15] mentioned challenges such as inadequate funding; lack of qualified educators with experience in environmental subjects which hinders the development and delivery of EE programmes; insufficient facilities and inappropriate infrastructure due to poor investment in education and; non-inclusion of EE in legal frameworks or national strategies. Furthermore, there are insufficient stakeholder inclusion in EE initiatives.

## 3. METHODOLOGY

This study employed quantitative research method for collecting and analysing quantitative data. Data was gathered using an online questionnaire created using Google Forms to get information from the research participants. The link of the Google Form was shared with students through different platforms including email and WhatsApp. The sample size of 300 students represent 1% of LAUTECH's total enrolment of approximately 30,000 students [40]. The researchers effectively engaged participants across diverse academic disciplines, levels, and demographic backgrounds, ensuring a representative sample. This approach ensured a heterogeneous sample, enhancing the generalisability of the findings to the broader student population at LAUTECH.

The respondents rated the variables of the questionnaire through a Likert scale given as: Strongly Agree – 5, Agree – 4, Undecided – 3, Disagree – 2 and Strongly Disagree – 1. The collected data were analysed using IBM SPSS to generate descriptive statistics, such as frequencies, percentages, and the mean of the variables. The interpretation of the findings involves synthesising quantitative data to provide a comprehensive understanding of students' exposure to EE, their levels of understanding and engagement in environmental sustainability activities. The insights gleaned from the analysis were contextualised within existing literature to offer significant interpretations and implications for environmental policy makers and practitioners in Nigeria as a whole.

## 4. RESULTS AND DISCUSSION

The results of the findings are presented in Tables 1, 2, 3, 4 and 5. Table 1 reveals that LAUTECH students have significant exposure to EE, with 87.7% confirming familiarity (Mean = 4.19). This indicates that environmental education is relatively well-known within the university setting. Examining how the students got exposed to EE, most of them (74%) have heard of EE through an extracurricular activity they engaged in (Mean = 3.77). This was followed by 61% of the students who have heard of EE through one of the courses they had taken/taking (Mean = 3.57) and 62.6% who have heard of EE through their course of study (Mean = 3.52). Others (56.6%) have heard of EE through a seminar/workshop/training they have attended in the school (Mean = 3.48).



Table 1: Environmental education exposure and awareness

Exposure	Strongly Agree F/%	Agree F/%	Undecided F/%	Disagree F/%	Strongly Disagree F/%	Mean
I have heard of EE	143/47.7	120/40.0	4/1.3	18/6.0	15/5.0	4.19
I know EE through my course of study	79/26.3	109/36.3	27/9.0	58/19.3	27/9.0	3.52
I have heard of EE through one of the courses I have taken/taking in the university	68/22.7	121/40.3	41/13.7	55/18.3	15/5.0	3.57
I have heard of EE through a seminar/workshop/training I attended in the school	85/28.3	85/28.3	43/14.3	62/20.7	25/8.3	3.48
I have heard of EE through an extracurricular activity I am engaged in	86/28.7	136/45.3	20/6.7	39/13.0	19/6.3	3.77

Table 2 shows how knowledgeable the students are about EE. The results indicate that most students (81.0%) perceive themselves as environmentally aware (Mean = 4.06). However, variations in awareness across specific issues, such as biodiversity loss (60.7%), suggest potential gaps in environmental knowledge that EE programmes should address. Environmental awareness on pollution and waste

management problems is relatively high with 84.3% (Mean = 4.22). This was followed by 80.4% awareness on erosion and flooding (Mean = 4.15). Others are desertification and deforestation with 79.7% (Mean = 4.05), climate change with 68.0% (Mean = 3.78) and loss of biodiversity and ecosystem services with 60.7% (Mean = 3.60).

Table 2: Knowledge of environmental problems in Nigeria

Knowledge Assessment	Strongly Agree F/%	Agree F/%	Undecided F/%	Disagree F/%	Strongly Disagree F/%	Mean
I consider myself environmentally aware	120/40.0	123/41.0	26/8.7	16/5.3	15/5.0	4.06
I understand climate change issues in Nigeria	87/29.0	117/39.0	51/17.0	32/10.7	13/4.3	3.78
I understand loss of biodiversity and ecosystem services	75/25.0	107/35.7	61/20.3	38/12.7	19/6.3	3.60
I know Nigeria has pollution and waste management problems	163/54.3	90/30.0	11/3.7	23/7.7	13/4.3	4.22
I know Nigeria is experiencing desertification and deforestation	123/41.0	116/38.7	33/11.0	10/3.3	18/6.0	4.05
I know erosion and flooding is due to poor environmental management	146/48.7	95/31.7	34/11.3	7/2.3	18/6.0	4.15

The attitudes and perceptions of the respondents towards environmental sustainability are examined in table 3. Majority of the respondents (79.0%) agreed that they take deliberate actions to protect the environment in their own little ways (Mean = 4.02). This is because 79.3% of them are motivated to pursue actions that protects the environment (Mean = 3.99) and 80.7% have strong interest

in environmental issues (Mean = 3.95). All of these have revealed positive attitude towards the environment by the students. Additionally, EE is relevant to the long-term career goals of 69.6% (Mean = 3.85) while 70.6% talk about the need for environmental sustainability among their peers/colleagues/classmates (Mean = 3.74).

