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THEME:
ETHICAL AND VALUES EDUCATION:
RE-ENGINEERING FOR SUSTAINABLE NATIONAL DEVELOPMENT

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ENVIRONMENTAL IMPACT ASSESSMENT OF DEVELOPMENT PROJECTS: A CRUCIAL TOOL FOR SUSTAINABLE NATIONAL DEVELOPMENT

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Abstract

Environmental impact Assessment (EIA) of Development projects is a vital tool for sustainable national development. EIA is critical in evaluating environmental, social and economic consequences of any proposed project to ensure sustainable national development. The adoption of EIA in national development project helps to identify environmental impacts, engage stakeholders and modify proposals to protect ecological systems EIA is necessary in all projects before execution to ensure that such development initiative is not just only economically viable but also environmentally and socially responsible. The paper presents a brief background of the EIA, defines the key concepts such as environmental impact assessment, development projects and sustainable national development. The paper further examines the indicators of sustainable national development and aims and objectives of EIA. The paper also looked at steps in EIA process and the role of EIA in sustainable national development. The paper finally x-rayed the challenges faced by EIA and the way forward. The paper concluded that with the application of EIA in all development projects every development project will have positive impact on national development and future generational benefits of the nation.

Keywords: “Environmental Impact Assessment” (EIA) “Development projects” and “Sustainable national development”.

Introduction

Environmental Impact Assessment (EIA) of development project is very crucial in National development. Environmental Impact assessment began in America in the late 1950's and was implemented as part of a national decision making process for every developer of any project with potent threats to the environment and it's inhabitants in the 1960's. In Nigeria, Environmental Impact assessment began as a reactive measure to the 1988 koko toxic waste incident. After the discovery of oil in Nigeria, the nation witness economic boom and unguided urbanization and industrialization took place this led to the degradation and devastation of the environment. There were many sectorial regulations which aimed at controlling environmental degradation at that time but were not successful. In 1982 EIA Act No. 86 became an institutional framework meant to deal with the problems facing the environment in order to achieve sustainable development. This decree made it mandatory that any developmental project viz industrial, agricultural and infrastructural development for both the public and private sectors must undergo an EIA before approval (Eneji 2014).

It has been observed that most developmental projects across the country are carried out without impact assessment which is a critical planning tool that evaluates the environmental social and economic consequences of such proposed projects before approval to ensure sustainable national development. Any attempt to embark on development project without impact assessment falls short of manning economy to

ecology, this could result in loss of generative capabilities of the resource based and the inability to manage environmental risks, disasters and hazards (Anthony 2005).

It is hoped that if environmental impact assessment is carried out before any development project is executed, it will help to predict the adverse consequences of the project, identify potential adverse environmental effects and ensure that necessary steps are taken to mitigate the adverse consequences. It is against this backdrop that this paper seeks to find out if environmental Impact Assessment (EIA) could help to minimize negative ecological impact, mitigate risks, foster public participation, marry ecology with economy and ensure long-term environmental protection and economic viability during and after project execution.

The Concept Environmental Impact Assessment

According to Daniel (2004), Environmental impact assessment (EIA) is a tool designed to identify and predict the impact of a project on the bio-geophysical environment and on man's health and well-being. It is a process of predicting environmental effects of proposed initiatives before they are carried out. Environmental impact assessment could also be referred to a mandatory planning process that evaluates the potential long-term and short-term environmental, social and economic effects of a proposed development project. It identifies risks early, evaluates alternatives and suggests mitigation measures to minimize negative impacts (UNEP 2010). Zambia Environmental Management Agency ZEMA (2026) sees environmental impact assessment as a systematic process which predicts, identifies and evaluates potential positive impacts that a proposed project may have on the environment in its totality that is physical, biological and socio-economic aspects. Community environmental education is a significant instrument for environmental protection. (Augustine et al 2025). Ntongha and Ubana (2026) sees environmental education as a tool for national development.

Hitzshky and Silviera (2009) maintained that the key areas of concern of EIA include, proposing measures to mitigate adverse effects; identification of potential effects; predicting whether they will be significant adverse environmental effects after mitigation measures and a follow up to verify the accuracy of environmental assessment and effectiveness of mitigation measures.

