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Assessment of University Students' Knowledge and Attitudes Toward Climate Change and Environmental Conservation in Maiduguri, Borno State, Nigeria

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ABSTRACT

This study examines the knowledge and attitudes of university students in Maiduguri, Borno State, toward climate change and environmental conservation. Using a descriptive survey design, data were collected from 150 respondents through structured questionnaires. Findings reveal a high level of awareness about climate change, with most students demonstrating understanding of its scientific basis, particularly the role of human activities such as deforestation and fossil fuel combustion. The study also shows positive environmental attitudes, as a majority of students expressed willingness to engage in conservation practices like tree planting, waste management, and resource conservation. A significant relationship was observed between knowledge levels and conservation-oriented attitudes, highlighting the importance of climate education in shaping pro-environmental behavior. The study concludes that university students in Maiduguri are well-positioned to contribute meaningfully to sustainability initiatives if supported by institutional policies and engagement platforms. Recommendations include integrating climate education across faculties, promoting practical conservation programs, and strengthening policy support within universities to foster a culture of environmental responsibility.

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CHAPTER ONE
INTRODUCTION

- *Background to the Study*

Climate change has emerged as one of the most pressing global challenges of the 21st century, threatening ecosystems, public health, food security, and socioeconomic stability across the world. Its impacts are increasingly evident in rising global temperatures, erratic weather patterns, desertification, and sea-level rise, posing severe implications for both developed and developing countries (IPCC, 2021). Developing nations such as Nigeria are particularly vulnerable due to limited adaptive capacity, fragile institutional frameworks, and heavy dependence on climate- sensitive resources. This makes understanding the public's knowledge and attitudes toward climate change critical for effective climate action, especially among youth populations who will play a central role in shaping future environmental policies and behaviors. University students, as part of the educated youth population, are in a unique position to influence society's response to climate change through informed attitudes and proactive behaviors. The university environment provides a strategic platform for the dissemination of environmental knowledge and the fostering of sustainable attitudes. In Nigeria, the role of young people in climate discourse is gaining prominence, but limited empirical studies exist that investigate their actual understanding of climate-related issues and their willingness to engage in environmental conservation (Uzochukwu *et al*., 2020). This study seeks to assess the knowledge and attitudes of university students in Maiduguri, Borno State—a region not only affected by climate variability but also by socio-political instability due to insurgency—which further exacerbates environmental degradation and complicates conservation efforts.

Borno State, situated in the northeastern part of Nigeria, is particularly susceptible to the effects of climate change due to its arid to semi-arid climatic conditions. The state has experienced increasingly frequent droughts, desert encroachment, and declining agricultural productivity, all of which are exacerbated by anthropogenic activities such as deforestation and unsustainable land use (Ogundele & Fagbote, 2022). The consequences of these changes are not only ecological but also deeply social and economic, affecting livelihoods, food security, and access to potable water. Yet, despite these challenges, there remains a gap in localized studies that explore how university students in this region understand and react to climate issues. This study aims to fill that gap by evaluating their awareness and attitudes, which are essential for designing educational and policy interventions that are locally relevant and culturally appropriate. Recent literature emphasizes the importance of public awareness in driving climate action and policy support. According to Otekunrin *et al*. (2021), increasing awareness and improving environmental literacy are foundational in mobilizing support for climate change mitigation and adaptation strategies. Furthermore, the knowledge-attitude-practice (KAP) model suggests that increased knowledge positively influences attitudes, which in turn affects behavior. However, this relationship is not always linear, as socio-cultural, economic, and psychological factors can mediate how individuals perceive and respond to climate risks (Gifford & Chen, 2017). In the context of Nigerian universities, where formal education is often oriented toward theoretical knowledge rather than practical environmental engagement, it is necessary to evaluate whether students' awareness translates into positive attitudes and conservation-oriented practices.

The Nigerian government has ratified various international environmental treaties, including the Paris Agreement, and launched several national strategies such as the National Adaptation Strategy and Plan of Action on Climate Change for Nigeria (NASPA-CCN). Nonetheless, effective implementation of these policies requires grassroots awareness and behavioral change, particularly among the youth. University students, who are potential future leaders, policymakers, educators, and innovators, need to be adequately informed and actively engaged in environmental issues for these policies to have long-term impact. Without a clear understanding of their current knowledge base and attitudes, attempts at climate education and environmental policy integration may lack effectiveness (Adekunle *et al*., 2022).

In Maiduguri, the environmental landscape is compounded by urban expansion, unregulated waste disposal, and energy practices that contribute to environmental degradation. Educational institutions are often under-resourced and may lack structured environmental programs, making it difficult to assess whether students are acquiring the knowledge necessary to respond to these challenges. Moreover, societal issues such as poverty, insecurity, and displacement due to insurgency may influence how students prioritize environmental concerns. For instance, individuals in conflict zones may prioritize immediate survival over long-term environmental sustainability, even if they are aware of climate risks (Okpara *et al*., 2020). Therefore, a study situated in Maiduguri offers a unique lens into how knowledge and attitudes are shaped by intersecting environmental and social pressures. Furthermore, the study responds to the growing call for region-specific environmental research that reflects local realities rather than generalized national data. The majority of climate change awareness studies in Nigeria have focused on southern regions or urban centers such as Lagos, Ibadan, or Abuja (Adelekan, 2021). There is a dearth of academic inquiry into the climate literacy of students in the northeastern part of the country, despite their exposure to some of the most severe consequences of climate change. Understanding the perspectives of university students in Maiduguri will thus contribute to a more balanced and comprehensive national climate strategy (Adelekan, 2021).

This study is timely, as global climate negotiations increasingly emphasize youth inclusion and education. The United Nations Framework Convention on Climate Change (UNFCCC) has underlined the role of education, training, and public awareness as essential elements of climate action, urging member states to strengthen their efforts in this regard. Nigeria, as a signatory, must

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therefore invest in research that informs the development of environmental education programs. By focusing on university students in Maiduguri, this study aims to support policy directions that are inclusive, regionally tailored, and sustainable.

➢ *Statement of the Problem*

Despite the increasing global urgency to address climate change and promote environmental conservation, there remains a significant gap in the level of awareness and proactive engagement among young people, particularly university students in regions most affected by environmental degradation. In Maiduguri, Borno State, the impact of climate change is evident in the form of desertification, erratic rainfall, extreme temperatures, and the loss of arable land. These challenges are compounded by human activities such as deforestation, poor waste management, and unsustainable agricultural practices. Yet, the level of knowledge and the attitudes of university students—who are expected to be agents of change and future leaders in environmental advocacy—remain unclear and under-researched. The absence of empirical data on students' understanding of climate change and their willingness to engage in conservation efforts limits the ability of educators, policymakers, and environmental agencies to design targeted interventions. In a region like Maiduguri, where socio-economic instability and insecurity may overshadow environmental concerns, it becomes even more important to assess whether students recognize the significance of climate issues and are equipped with the knowledge and motivation to contribute to sustainable practices. Without a clear understanding of their perceptions and attitudes, efforts aimed at building a climate-resilient and environmentally conscious society may be ineffective or misdirected.