Table 3: Attitudes and perceptions towards environmental sustainability

Attitudes and Perceptions	Strongly Agree F/%	Agree F/%	Undecided F/%	Disagree F/%	Strongly Disagree F/%	Mean
I have strong interest in environmental issues	96/32.0	146/48.7	21/7.0	22/7.3	15/5.0	3.95
I am motivated to pursue actions that protects the environment	105/35.0	133/44.3	29/9.7	20/6.7	13/4.3	3.99
I take deliberate actions to protect the environment in my own little ways	114/38.0	123/41.0	30/10.0	20/6.7	13/4.3	4.02

Attitudes and Perceptions	Strongly Agree F/%	Agree F/%	Undecided F/%	Disagree F/%	Strongly Disagree F/%	Mean
I talk about the need for environmental sustainability among my peers/ colleagues/classmates	88/29.3	124/41.3	36/12.0	27/9.0	25/8.3	3.74
EE is relevant to my long-term career goals	121/40.3	88/29.3	41/13.7	25/8.3	25/8.3	3.85
I have strong interest in environmental issues	96/32.0	146/48.7	21/7.0	22/7.3	15/5.0	3.95

Table 4 shows engagements to promote environmental sustainability by the students. Slightly over half of the respondents (58.3%) reported participating in public actions that promote environmental sustainability (Mean = 3.65), suggesting moderate student involvement in environmental initiatives. Less than half of the respondents (49%) indicated volunteering for organisations that promote

environmental sustainability (Mean = 3.33), highlighting a gap in structured environmental activism. With only 38.3% of respondents participating in environmental clubs or initiatives (Mean = 3.11), there appears to be limited institutional support for student engagement in structured sustainability efforts.

Table 4: Engagements to promote environmental sustainability

Activities	Strongly Agree F/%	Agree F/%	Undecided F/%	Disagree F/%	Strongly Disagree F/%	Mean
I have engaged in public actions that promotes environmental sustainability	93/31.0	82/27.3	62/20.7	53/17.7	10/3.3	3.65
I volunteer for organisations that promotes environmental sustainability	62/20.7	85/28.3	59/19.7	77/25.7	17/5.7	3.33
I belong to a club or initiatives that are engaged in environmental sustainability	52/17.3	63/21.0	72/24.0	93/31.0	20/6.7	3.11

The barriers the students face in engaging in activities that promote environmental sustainability are shown in table 5. The most prominent barriers to student engagement in environmental sustainability are limited access to environmental information (60.4%) (Mean = 3.46) and lack of awareness about relevant organisations (47.3%) (Mean = 3.24). Meanwhile, misconceptions (40.0%) (Mean = 3.00),

inadequate course offerings (26.7%) (Mean = 2.77), and general disinterest (26.7%) (Mean = 2.70) appear to be secondary concerns, indicating that increasing awareness and accessibility could significantly enhance participation. This underscores the need for improved educational outreach and awareness campaigns.

Table 5: Barriers to engaging in environmental sustainability activities

Barriers	Strongly Agree F/%	Agree F/%	Undecided F/%	Disagree F/%	Strongly Disagree F/%	Mean
I am simply uninterested in EE and sustainability because I do not know what all is about	45/15.0	35/11.7	52/17.3	121/40.3	47/15.7	2.70
I think environmental issues are blown out of proportion	40/13.3	80/26.7	49/16.3	102/34.0	29/9.7	3.00
Information on environmental issues and how to protect the environment is not widespread	77/25.7	104/34.7	36/12.0	47/15.7	36/12.0	3.46
My school does not have courses to enlighten me on EE and sustainability	41/13.7	39/13.0	64/21.3	123/41.0	33/11.0	2.77
I do not know any clubs/NGOs or any other initiatives that I can join to enlighten me on EE	75/25.0	67/22.3	44/14.7	82/27.3	32/10.7	3.24

The findings revealed that most of the respondents have heard of EE majorly through an extracurricular activity they engaged in and through their school. Activities that promote <https://doi.org/10.53982/ajeas.2025.0301.03-j>

EE in Nigeria are driven through both informal and formal education both of which have provided the means by which the students heard of EE. However, hearing about EE

majorly from external sources, this study is consistent with United Nations [19] assertion that young individuals acquire substantial information about environmental issues via informal sources, such as media, rather than through formal education. Essentially, educational, health, and conservation NGOs have successfully integrated EE into their programs, underscoring its significance for environmental preservation, individual consciousness, and community well-being in Nigeria (GEEP) [35]. Also, while some primary and secondary schools in Nigeria have developed EE contents for K-12 classrooms and outdoor learning; some universities offer specialisation in EE programmes and offered courses related directly or indirectly to EE [34, 36].