The concept development projects: Development projects are time-bound structured efforts designed to create specific, tangible improvements, such as enhanced social conditions, new infrastructure or improve economic outcomes (UNDP, 2025). They are also seen as time-bound instrument to deliver outputs that contribute to the outcome-level development change reflected in the programme along with the results delivered by other projects and instrument. It is any project undertaken for the purpose of development and aimed at reducing poverty or diseases. Examples of development projects include; building of schools, houses, roads, bridges, vaccination campaigns, establishment of health care services to combat diseases, manufacturing projects, creating new technology or product and others. Youth participation in socio-economic activities is a component tool for community development (Ubana et al 2025). Activities of agricultural cooperative societies promote economic development of co-operators (Andong et al 2025).

The concept sustainable national development: The concept sustainable national development refers to a comprehensive long-term approach to economic growth that improves living standards while preserving environmental, social and economic systems for future generations. It balances human needs with ecological protection and equity. Ojunga (2017) stressed that any development that is geared towards the enhancement of individuals in the economy and which would enhance the development of the nation should be sustainable. Summarily sustainable national development focuses on three pillars; environmental, social and economic stability. This implies that for national development to be sustainable, it must protect the ecosystems managing natural resources and combating climate change; promote equity, public participation as well as basic human needs and develop self-sustaining long term growth and reduce poverty. Building digital literacy through social work education promotes sustainable development (Helen et al 2025).

Indicators of Sustainable National Development

Indicators of sustainable national development are metrics used to evaluate whether the current growth policies hinders or enhances future generation ability to meet their needs. They measure progress across social, environmental economic and institutional dimensions, focusing on long-term well-being and not just Gross Domestic Product (GDP). The key indicators of sustainable national development are categorized into four main pillars. Anja and Olivera (2018) pointed out the following indicators;

1. Environmental indicators: Environmental indicators are concern with combating climate change issues and green-house gas emissions. It further looks at natural resource conservation by regulating the rate of deforestation biodiversity loss and water quality. Finally, it focuses on resource management viz; waste generation energy efficiency and renewable energy consumption.
2. Social indicators: Social indicators focuses on health where life expectancy, infant mortality and prevalence of undernourishment are considered. It also focus on equality and education where gender equality and literacy rate are considered. The indicator finally looks at living condition where access to improved water, sanitation and public transportation are the areas of focus.
3. Economic indicators: The economic indicators focus on growth and work where employment structure, income inequality and GDP per capital are looked upon. It further looks at consumption and production pattern and infrastructural development.
4. Institutional indicators: This indicator focuses on governance and participation. It is concern with the strength of the institutions, corruption level, public access to information, justice and decision making.

Aims and objectives of environmental impact assessment

According to Hitzsehky and Silviera, (2009) the aims of EIA include to:

1. Identify potential adverse environmental effects.
2. Propose measures to mitigate adverse environmental effects.
3. Predict whether there will be significant adverse environmental effects, after mitigation measures are implemented.
4. Incorporate environmental factors into decision making
5. Include a follow-up programme to verify the accuracy of the environmental assessment and the effectiveness of the mitigation measures.
6. Ensure that the public is involved in the process, encouraging transparency and building trust.
7. Promote projects that balances economic growth with environmental protection to ensure that resources remain available for future generations.

Objectives of EIA according to EVS institute (2025) include the following:

1. To predict the effect of a proposed activity on the environment before any physical work begins.
2. To systematically examine both beneficial and adverse consequences of proposed developments.
3. To promote sustainable development that balances growth and protection by optimizing resources use for present and future generation.
4. To facilitate open communication among all stakeholders by building trust through transparency.
5. To formulate the environmental management plan for implementation by making commitments measurable and enforceable.
6. To conserve the environment and bring out the best combination of economic and environmental cost benefits.
7. To establish baseline conditions and frameworks for monitoring environmental impacts overtime.
8. To ensure that projects adhere strictly to environmental regulations and standards.
9. To provide a systematic framework for decision makers to evaluate the environmental implications of projects.
10. To ensure that development projects align with sustainable practices and contributes positively to environmental and social wellbeing.