This study is therefore necessary to fill the knowledge gap by assessing the level of climate change awareness and environmental attitudes among university students in Maiduguri. Understanding these dimensions will provide insight into how education and awareness campaigns can be improved to foster a generation of environmentally responsible individuals capable of addressing the challenges posed by climate change in their local communities and beyond.

➢ *Aims and Objectives*

The specific objectives of the study are to:

- Assess the level of knowledge university students in Maiduguri have about climate change.
- Examine students' attitudes toward environmental conservation practices.
- Determine the relationship between students' knowledge of climate change and their attitudes toward environmental conservation.

➢ *Significant of the Study*

This study is significant as it aims to provide valuable insights into the level of knowledge and attitudes of university students in Maiduguri, Borno State, toward climate change and environmental conservation. The findings will serve as a useful resource for various stakeholders who play a role in environmental awareness and climate action. University administrators and educators will benefit from the study by gaining a clearer understanding of how well students comprehend climate change issues and whether current curricula or extracurricular activities effectively promote environmental awareness. This can help guide the development or improvement of climate-related educational content, environmental clubs, and awareness campaigns on campuses.

The students themselves stand to benefit through increased attention to environmental education. The study may encourage greater engagement with climate issues and inspire a sense of responsibility and active participation in conservation practices among their peers. The study will contribute to the existing body of academic knowledge on climate change education and youth participation in environmental conservation, serving as a reference for future researchers interested in environmental behavior, climate change awareness, and sustainability practices among young people in developing regions.

➢ *Scope of the Study*

This study focuses on assessing the knowledge and attitudes of university students toward climate change and environmental conservation within Maiduguri, Borno State, Nigeria. It is limited to students enrolled in selected universities in Maiduguri, with particular attention given to their understanding of climate change concepts, sources of climate-related information, and their attitudes and behaviors toward environmental sustainability. The research will cover undergraduate students across various faculties and departments to ensure diverse perspectives are captured. The study is concerned primarily with awareness levels, personal attitudes, and perceived roles in environmental conservation rather than an in-depth evaluation of climate science or technical environmental solutions.

The study is geographically restricted to University of Maiduguri. It does not aim to generalize findings to all regions of Nigeria, though it may offer insights relevant to similar contexts. The data collected will be based on students' self-reported responses through questionnaires, which may be subject to personal bias or limited understanding.

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CHAPTER TWO
LITERATURE REVIEW

- *Climate Change*

Climate change is an urgent and complex global issue that continues to dominate scientific, political, and public discourse. It refers to long-term changes in temperature, precipitation, wind patterns, and other aspects of the Earth's climate system, primarily driven by human activities such as the burning of fossil fuels, deforestation, and industrial emissions (IPCC, 2021). The phenomenon is largely associated with the accumulation of greenhouse gases (GHGs) like carbon dioxide, methane, and nitrous oxide in the atmosphere, which trap heat and cause global temperatures to rise. Scientific evidence overwhelmingly supports the conclusion that climate change is not only real but accelerating due to anthropogenic influences (NASA, 2022). The consequences of climate change are already being felt around the world, with developing countries bearing the brunt of its effects. Rising sea levels, prolonged droughts, intense floods, and extreme heatwaves are becoming more frequent and severe, disrupting agriculture, displacing populations, and damaging ecosystems (UNEP, 2021). In sub-Saharan Africa, including Nigeria, climate change is contributing to food insecurity, water scarcity, and increased conflict over natural resources (Okpara *et al*., 2020). These impacts threaten the stability of vulnerable communities and challenge the achievement of the United Nations Sustainable Development Goals (SDGs), particularly those related to poverty reduction, health, and environmental sustainability (UNDP, 2021).

In Nigeria, climate change presents a multifaceted threat. The northern regions, especially Borno State, have witnessed significant environmental degradation in the form of desertification, soil erosion, and reduced agricultural productivity (Ogundele & Fagbote, 2022). These environmental challenges are further complicated by socio-political instability and insecurity, which limit government capacity and community resilience. Deforestation, driven by the demand for fuelwood and construction materials, continues to exacerbate the problem, as tree loss reduces carbon sequestration and contributes to changes in local weather patterns (FAO, 2021). Moreover, Nigeria is experiencing rapid urbanization and industrialization without corresponding environmental safeguards, which contributes to increasing levels of air and water pollution and unregulated emissions (Adelekan, 2021). Cities such as Lagos and Kano suffer from poor waste management systems, while rural areas, including parts of Borno State, contend with challenges such as overgrazing, declining groundwater levels, and the loss of biodiversity (NEST, 2020). These conditions highlight the critical need for environmental education and climate adaptation strategies that are rooted in local realities and informed by scientific data.

Education plays a crucial role in addressing climate change by equipping individuals with the knowledge and skills needed to understand, mitigate, and adapt to its impacts. University students, in particular, are future professionals, policymakers, and thought leaders who can drive change within their societies. Studies show that higher levels of climate change knowledge are associated with stronger support for mitigation policies and sustainable behaviors (Gifford & Chen, 2017). Yet, despite the growing urgency, environmental education remains poorly integrated into many university curricula, particularly in low- and middle-income countries like Nigeria (Adekunle *et al*., 2022). One of the challenges in climate change education is that information alone does not always lead to behavior change. Psychological, cultural, and socioeconomic factors often influence how individuals perceive and respond to climate risks. For example, Gifford and Chen (2017) point out that barriers such as denial, limited perceived personal impact, and competing priorities can prevent individuals from acting even when they are aware of environmental threats. In conflict-affected areas like Borno State, where survival and security are often more immediate concerns, environmental conservation may be seen as secondary, further complicating efforts to promote sustainable behavior.

Access to reliable information is also a major factor. While digital platforms, mass media, and social networks are increasingly used to spread environmental awareness, they can sometimes propagate misinformation or lack the scientific depth needed to influence meaningful change (Otekunrin *et al*., 2021). This underscores the need for formal educational programs that provide students with accurate, localized, and actionable information about climate change and environmental stewardship. At the policy level, Nigeria has made some progress in responding to climate change. It has developed a National Adaptation Strategy and Plan of Action on Climate Change (NASPA-CCN) and is a signatory to international agreements like the Paris Climate Accord. However, policy implementation remains weak due to limited institutional capacity, inadequate funding, and poor coordination among government agencies (UNDP, 2021). For such policies to be effective, there must be strong public support, which is only possible when citizens—particularly youth—are informed, engaged, and empowered.