Most of the respondents considered themselves as environmentally aware and they are familiar with different environmental problems in Nigeria. Studies have identified that EE raises people's environmental awareness and knowledge [8; 22, 41]. Particularly, Gunde *et al.* [41] emphasised that the goal of EE is to enlighten the people about the environment, its problems, and proffer innovative, sustainable ways to solve those problems. The environmental problems the respondents are mostly familiar with in Nigeria include pollution and waste management problems, erosion and flooding and desertification and deforestation. Others are climate change and loss of biodiversity and ecosystem services.

Studies have identified that through EE, environmental sustainability can be realised in the face of environmental problems [15, 16, 17, 18, 19] provided that the knowledge and abilities gained are put into use. Findings revealed that the students are motivated to pursue actions that protects the environment and talk about environmental sustainability among their peers/colleagues/classmates. They also take deliberate actions to protect the environment in their own little ways. All of these are attributed to their strong interest in environmental issues, and the relevance of EE to the students' long-term career goals. While many students express strong interest in EE, few translate that interest into active participation. This gap suggests potential obstacles such as limited awareness of organisations, insufficient institutional encouragement, or resource constraints. Findings indicate that students are motivated to pursue environmental conservation efforts and actively discuss sustainability with their peers. However, motivation alone does not necessarily translate into concrete action. Key actions and initiatives that promotes environmental sustainability is lacking among LAUTECH students. Some of these actions include volunteering for organisations involved in environmental sustainability and belonging to a club or initiative that are engaged in environmental sustainability. Environmental NGOs oversee many EE initiatives and operations in Nigeria. They have the funds, the professionals and the capacity to drive these initiatives which indeed they have been doing over the years [36]. Thus, volunteering for these NGOs represent a significant EE advocacy in Nigeria that students can join.

Two primary barriers hinder student engagement in environmental sustainability: limited accessibility of environmental information and low awareness of relevant clubs and organisations. These findings align with Robinson [2], who identified lack of information as a critical challenge to EE in Nigeria. This demonstrates that students' understanding of environmental sustainability as provided by EE is not comprehensive enough to bring about innovative and sustainable ways to solve the myriad of environmental problems in Nigeria. Thus, there is a need promote EE awareness campaigns, integrate sustainability into educational curriculum and establish students-led initiatives.

## 5. CONCLUSION

The students of LAUTECH have demonstrated awareness and understanding of EE and environmental problems in Nigeria. Students awareness and understanding of EE largely stem from informal education, which research has identified as a primary method of EE delivery [36, 35, 19]. Students are predominantly aware of fundamental environmental challenges in Nigeria, such as pollution and waste management, erosion, flooding, desertification, and deforestation. However, they exhibit limited understanding of more complex issues, including biodiversity loss, ecosystem depletion, and climate change impacts. They often lack understanding of more complex environmental problems such as biodiversity loss, depletion of ecosystem services and climate change impacts. Despite this, the students are highly interested in pursuing actions that promote environmental sustainability; however, they are constrained by lack of access to information on environmental issues alongside access to organisations that promotes environmental sustainability in Nigeria. These findings indicate that students' understanding of environmental issues are not comprehensive enough and their level of engagements are insufficient to bring about innovative and sustainable ways to solve the myriad of environmental problems in Nigeria.

Ibimilua [8] expressed that the success of national and international initiatives towards sustainable development in Nigeria hinges on a meticulously designed and implemented educational programme. Therefore, to achieve environmental sustainability in Nigeria, the following recommendations are made. Education for Sustainable Development (ESD) including EE and sustainability topics should be incorporated into core subjects of the National Education Curriculum in Nigeria. However, a mix of formal and non-formal education for youths and adults is more successful and efficient than focusing on just one approach. Thus, EE must be intensified formally and informally by all stakeholders and must be backed up by appropriate actions such as combining the classroom learning experience with informal activities that promotes environmental actions. Examples of such activities include awareness campaigns, voluntary community services, social media and mass media communications. Partnerships with traditional and religious organisations, civil societies and local actors

should be developed to promote environmental sustainability in Nigeria. Strategic partnerships with environmental NGOs should be pursued to leverage expertise and funding for sustainability initiatives at both university and community levels.

Additionally, tertiary institutions in Nigeria must prioritise environmental sustainability as an important area of their main strategic research and education objectives. They should also provide funds to promote EE and ESD initiatives such as organisation of study groups, environmental clubs and sponsorship of environmental projects. By doing this, the practical skills needed for environmental sustainability by youth in Nigeria can be developed. Given young individuals increasingly acquire environmental knowledge through digital platforms [19], EE should be expanded through online resources. MOOCs and digital learning platforms can provide students and the broader community free or affordable access to sustainability courses, fostering continuous engagement.

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