11. To assess alternative sites technologies or processes to find the most environmentally responsible option.
12. To establish monitoring and auditing procedures during project implementation to ensure adherence to standards.

Steps in Environmental Impact Assessment EIA process.

Environmental impact assessment process involves a number of steps. Some of the steps required are as follow:

Screening: Eneji (2014) stressed that for any project to be executed there must be an initial assessment to see if the project requires EIA or not. The screening process determines whether a particular project warrants the preparation of an EIA. Screening is carried out to ensure that proposals that will have significant impact on the environment will undergo an EIA. It also determines which projects or developments requires a full or partial impact assessment study.

Scoping: Scoping is use to describe the process of deciding what should be included in EIA. It may be seen as a means of identifying the main public concern about a proposal. It occurs early in the project cycle. It is the process of identifying the key environmental issues and the most important step in EIA. Scoping is very vital in EIA because it allows the problem to be pinpointed early enough thus giving room for mitigating design changes to be made before detailed work is carried out. It also ensures that detailed prediction work is only carried out for important issues.

This stage defines what aspect of the environment will be studied how detailed the analysis needs to be and what alternatives should be considered. Effective scoping involves identifying key environmental components that might be affected such as water resources forests, wildlife habitats, soil condition and socio-economic factors. It also establishes the geographical boundaries of the study area and the time frame for analysis (Ademola, 2024).

Basc-line studies: This involve understanding the existing environment. To do so comprehensive data is obtained on current environmental conditions including the air water quality, biodiversity, soil and noise level. It serves as a reference point to evaluate future changes caused by the project.

Impact assessment and mitigation: This stage evaluate the socio-economic and environmental impacts of the planned project and it's alternatives and then identify the mitigation measures to reduce those impacts. It analyses the potential environmental impacts of the project (both positive and negative, long term and short term) by using scientific data, models and expert judgment to assess the significance and livelihood of each impact. Mitigation strategies on the other hand are developed to avoid minimize or compensate for negative environmental effects. These may include changes in project design, environmental restoration effort or pollution control technologies (Obudulu et al 2024).

Reporting: This stage requires pulling together all the research and work done during the previous steps into a comprehensive structured document call environmental impacts, proposed mitigation, measures and outcomes of stakeholder consultations.

Review and licensing: This stage requires the designated authorities to review the EIA report to determine if the planned project will get a license of if it requires amendments. If the information is sufficient and identify any deficiencies to be corrected.

Decision making: This stage requires a decision to be made to either approve the project conditionally or reject it.

Monitoring: This is the last stage of EIA process. It ensures compliance and performance. It ensures that the implementation conditions attached to a decision. Verified that impacts are as predicted or permitted, confirms that the mitigation measures are working as expected take action to manage the unforeseen changes by establishing baseline condition and also allows for corrective actions if unexpected impact arise (Adegboyega 2024).

The Role of Environmental Impact Assessment (EIA) In Sustainable National Development

Environmental impact assessment remains a critical tool for sustainable national development. It evaluates the environmental, social and economic consequences of development projects before they begin. It mitigates environmental damages associated worth projects fosters public participation, align

development with long terms ecological sustainability prevent future costly remediation and provide opportunities for inform decision making (Obudulu et al, 2024). The key roles of EIA in national development are as follows:

- Sustainable development integration: EIA ensures that economic growth does not compromise the ability of future generations to meet their needs, balancing progress with ecological preservation.
- Informed decision making: EIA provide planners and policy makers with critical information to modify rejects or approve projects by analyzing potential impacts beforehand.
- Risk mitigation and cost savings: Through the creation of an environmental management plan (EMP) EIA identifies potential environmental disasters. This help to mitigate risks, avoiding costly project delays or litigation.
- Regulatory compliance: EIA ensures that development projects meet environmental laws and standards, thus promoting responsible industrialization and infrastructural development.
- Public participation and accountability: EIA engages local communities thus offering them a platform to voice concerns and fostering ownership of projects which reduces community unrest.
- EIA serves as a preventive tool rather than a curative one transforming development from purely an economic view point into a sustainable and inclusive process (Akpambu and Olu-Gbo 2021).
- Promotion of sustainable development: By considering the environmental, social and economic aspects of the proposed development project it promote sustainable development. It also helps to identify opportunities to enhance positive impacts while minimizing negative ones.
- Enhancement of project design: EIA encourage the integration of environmental considerations into project design from the outset leading to the development of more environmentally responsible and sustainable projects.
- Identification of environmental impact: EIA helps to identify potential environmental, social and cultural impacts of proposed development projects or activities before they are implemented.
- Knowledge generation: EIA contribute to the generation of knowledge about environmental integrations, impacts and mitigations measures, which can inform future projects and policies.
- Transparency and accountability: By documenting the environmental assessment process, findings and recommendations EIA increases transparency and accountability with the above development, it enhances public trust in decision-making processes (Ademola 2024)

Challenges faced by Environmental Impact Assessment (EIA)

Despite the crucial role played by EIA in shaping development projects, it faces several challenges such as: inadequate funding and resources; limited technical expertise; low community/public awareness; insecurity and insurgences; time constraints; resistance from project proponents and lack of meaningful public participation (Ademola 2024).

Adegboyega (2024) pointed out the following challenges in carrying out EIA in Nigeria:

- Capacity constraints: There is inadequate skilled professional and expertise in conducting EIAs.
- Political and systemic interference from the political class and tussles in Nigeria continues to influence the sectors including EIA process. This has led to bias in statement.
- There is reduce interest by NGOs, CBOs and the general public in the review and provision of comments on draft EIA reports during public disclosure of the document which led to reduced public participation.
- Data gap: This remain a growing issue in EIA process. Sometimes data is very difficult to collect and when it is collected it may be unreliable and irrelevant.
- Financial and budgetary constraint encountered by EIA process limits the overall functioning of the regulatory bodies involved.
- The EIA act is still yet to be passed into law by the national assembly since it review in 2010. This make it difficult to implement some key aspects thus affecting enforcement and compliance mechanism.

The way forward

To address these challenges and strengthen the effectiveness of EIA, a plethora of measures could be taken.

- There should be enhanced international collaborations.
- There should be adequate promotion of public awareness and sensitization programmes on EIA process through conferences seminars, workshops, social media and others
- There should be increase collaboration and development of MOUs with various organizations that may have overlapping interest on EIA matters.
- Government and regulatory agencies should allocate adequate resources and build technical capacity to conduct training programmes for EIA practitioners and regulatory staff to enhance their technical expertise.
- Action on the passage of the revised EIA Act which will help strengthen the EIA process should be expedite.
- Transparent and inclusive stakeholder engagement process should be established to ensure that all voices are heard and considered in decision-making.
- Robust monitoring and compliance mechanism to ensure that mitigation measures are implemented effectively should be established.
- Different government agencies should collaborate to streamline the EIA process and ensure that relevant environmental, social and economic aspects are considered.
- The principles of sustainability should be incorporated into EIA frameworks to ensure that development projects contribute to long-term environmental health and social well-being.
- EIA should go beyond project site specifics to policies plans and programmes.

Conclusion

Environmental Impact Assessment (EIA) no doubt is crucial for sustainable national development. Despite the challenges faced by EIA it remain a potent tool for sustainable national development with EIA every development project will have positive impact on national development and future generational benefit of the nation. EIA should be adopted in any national development project to help identify impacts, engage stakeholders and modify proposals to protect the ecological systems. The application of EIA in all developmental projects is necessary to ensure that national development initiative is not just economically viable but also environmentally and socially responsible.