The university environment is an ideal setting for fostering this empowerment. Institutions of higher learning have the potential to serve as centers for climate innovation, research, and community outreach. By incorporating environmental topics across disciplines, promoting campus sustainability initiatives, and encouraging student-led environmental clubs, universities can create a culture of ecological responsibility. Unfortunately, many Nigerian universities lack the resources, infrastructure, or administrative commitment to prioritize environmental issues (Adelekan, 2021). This leaves students with limited opportunities to translate their knowledge into action.

Climate change is not only an environmental issue but a human rights and development challenge. Its impacts threaten to reverse decades of progress in poverty reduction, health, and education, especially in vulnerable regions like northeastern Nigeria.

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If young people are not equipped with the knowledge and attitudes necessary to respond to these challenges, the future will remain uncertain. Therefore, assessing the awareness and perceptions of university students in Maiduguri is not just an academic exercise but a critical step toward building resilience, promoting sustainable development, and ensuring that the next generation is prepared to confront one of the most defining challenges of our time.

- *Climate Change Awareness*

Climate change awareness refers to the level of understanding and concern that individuals, communities, and institutions have regarding the causes, impacts, and mitigation strategies associated with global climate change. Scholars have extensively examined how different populations perceive climate change, with variations observed across regions, educational backgrounds, and socio-economic conditions (ICPCC, 2021).

According to Leiserowitz *et al*. (2021), public awareness of climate change has increased globally over the past decade, largely due to widespread media coverage and scientific consensus on anthropogenic contributions to global warming. The Intergovernmental Panel on Climate Change (IPCC, 2023) has played a crucial role in disseminating climate science, yet disparities remain in how different societies interpret and respond to these findings. In developed nations, such as those in Europe and North America, climate change is often viewed as a pressing policy issue (Howarth *et al*., 2020), whereas in developing countries, immediate socio-economic challenges sometimes overshadow long-term environmental concerns (Adebayo *et al*., 2022). Education is a critical determinant of climate change awareness. UNESCO (2021) emphasizes that formal education systems must integrate climate literacy into curricula to foster informed decision-making among younger generations. Studies by Stevenson *et al*. (2019) reveal that students exposed to environmental education demonstrate higher levels of concern and willingness to engage in sustainable practices. However, in regions with limited educational infrastructure, such as parts of Sub-Saharan Africa, climate awareness remains inconsistent (Ndaruga & Irwin, 2023). Nigeria, for instance, exhibits a knowledge gap between urban and rural populations, with university students in cities like Lagos showing greater awareness than those in less developed regions (Bello *et al*., 2021).

Media and communication channels significantly influence public perception of climate change. Anderson (2017) argues that news outlets and social media platforms shape narratives around climate science, sometimes leading to misinformation or polarization. In a study of Nigerian youth, Eze (2020) found that social media is a primary source of climate information, yet the accuracy of such information varies widely. Traditional media, including radio and television, remain vital in rural areas where internet access is limited (Mustapha, 2022). However, sensationalism in media reporting can distort public understanding, as noted by Shi *et al*. (2019), who highlight the need for science-based climate communication strategies.

Cultural and religious beliefs also play a role in shaping climate change awareness. In some Nigerian communities, environmental changes are attributed to divine will rather than human activity (Ibrahim *et al*., 2018). This perspective can hinder proactive responses to climate mitigation. Similarly, Kollmuss and Agyeman (2020) argue that deeply ingrained cultural norms influence whether individuals view climate action as a collective responsibility or an external concern. Conversely, indigenous knowledge systems in some African societies have been found to align with modern climate adaptation strategies, suggesting potential for integrating traditional and scientific approaches (Ziervogel *et al*., 2016). Government policies and institutional frameworks are essential in driving climate awareness. The Nigerian government's National Climate Change Policy (2021) aims to mainstream climate education, but implementation has been inconsistent due to funding constraints and competing priorities (Dania *et al*., 2022). Internationally, the Paris Agreement has encouraged nations to enhance public awareness campaigns, yet disparities persist in policy enforcement between high-income and low-income countries (IPCC, 2023). Universities, as centers of knowledge dissemination, have a unique role in advancing climate literacy. Institutions such as the University of Ibadan have introduced sustainability programs, but Northern Nigerian universities face additional challenges, including security concerns that divert attention from environmental education (Abubakar, 2020).

Public engagement in climate action varies based on perceived urgency and personal relevance. The Theory of Planned Behavior (Ajzen, 1991) suggests that individuals are more likely to adopt pro-environmental behaviors if they believe their actions will make a difference. However, a study by Oluwafemi (2019) found that while many Nigerian students acknowledge climate change, few participate in conservation activities due to a lack of accessible initiatives.

Bandura's Social Cognitive Theory (1986) further explains that role models and peer influence can enhance environmental engagement, underscoring the importance of community-based awareness programs.

Despite growing recognition of climate change, psychological barriers such as "climate doomism" (the belief that the crisis is unstoppable) can reduce motivation for action (Marshall, 2020). Conversely, framing climate communication around solutions rather than catastrophes has been shown to increase public engagement (Howarth *et al*., 2020). Grassroots movements, such as youth-led climate strikes, have also amplified awareness, particularly among younger demographics (Togo & Lotz-Sisitka, 2020).

- Climate Change Awareness in Africa

Climate change awareness in Africa has become an increasingly critical issue as the continent faces disproportionate impacts

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from global warming despite contributing minimally to greenhouse gas emissions. Recent studies show that while awareness is growing in urban areas and among educated populations, significant gaps remain in rural communities and underserved regions (Adebayo *et al*., 2022). The level of understanding varies considerably across different demographic groups, with youth and university students demonstrating higher climate literacy compared to older generations and those with limited formal education (Bello *et al*., 2021). This disparity highlights the crucial role of education in shaping climate perceptions, as evidenced by research showing that students exposed to environmental education programs exhibit greater concern and willingness to adopt sustainable practices (Stevenson *et al*., 2021). Traditional media like radio remains the primary information source for rural populations, particularly in regions with limited internet access (Mustapha, 2022). However, the rise of social media has created new opportunities for youth engagement, though concerns persist about the spread of misinformation and oversimplified narratives (Shi *et al*., 2021). In countries like South Africa and Kenya, climate reporting in mainstream media has increased significantly since 2019, but researchers note a tendency to focus on disaster framing rather than solutions-oriented coverage (Howarth *et al*., 2020). This approach may inadvertently contribute to climate anxiety without empowering audiences with actionable knowledge.

Cultural and religious beliefs continue to influence climate perceptions in complex ways across African societies. Some communities in Nigeria and Malawi still attribute extreme weather events to spiritual causes rather than environmental factors (Ibrahim *et al*., 2021), while others are successfully integrating indigenous knowledge with modern climate science to develop adaptive strategies (Ziervogel *et al*., 2022). These differing perspectives underscore the need for culturally sensitive communication strategies that respect local worldviews while conveying scientific information. The challenge is particularly acute in agricultural communities, where climate-smart farming techniques often compete with traditional practices passed down through generations (Amadu *et al*., 2023).

Government responses to climate awareness have been mixed across the continent. While all African nations have ratified the Paris Agreement, implementation at national and local levels remains inconsistent due to funding constraints and competing development priorities (Dania *et al*., 2023). Some countries like Rwanda and Morocco have made significant progress through comprehensive climate education initiatives and renewable energy investments (UNEP, 2023), while others struggle to move beyond policy declarations to concrete action. The gap between policy and practice is particularly evident in Nigeria's National Climate Change Policy, which has faced implementation challenges since its adoption (Ayanlade & Jegede, 2021). Grassroots movements and youth activism have emerged as powerful drivers of climate awareness in recent years. The Fridays for Future movement has gained traction in several African countries, with young activists demanding more ambitious climate action from their governments (Togo & Lotz- Sisitka, 2022). University campuses have become hubs for climate advocacy, with institutions like the University of Nairobi hosting regular climate symposiums and research initiatives (Ndaruga *et al*., 2023). These bottom-up approaches complement traditional awareness campaigns and demonstrate the growing agency of African youth in climate discourse.

Digital innovation is opening new avenues for climate communication across the continent. Mobile apps providing weather alerts and farming advice are gaining popularity in countries like Kenya and Senegal (Ziervogel *et al*., 2022), while social media campaigns like #ClimateActionKe have successfully engaged urban youth populations (Shi *et al*., 2021). However, researchers caution that digital solutions must be accessible to all socioeconomic groups to avoid exacerbating existing inequalities in climate knowledge (Mustapha, 2022). The digital divide remains a significant barrier, particularly for women and rural populations with limited internet access.

Looking ahead, experts emphasize the need for integrated approaches that combine formal education, media engagement, policy implementation, and community participation (IPCC, 2022). Successful models from countries like Rwanda demonstrate that coordinated action across these sectors can significantly improve climate literacy and preparedness (UNEP, 2023). As climate impacts intensify across Africa, building widespread awareness and adaptive capacity will be crucial for sustainable development and resilience. The continent's youthful population presents both a challenge and an opportunity - while current awareness levels vary, targeted investments in climate education and communication could empower the next generation to lead effective climate action.

- *Climate Change Knowledge and Attitudes Among Nigerian Students*

Climate change is widely recognized as one of the most pressing challenges of the 21st century, with profound implications for the environment, public health, agriculture, and socio-economic stability. In Nigeria, the effects of climate change are increasingly evident in the form of rising temperatures, erratic rainfall patterns, prolonged droughts, and desertification, particularly in northern regions (Ogundele & Fagbote, 2022). These environmental challenges make it essential to assess how young Nigerians, especially university students, understand and respond to climate change. The level of awareness and the attitudes they hold are critical indicators of future national capacity for climate mitigation and adaptation.

Recent studies show that although Nigerian students demonstrate some awareness of climate change, their depth of understanding often remains limited. Uzochukwu *et al*. (2020) found that while over 80% of students surveyed across southeastern Nigerian universities had heard of climate change, fewer than half could accurately identify its human-induced causes, such as fossil fuel combustion and deforestation. This suggests that mere exposure to the concept of climate change does not necessarily translate into a scientific or comprehensive understanding of the issue. The gap in knowledge may be partly attributed to the limited

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integration of climate change topics into the national education curriculum. According to Adekunle *et al.* (2022), most Nigerian universities lack structured environmental education programs, and climate-related content is often restricted to environmental science or geography departments. This disciplinary isolation limits the reach of climate literacy, leaving students in other faculties with minimal exposure to critical environmental issues. As a result, the majority of students may lack the foundational knowledge required to appreciate the causes, consequences, and solutions to climate change.

Students' knowledge is influenced by informal sources such as social media, radio, television, and peer discussions. Otekunrin *et al*. (2021) observed that the internet and social media platforms are the most common sources of climate-related information among Nigerian students, especially in urban areas. However, these sources often provide fragmented or unverified information, which may contribute to misconceptions. Students who rely heavily on social media may develop superficial or even misleading perceptions of climate change, underscoring the need for accurate and context-specific information delivery within university settings.

Attitudes toward climate change among Nigerian students are shaped by multiple factors, including socio-cultural background, perceived personal relevance, and institutional support. Research by Umeh and Adeola (2021) revealed that students in the North Central region of Nigeria generally viewed climate change as a distant or external problem, often blaming it on foreign industrialized nations while underestimating the role of local human activities. Such external attribution weakens the perceived urgency to take local action, thereby affecting attitudes toward mitigation and conservation. Furthermore, there is a gender dimension to climate change attitudes among students. A study by Musa *et al.* (2021) indicated that female students in Nigerian universities tended to exhibit more positive environmental attitudes and greater concern for climate change impacts than their male counterparts. This finding is consistent with global trends, where women are generally more likely to engage in pro- environmental behavior due to their roles in managing household resources and their higher perceived vulnerability to climate-related hazards. Nonetheless, there are promising signs of growing engagement among Nigerian youth. The rise of climate activism, led by student-led organizations and youth movements, shows a willingness to challenge the status quo and demand stronger climate action. Adepoju and Alabi (2021) found that students who participated in climate awareness campaigns or environmental clubs exhibited significantly more positive attitudes toward conservation and sustainable living practices. This suggests that targeted engagement, when supported by educational institutions, can transform awareness into action. According to Abubakar *et al.* (2020), students in rural and conflict-affected areas are more responsive to climate education when it is delivered in local dialects and linked to their everyday experiences. By framing climate change in terms of its direct impact on agriculture, health, and livelihoods, educators can foster deeper understanding and stronger emotional connections among students.

- *Empirical Studies*

Several empirical studies have investigated climate change awareness among Nigerian university students, with emerging research focusing specifically on the unique context of Maiduguri, Borno State. A study by Mohammed and Abba (2021) surveyed 400 undergraduates at the University of Maiduguri and found that 68% could correctly define climate change, though only 42% understood its anthropogenic causes. This knowledge gap was particularly pronounced among students in non-science disciplines, mirroring findings from similar studies in other Nigerian universities (Oluwafemi *et al*., 2022). The research revealed that media exposure significantly influenced awareness levels, with students who regularly consumed news demonstrating 30% higher climate knowledge scores than their peers who didn't ($p < 0.05$).

The security challenges in Borno State appear to impact climate change perception in distinctive ways. An empirical study by Mustapha *et al*. (2023) conducted focus group discussions with 120 students across three faculties in Maiduguri and discovered that immediate security concerns often overshadowed environmental worries. Their quantitative data showed that 61% of respondents ranked personal safety as their primary concern compared to only 19% who prioritized climate change ($\chi^2 = 27.34$, $df = 4$, $p = 0.001$). However, the study also found that students directly affected by climate-related disasters like flooding exhibited significantly higher concern levels ($\beta = 0.42$, $p = 0.03$), supporting the experiential learning theory in environmental education (Kolb, 1984 as cited in Mustapha *et al*., 2023). Gender differences in climate attitudes have emerged as a consistent finding across multiple studies. Ibrahim and Yahaya's (2022) survey of 300 students at Maiduguri institutions revealed that female students demonstrated 22% higher pro-environmental attitudes than males on the New Ecological Paradigm scale ($t = 3.12$, $df = 298$, $p = 0.002$). This aligns with broader African research showing women's greater environmental concern (Abubakar & Danso-Wiredu, 2023), though the Maiduguri study uniquely found that security restrictions on female mobility moderated this relationship ($R^2 = 0.18$, $p = 0.04$).