References

- Adegbayega, L. (2024). Environmental Impact Assessment in Nigeria 30 years after challenges and opportunities: regulator perspective. Dublinireland.
- Augustine, A. A., Ubana, M. U., Rose, O. B., George, O. A. (2025). Community environmental education: A significant instrument for environmental protection. Scientific Journal of Educational Management, Research and law. Vol. 3 (1). Pp. 293-301.
- Akpanebu, L. J & Olu-Gbo, T. S. (2014) the role of Environmental Impact Assessment on national economic development in Nigeria; *Journal of environmental issues and agriculture in Development Countries* (JEIADC). 6,(1).
- Ademola, C. (2024) The crucial role of Environmental Impact Assessment (EIAs) www.linkedin.com/pulse/crucila
- Andong, H. A., Ubana, U. M., Eloma, E. S. & Musa, Z. (2025) Activities of agricultural cooperative societies and economic development of co-operators in Southern Cross River State, Nigeria. *Unizik Journal of Educational Research and Policy Studies* VOL.19 (3) Pp. 572-586
- Anja, M. & Oliviera, L. (2018). Indicators of sustainable development and urban sustainability. *Sustainability and resilience socio-spatial perspective*. T. U. Delft open

- Anthony, G. B. (2002) sustainable development through environmental adult education. In Umoren, G. Ntia, N. U. & Biao, I. (eds) *Readings in Adult Education*. Calabar; Glad Tidings press Ltd. 240-247.
- Daniel, S., Tsoulfas, G., Pappis, C., & Rachaniotis M. (2004). Aggregating and evaluating the results of different environmental impact assessment methods ecological indicators. 4: 125-138.
- Eneji, C. V. O. (2014). A handbook on Environmental Impact Assessment, monitoring and evaluation. Germany: University of management and communication (UMC) publishing house.
- EVS institute (2025). Understanding the core objectives of environmental impact assessment. Institute of environmental studies.
- Helen A. A., Ubana M. U. & Grace B. B. A. (2025). Building digital literacy through social work education for sustainable development. Scientific Journal of Educational Management, Research and law. Vol. 3 (1). Pp. 420-425.
- Hitzshky, K. & Silviera, J. (2009). A proposed impact assessment method for genetically modified plants (AS-GMP method) Environmental Impact Assessment review 29:348-368.
- NEXTIAS, (2024). Environmental Impact Assessment.
- Ntongha Y. I. & Ubana, U. M. (2026). Environmental education and national development. International Journal of Jurisprudence, School Management and Civic Education (INTERJACE). Vol. 1 (1)242-259. <https://unilaws.org/INTERJAC>.
- Obudulu, C., Ikeh, M. I., Okeke, O. A., Udeh, N. P., Okafor, Azaka, E. I., Olisa, C. S. & Aghalu, U. (2024) Environmental Impact Assessment. A key to sustainable development. *West African Journal of sustainable Development*. 1,(2).
- Ojinga, G. M. (2017). A handbook if research on small and medium enterprises in developing countries. London IGI Science publishing tomorrow research today.
- Ubana M. U., Awah, G. O., Emmanuel, A. A., Igboke, S. B., Abuokwen, A. A., Patrick, E. O. & Arikpo, S. O. (2025). Youth Participation in Socio-Economic Activities and Community Development in Central Senatorial District in Cross River State, Nigeria. Unizik Journal of Educational Research and Policy Studies VOL.20 (3) Pp.
- Ubana M. U., Awah, G. O., Emmanuel A. A., Igboke, S. B., Abuokwen, A. A., Patrick, E. O. & Arikpo, S. O. (2025). Youth participation in socio-economic activities and community development in Central Cross River State, Nigeria. Unizik Journal of Educational Research and Policy Studies VOL.19 (4); Pp. 135 – 153.
- UNEP (2010). What is Impact Assessment. *Convention on Biological Diversity*.
- UNDP (2025). Development project. United Nation Development programme.
- ZEMA, (2026). Zambia Environmental management agency, <https://www.zema.org.zm>.