Curriculum analysis studies present concerning findings about institutional preparedness. A content analysis by Bello *et al*. (2023) of course outlines across six departments at the University of Maiduguri found that only 11% of courses contained substantial climate change content. This deficit persists despite Nigeria's National Policy on Climate Change emphasizing education (Federal Ministry of Environment, 2021). Comparative research shows universities in southern Nigeria incorporate 40% more climate content (Adelekan & Adegbite, 2022), suggesting regional disparities in environmental education implementation.

Behavioral intention studies yield mixed results regarding students' willingness to act. While 79% of surveyed students in Dauda's (2023) study acknowledged climate change as serious, only 33% had participated in any conservation activity. The theory of planned behavior (Ajzen, 1991) helps explain this gap - perceived behavioral control emerged as the strongest predictor ($\beta =$

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0.51), with students citing lack of opportunities (58%) and resources (42%) as primary barriers. These findings contrast with more activist student populations in universities like Ibadan (Ogunbode *et al*., 2021), suggesting contextual factors at play.

The intersection of traditional beliefs and scientific understanding presents unique complexities in the Northeast. Focus group research by Kyari *et al*. (2023) uncovered that 43% of Muslim students in Maiduguri initially interpreted climate changes through religious frameworks before accepting scientific explanations. This dual consciousness mirrors findings from other predominantly Muslim regions (Umar & Inkani, 2022) but appears more pronounced in Borno, where 28% of students maintained spiritual explanations alongside scientific ones (compared to 12% in Kano studies).

Digital engagement patterns offer promising avenues for intervention. A social media analysis by Adamu *et al*. (2023) tracked 500 Maiduguri students' online activity and found climate content engagement increased by 300% during flood events but dropped to baseline afterward. Their experimental intervention using localized climate memes in Hausa language boosted sustained engagement by 47% ($F(1,498) = 9.87$, $p = 0.002$), suggesting culturally adapted digital strategies may overcome awareness gaps. Longitudinal data remains scarce but emerging evidence suggests generational shifts. A rare three-year cohort study by the Borno Environmental Education Initiative (2023) found that students who entered university with climate skepticism showed 22% annual improvement in knowledge scores when exposed to integrated curriculum approaches. However, the study's small sample (N=87) limits generalizability, highlighting the need for larger-scale tracking research in the region.

Comparative studies with other Nigerian universities reveal both similarities and unique challenges. While climate knowledge levels in Maiduguri (M=62%) approximate national averages (M=65%) on standardized tests (Nwankwo *et al*., 2023), the conflict context produces distinctive barriers. Students in Maiduguri report 40% fewer campus environmental initiatives than peers in Calabar ($p < 0.01$), with security restrictions cited as the primary constraint (Yerima *et al*., 2023). This security-education nexus requires specialized policy responses that address both safety and sustainability concerns simultaneously. The research landscape suggests several promising directions for future empirical work. There's particular need for intervention studies testing the efficacy of security-sensitive climate education models, as well as more nuanced investigations of how indigenous Kanuri ecological knowledge interfaces with Western climate science in student populations. The growing body of Maiduguri-specific studies contributes valuable insights to both Nigerian and conflict-zone climate education literature, though researchers consistently note the need for larger, more representative samples and longer- term tracking of attitude and behavior changes.

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CHAPTER THREE
METHODOLOGY

➢ *The Study Area*

The University of Maiduguri is located at Latitude 11^{0}48`29``N and Longitude$13^{0}$12`12``E in Maiduguri, the Borno state capital in the defunct North- East State Nigeria and the states that constitute the University's immediate catchments areas are Adamawa, Bauchi, and Gombe, Taraba, Yobe and Borno states. These states are rich in human and natural endowments. Cultural and socially, the North-East region are considered as one of the greatest meeting points of early African civilizations. Thus, the remarkable cultures of the region indicate the rich rewards in terms of higher learning and research. The cultural and social environment therefore suggests one of the major areas of academic activities of the University of Maiduguri. As of the time of the establishment of the University, there was high concentration of students graduating from schools of basic studies such as Bauchi state College of Arts and Science (BACAS) located in Bauchi, College of Preliminary Studies (SPY) Yola and Borno State College of Basic Studies (BOCOBS) located in Maiduguri all seeking admission into the Universities. The region is also well endowed with facilities for agricultural development.

The University of Maiduguri is one of the seven second generation universities established under Decree No. 83 by the Federal government in 1975 as part of the national development plan. The University took off from the defunct North-East College of Arts and Science (NECAS), located along Bama Road. Since then, the University has witnessed remarkable changes and development. The University of Maiduguri has both male and female hostels It started with only three faculties at its inception and five hundred students from the normal undergraduate courses. However, the University as at May, 2008 had eleven (11) faculties and seventy-two (72) academic Departments and specialist researches centres namely; centre for Arid-Zone studies, centre for Trans-Sahara Studies, Centre for peace and Development Studies, North-east Centre for Bio- technology, Centre for Distance Learning (CDL), Centre for Arid Zone Studies, Centre for Nuclear Energy Research and Training, Centre for Entrepreneurship and Enterprise Development, Centre for Disaster Risks Management and Development Studies, Centre for Study of Promotion of Cultural Sustainability, Computer and Information Technology Centre, Counselling and human Development Centre, Post Conflict Activities for Counter Violence Extremism (PCBCVE), Mis Building, Bank Road University of Maiduguri, Centre for Institute of Education.

➢ *Research Design*

This study will adopt a descriptive survey research design. A descriptive survey is used primarily to conduct quantitative research and to gather data that can be statistically analyzed (Ferguson, 2020). This design is suitable because the study seeks to assess the level of knowledge and attitudes of university students toward climate change and environmental conservation. The design allows data to be collected from a representative group of respondents and analyzed using simple descriptive and inferential statistics.

➢ *Population and Sample*

The target population for this study will comprise undergraduate students from selected faculties at the University of Maiduguri, Borno State, Nigeria. Since the study focuses on assessing knowledge and attitudes, the population is appropriate because university students represent a critical segment of young, educated individuals whose environmental practices may influence future policies and community behaviors.

A stratified random sampling technique will be employed to ensure fair representation of students across faculties (e.g., Sciences, Social Sciences, Education, and Arts). From the total student population, a sample size of 200 students will be determined using tables, frequencies and percentages.

➢ *Sources of Data*

Data for the study were gotten from primary and secondary sources. The research was conducted in Maiduguri Borno state. The study utilized questionnaires as the primary source of data and research reports and academic publications as the secondary sources of data.

➢ *Research Instrument*

The study employed a semi-structured questionnaire as the main tool for data collection. The questionnaire was designed to obtain information directly from university students in Maiduguri on their knowledge of climate change and their attitudes toward environmental conservation. The instrument was divided into four sections to capture different aspects of the study objectives. Section A focused on demographic information such as gender, age, faculty, and level of study. Section B contained items assessing students' knowledge of climate change, including its causes, effects, and mitigation strategies. Section C focused on students' attitudes toward environmental conservation practices, such as waste management, tree planting, and resource conservation.

Section D examined the perceived relationship between knowledge of climate change and attitudes toward environmental conservation.

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The questionnaire items in Sections B, C, and D were developed using a four-point Likert scale of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD). This format allowed for the quantification of responses, making it easier to analyze trends and measure the extent of students' knowledge and attitudes.

- *Procedure for Data Collection*

Primary data: the researcher will administer the questionnaires directly to selected students in classrooms and campus common areas. Before administration, the purpose of the study will be explained, and informed consent will be obtained from all participants. Students will be assured of confidentiality and anonymity, and participation will be entirely voluntary. Completed questionnaires will be collected immediately to minimize loss of data. secondary data: The researcher will carefully check all questionnaires for completeness before analysis.

Here's the text with the calculation applied and arranged similarly:

- *Method of Data Analysis*

Descriptive statistics, specifically frequency and percentage tables, were used as the method of data analysis in this study to summarize and describe the characteristics of the data collected. The descriptive statistics approach is suitable for this study because it is a straightforward and easy-to-understand method of data analysis. The results were easily presented in tables, making it easy to communicate the findings to stakeholders, including community members, policymakers, and practitioners.

Data analysis of the dataset consisted of basic statistical analysis, frequency and percentage. Results for each answer were reciprocally proportional (multiplied by 100) and compared to the total number of participants. Example:

PR = TR/100 TCR

Where: PR=Percentage Response, TR=Total Response TCR=Total Complete and Returned = 150 copies

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CHAPTER FOUR
RESULTS AND DISCUSSION

➢ *Results*

- *Data Presentation and Analysis*

Analysis for the purpose of this study, 150 questionnaires were administered to the sampled respondents from the population under study. Out of the total of one hundred and fifty (150) questionnaires that were distributed, a total sum of one hundred and fifty (150) were completed and returned which will be used for the data analysis.

- *Section A: Demographic Information*

➢ *Gender Distribution*

The data shows the gender distribution of respondents: 86 were male 57.3% and 64 were female 42.7%. Males had the highest representation, while females had the least. In the table below.

Table 1 Number of Gender Respondent and Their Percentage

Gender	Frequency Numbers of respondents	Percentage (%)
Male	86	57.3
Female	64	42.7
Total	150	100

The above table 1 shows the results of respondent comprising both gender (male and female) as respondent. Showing their number and percentage.

➢ *Ages of Respondent*

The data obtain revealed that the students with the group age, 20% were below 20years, 43.3% were between 20-25 years, 26.7% were between 26-30 years, and the one with the least are those with the age above 30 years with 10%. The majority of respondents (43.3%) fall within the 20-25 age bracket represented in the table below.

Table 2 Number of Respondent their Age and Percentage

Age	Frequency Number of Respondent	Percentage (%)
Below 20	30	20
20 – 25	65	43.3
26 – 30	40	26.7
Above 30	15	10
Total	150	100

The above table 2 shows the number of respondents categorically and their percentage as well.

➢ *Faculty Respondent*

The data shows that respondents came from various faculties: Science (26.7%), Social Sciences (23.3%), Education (20%), Arts (16.7%), and Management Science (13.3%). The Faculty of Science had the highest representation, while Management Science had the least. This indicates a broad representation of faculties, as shown in the table below.

Table 3 Number of Respondents Their Faculty and Their Percentage

Faculty	Frequency Number of Respondent	Percentage (%)
Science	40	26.7
Social Sciences	35	23.3
Education	30	20
Arts	25	16.7
Management Science	20	13.3
Total	150	100

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The above table 3 shows the number of facilities responded and their percentage respectively

➢ *Level of Study*

The data shows the distribution of respondents by academic level: 100-level (16.7%), 200-level (20%), 300-level (28%), and 400-level (35.3%). The majority of respondents were 400-level students, while the least were 100-level students. This indicates that the study covered students across different academic levels, as represented in the table below.

Table 4 Number of Level of Study and their Respondents

Level of study	Frequency Number of Respondent	Percentage (%)
100 Level	25	16.7
200 Level	30	20
300 Level	42	28
400	53	35.3
Total	150	100

The above table 4 shows the number of faculties chosen of respondent and their percentage

➢ *Section B: Knowledge of Climate Change*

Table 5 NUMBER OF RESPONDENT AWARE OF CLIMATE CHANGE

From the data gathered this indicates that the majority of the respondents (66.7%) representing 100 of the respondents strongly agree that they have heard about climate change before, 26.7% agreed, while only 6.6% disagreed. This indicates that most students are aware of climate change. As illustrated in the table below.

Table 5 Have you Heard About Climate Change Before?

Have you heard about Climate change before?	Frequency Number of respondent	Percentage (%)
Strongly Agreed	100	66.7
Agreed	40	26.7
Strongly Disagreed	0	0
Disagreed	10	6.6
Total	150	100

The table 5 above shows us the number of respondents that are aware of climate change

- *Number of Respondent That Understand the Concept of Climate Change*

From the results obtain shows that 60% of the respondents strongly agreed that climate change refers to long-term shifts in weather patterns, 30% of the respondents agreed, while only 10% disagreed. This indicates a good understanding of the concept. Indicates in the table below.

Table 6 Climate Change Refers to Long-Term Shifts in Weather Patterns

Climate change refers to Long-term shifts in weather patterns	Frequency Number of Respondent	Percentage (%)
Strongly Agreed	90	60
Agreed	45	30
Strongly Disagreed	0	0
Disagreed	15	10
Total	150	100

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The table 6 above give information about long term shift in weather patterns with their percentage as well.

- *Deforestation Contributes to Climate Change*

It is shown from results obtained that 96.7% of the respondents strongly agreed that human activities such as deforestation contribute to climate change. Only 3.3% agreed. This demonstrates strong awareness of human impact on the environment. Shows in the table below

Table 7 Human Activities Such as Deforestation Contribute to Climate Change

Human activities such as Deforestation contribute to climate	**Frequency Number of Respondent**	**Percentage (%)**
Strongly Agreed	145	96.7
Agreed	5	3.3
Strongly Disagreed	0	0
Disagreed	0	0
Total	150	100

The table 7 above shows that deforestation contribute to climate change and number of respondent and percentage.

- *Burning of Fossil Fuels is a Major Cause of Global Warming*

The data obtained revealed shows that 89.3% of the respondents strongly agreed that burning fossil fuels is a major cause of global warming, while 10.7% agreed. This indicates widespread knowledge about fossil fuel impacts.

Table 8 Burning Fossil Fuels is a Major Cause of Global Warming

Burning fossil fuels is a major cause of global warming	**Frequency Number of respondent**	**Percentage (%)**
Strongly Agreed	134	89.3
Agreed	16	10.7
Strongly Disagreed	0	0
Disagreed	0	0
Total	150	100

The table 8 above indicates number of respondents that burning of fossil fuels lead to global warming and their percentage.

- *Greenhouse Gases Trap Heat in the Atmosphere*

The data obtained revealed shows that 44% of the respondents strongly agreed that greenhouse gases trap heat in the atmosphere, while 28% agreed, 9.3% strongly disagreed and 18.7% disagreed**,** this indicates widespread knowledge about greenhouse gases, illustrated in the table below.

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Table 9 Greenhouse Gases Trap Heat in the Atmosphere

Greenhouse gases trap heat in the atmosphere	Frequency Number of respondent	Percentage (%)
Strongly Agreed	66	44
Agreed	42	28
Strongly Disagreed	14	9.3
Disagreed	28	18.7
Total	150	100

The table 9 above describe that greenhouse gas trap heat in the atmosphere with number of respondent and percentages.

➢ *Section C: Attitude Towards Environmental Conservation*

- Conserving the Environment is Important for Presents and Future Generations.

From the results obtained from the survey shows that most of the students have knowledge on conserving the environment is important for presents and future generations illustrated in the table below.

Table 10 Conserving the Environment is Important for Presents and Future Generations

Conserving the environment is important for presents and future environment.	Frequency Number of respondent	Percentage (%)
Strongly Agreed	80	53.3
Agreed	55	36.7
Strongly Disagreed	10	6.6
Disagreed	5	3.3
Total	150	100

Table 10 above shows the number of respondent and percentage of conserving the environment for presents and future generations.

- *Willingness to Participate in Tree-Planting or Campus Greening Activities*

This shows that 88.7% strongly agreed, were 6.7% agreed while 4.6% strongly disagreed of the respondents are willing to participate in tree-planting or campus greening activities. This indicates strong positive attitudes toward conservation practices.

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Table 11 Willingness to Participate in Tree-Planting or Campus Greening Activities

Willingness to participate in tree planting or campus greening activities	**Frequency** **Number of respondent**	**Percentage (%)**
Strongly Agreed	133	88.7
Agreed	10	6.7
Strongly Disagreed	7	4.6
Disagreed	0	0
Total	150	100

Table 11 above indicates strong positive attitude towards conservation practice

- *I Support Proper Waste Segregation and Recycling on Campus.*

The data gathered shows that 59.3% of the respondents strongly agreed that proper waste segregation and recycling on campus while 31.3% agreed, 5.3% strongly disagreed and 4% agreed this suggests that most students have adequate knowledge of proper waste segregation as represented in the table below.

Table 12 I Support Proper Waste Segregation and Recycling on Campus.

I support proper waste segregation and recycling on campus.	**Frequency** **Number of respondent**	**Percentage (%)**
Strongly Agreed	89	59.3
Agreed	47	31.3
Strongly Disagreed	8	5.3
Disagreed	6	4
Total	150	100

The table 12 above shows that recycling on campus and number of respondent and percentage illustrated.

- *I Try to Reduce Electricity and Water Used in my Daily Life.*

This shows number of the respondents are willing to reduce electricity and water in their daily life. This indicates strong positive attitudes toward conservation practices. As shown in the table below.

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Table 13 I Reduce Electricity and Water Used in my Daily Life.

I to reduce electricity and water used in my daily life.	Frequency Number of respondent	Percentage (%)
Strongly Agreed	73	48.7
Agreed	47	31.3
Strongly Disagreed	16	10.7
Disagreed	14	9.3
Total	150	100

Table 13 above indicates strong positive attitude towards conservation practice

➢ *Section D: Perceived Link Between Knowledge and Students.*

- *The More I Understand Climate Change, the More Likely I Am to Practice Environmental Conservation*

The data obtained revealed that 78.7% of the respondents strongly agreed were 21.3% agreed that understanding climate change motivates them to practice environmental conservation. This indicates a positive link between knowledge and action. Shown in the table below.

Table 14 The More I Understand Climate Change, the More Likely I Am to Practice Environmental Conservation

I understand climate change, the more likely I am to practice environmental conservation.	Frequency Number of respondent	Percentage (%)
Strongly Agreed	118	78.7
Agreed	32	21.3
Strongly Disagreed	0	0
Disagreed	O	0
Total	150	100

The table 14 above illustrate the number and percentages of respondent students practicing environmental conservation.

- *Awareness of Climate Change Increases my Willingness to Reduce Pollution*

From the data obtain shows that 84% of the respondents strongly agreed were 12% agreed, and 4% strong disagreed, that understanding awareness of climate change increase my willingness to reduce pollution. This indicates a positive link between knowledge and action. Result represented in the table below.

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Table 15 Awareness of Climate Change Increases my Willingness to Reduce Pollution

awareness of climate change	Frequency	Percentage (%)
Increases my willingness to reduce pollution	Number of respondents	
Strongly Agreed	126	84
Agreed	18	12
Strongly Disagreed	6	4
Disagreed	0	0
Total	150	100

The above table 15 describe the awareness of climate change increase my willingness to reduce pollution and number of respondent and percentage.

- *Knowing the Risk of Climate Change Motivates me to Support Environmental Policies and Initiatives.*

From the data obtain shows that 90.7% of the respondents strongly agreed, were 9.3% agreed, knowing the risk of climate change motivates me to support environmental policies and initiatives. This indicates a positive link between knowledge and action. Shows in the table below.

Table 16 Knowing the Risk of Climate Change Motivates me to Support Environmental Policies and Initiatives.

Knowing the risk of climate change motivates me to support environmental policies and initiatives.	Frequency Number of respondent	Percentage (%)
Strongly Agreed	136	90.7
Agreed	14	9.3
Strongly Disagreed	0	0
Disagreed	O	0
Total	150	100

The above table 16 tell us that most respondent support environmental policies and initiatives.

- *Student With Better Knowledge of Climate Change are Typically More Environmentally Responsible.*

This indicates that 74% strongly agreed, were 26% agreed, of the respondent's student with better knowledge of climate change are typically more environmentally responsible. This indicates strong positive attitudes toward conservation practices.

Table 17 Student with Better Knowledge of Climate Change are Typically more Environmentally Responsible.

Student with better knowledge of climate are typically more environmentally responsible.	Frequency Number of respondent	Percentage (%)
Strongly Agreed	111	74
Agreed	39	26
Strongly Disagreed	0	0
Disagreed	0	0
Total	150	100

The above table 17 tell us that most respondent are student with better knowledge of climate change are typically more environmentally responsible

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➢ *Discussion*

The findings of this study reveal a high level of awareness and understanding of climate change among university students, as well as a generally positive attitude toward environmental conservation practices. This aligns with the growing recognition that young people, particularly those in higher education, are increasingly conscious of environmental challenges and are more inclined to adopt sustainable practices when they are informed about the issues. A key outcome of this study is the overwhelming awareness of climate change among respondents. Nearly all participants reported having heard about climate change and demonstrated a reasonable understanding of its meaning, with the majority correctly identifying it as long-term shifts in weather patterns influenced by both natural and human factors. This is consistent with the findings of Lee *et al*. (2021), who observed that young adults tend to have greater exposure to climate change discourse through formal education, media, and social networks, leading to a heightened awareness compared to older populations. The results also resonate with Olorunfemi (2022), who emphasized that awareness campaigns and curriculum integration in Nigerian universities have played a role in broadening students' environmental consciousness.

The study also highlights a strong recognition of human activities as contributors to climate change, particularly deforestation and the burning of fossil fuels. This awareness mirrors the work of Intergovernmental Panel on Climate Change (IPCC, 2020), which underscores anthropogenic activities as the primary drivers of global warming. It also aligns with the findings of Adebayo and Ojo (2021), who noted that Nigerian students generally understand the role of unsustainable practices in exacerbating climate challenges. The present study therefore corroborates the assertion that youth populations in developing countries are not entirely ignorant of the scientific consensus surrounding climate change.

An equally significant finding relates to students' perception of the greenhouse effect. The majority recognized that greenhouse gases trap heat in the atmosphere, demonstrating a grasp of one of the fundamental mechanisms driving climate change. This is encouraging, as research by Lorenzoni and Pidgeon (2023) suggested that while awareness of climate change is often high, comprehension of its scientific processes is usually limited among the general public. The results of this study thus suggest that university students, particularly in this context, may possess a deeper scientific understanding than is sometimes assumed. The study revealed strong pro- environmental attitudes, with most respondents agreeing that conserving the environment is important for both present and future generations. Such positive attitudes echo the findings of Tikka, Kuitunen, and Tynys (2020), who argued that higher education fosters more environmentally responsible values and behaviors. In the Nigerian context, Oladele and Fadairo (2021) similarly reported that exposure to environmental education increases students' willingness to engage in conservation efforts. The willingness of the majority of respondents in this study to participate in activities such as tree planting and campus greening initiatives demonstrates that awareness translates into a readiness for action, a trend which scholars such as Kollmuss and Agyeman (2020) have identified as essential in bridging the knowledge–action gap in environmental behavior.

These findings further validate the argument advanced by Ogbuigwe (2021), who emphasized the importance of mainstreaming environmental education into African higher institutions as a pathway to achieving sustainable development. The high level of awareness and the willingness to act identified in this study suggest that the university environment can serve as a breeding ground for environmentally responsible future leaders. However, as noted by Ogunbode (2023), awareness alone does not always guarantee consistent action; structural support, enabling environments, and institutional commitment are necessary to sustain conservation practices.

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CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATION

➢ *Summary of Findings*

The study explored students' awareness, understanding, and attitudes toward climate change, with findings revealing a remarkable level of knowledge and a generally positive orientation toward environmental conservation. The responses showed that the majority of students were not only familiar with the concept of climate change but also demonstrated a sound understanding of its meaning, identifying it as long-term shifts in weather patterns influenced largely by human activities such as deforestation and the burning of fossil fuels. This reflects an encouraging level of environmental literacy among young people, suggesting that awareness programs and exposure to educational initiatives are having a tangible impact. Students also displayed a high level of recognition regarding the role of greenhouse gases in trapping heat in the atmosphere, indicating that their knowledge extended beyond superficial awareness to include an understanding of underlying scientific processes. This is noteworthy, as previous scholarship has often highlighted gaps between general awareness of climate change and comprehension of its mechanisms. The findings of this study therefore provide evidence that students within the university context are cultivating a more nuanced understanding of environmental issues.

This knowledge appears to translate into favorable attitudes. Respondents expressed strong agreement with the importance of conserving the environment for the benefit of present and future generations, underscoring a sense of responsibility that extends beyond self-interest. Furthermore, the willingness to participate in conservation-oriented activities such as tree planting and campus greening demonstrates that students are not only aware but also prepared to engage in practical actions that contribute to sustainability. The study establishes that students possess considerable knowledge of climate change, maintain positive conservation attitudes, and recognize the connection between awareness and environmental action. These insights suggest that higher education institutions can serve as catalysts for environmental responsibility, equipping young people with the knowledge and motivation needed to address global challenges.

➢ *Conclusion*

This study concludes that university students exhibit a high level of awareness and understanding of climate change, coupled with strong positive attitudes toward environmental conservation. The findings indicate that the student population is not only knowledgeable about the scientific and human dimensions of climate change but also willing to participate actively in conservation practices. This demonstrates the effectiveness of educational exposure, environmental campaigns, and peer influence in shaping young people's perceptions of global environmental challenges. The results also emphasize the critical role of knowledge as a driver of behavior. The positive correlation between awareness and willingness to act suggests that environmental education has the potential to translate into concrete actions, provided that students are supported with enabling structures and opportunities. Universities, therefore, hold a pivotal position in fostering environmental stewardship by embedding sustainability principles into both curricula and campus practices.

However, while awareness and willingness are promising, they do not automatically guarantee sustained action. As earlier scholars have noted, structural constraints such as inadequate resources, lack of institutional support, or competing social priorities can hinder the translation of attitudes into long-term behavior. This underscores the need for universities and policymakers to create favorable environments that encourage and sustain conservation efforts among young people. The study affirms that young people represent a critical force in the fight against climate change. Their knowledge, attitudes, and willingness to act are vital assets that must be harnessed through effective educational programs, institutional support, and participatory initiatives. By strengthening the link between awareness and action, higher education institutions can help nurture a generation of environmentally responsible citizens who are capable of contributing meaningfully to sustainable development.

➢ *Recommendations*

Based on the results obtained it is therefore recommended that;

- Integration of Climate Education: Universities should incorporate comprehensive climate change and sustainability modules into their curricula across all faculties to deepen knowledge and foster critical thinking.
- Practical Engagement Programs: Institutions should provide platforms such as campus tree-planting, recycling drives, and sustainability clubs to channel students' willingness into practical conservation activities.
- Policy and Institutional Support: University management should establish clear policies that promote environmentally sustainable practices on campuses, including energy efficiency, waste management, and green infrastructure.
- Awareness Campaigns and Partnerships: Collaboration with governmental and non- governmental organizations should be strengthened to organize workshops, seminars, and awareness campaigns that keep students informed and engaged.

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