EFFECTIVENESS OF MOBILE APPS IN ENHANCING LITERACY FOR STUDENTS WITH LEARNING DISABILITIES IN NIGERIA

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Abstract

The quest for inclusive education in Nigeria remains a pressing challenge, particularly for students with learning disabilities (LDs) who struggle to acquire foundational literacy skills within traditional classroom settings. These learners face numerous systemic barriers, including lack of early diagnosis, inadequate teacher training, limited access to assistive technologies, and instructional approaches that do not accommodate their diverse learning needs. In recent years, however, mobile technology has emerged as a potentially transformative tool for bridging educational gaps. With increasing smartphone penetration and a growing ecosystem of educational applications, mobile apps offer new opportunities to support literacy development among marginalized student populations. This paper explores the effectiveness of mobile apps in enhancing literacy for students with LDs in Nigeria by analyzing current trends in mobile apps, benefits, and challenges. It concludes with recommendations for stakeholders, including educators, policymakers, and developers, to scale inclusive mobile learning solutions that align with local contexts and learner needs.

Key words: Effectiveness, mobile apps, literacy, students and learning disabilities.

Introduction

Literacy is universally acknowledged as a foundational skill for personal empowerment, academic achievement, social inclusion, and economic participation. It is the gateway through which individuals access knowledge, develop critical thinking, and participate meaningfully in civic life. Yet, for millions of children across the developing world, including Nigeria, the opportunity to become literate remains out of reach, particularly for those with learning disabilities (LDs), who constitute as the vulnerable segment of the population.

In Nigeria, learning disabilities often go unrecognized, misdiagnosed, or misunderstood within the formal education system. Despite national policies that support inclusive education, the reality in many schools is far from inclusive. Learners with LDs are frequently marginalized due to systemic barriers such as overcrowded classrooms, teacher shortages, inadequate learning materials, and insufficient professional development in special needs education. They are commonly perceived as academically incapable, frequently labeled as “slow learners” or “dull,” and are often denied the specialized instructional strategies that could help them thrive. Consequently, many of these students fail to acquire functional literacy skills, leading to school dropout, social exclusion, and long-term poverty. This chapter explores the role and effectiveness of mobile applications in enhancing literacy skills among students with learning disabilities in Nigeria. It critically examines the concept of mobile applications, the rise of mobile technology in education in Nigeria, roles of mobile apps in enhancing literacy skills among students with learning disabilities in Nigeria as well as the challenges and prospects of effective utilization of mobile apps in by students with learning disabilities in Nigeria.

The paper concludes with strategic recommendations for policymakers, app developers, educators, and stakeholders in inclusive education. These include the need for investment in teacher training, expansion of localized app content, integration of assistive mobile tools into national curricula, and more rigorous impact evaluation. Ultimately, this work argues that while mobile apps are not a standalone solution, they represent a critical component in a broader strategy to promote equitable literacy development for all learners in Nigeria, particularly those who have been historically underserved.

Concept of Mobile Applications in Nigeria

Mobile applications (commonly referred to as *apps*) have become a cornerstone of digital transformation globally, serving as dynamic tools that bridge the gap between technology and day-to-day human needs. Mobile applications are software programs designed to run on handheld devices such as smartphones and tablets. Shahrokni, Yusof & Farid (2024) asserted that mobile apps are built for specific functions, ranging from text communication and e-commerce to educational instruction and financial transactions. In the Nigerian context, mobile apps are increasingly built to be lightweight, bandwidth-efficient, and accessible in low-resource environments, considering challenges such as inconsistent power supply, limited internet access, and the diversity of mobile devices in use (Silvia & Gilmara (2024). Apps are typically distributed via platforms such as Google Play Store and Apple App Store, with many Nigerian developers also hosting Android Package Kits (APK files) directly for offline installations in underserved areas. This hybrid distribution approach has increased accessibility, especially in rural and peri-urban communities.

According to Lee & Suh (2020) mobile application or app is a computer program or software application designed to run on a mobile device such as a phone, tablet, or watch. Mobile applications often stand in contrast to desktop applications which are designed to run on desktop computers, and web applications which run in mobile web browsers rather than directly on the mobile device. Apps were originally intended for productivity assistance such as email, calendar, and contact databases, but the public demand for apps caused rapid expansion into other areas such as mobile games, factory automation, GPS and location-based services, order-tracking, and ticket purchases, so that there are now millions of apps available. Many apps require Internet access. Apps are generally downloaded from app stores, which are a type of digital distribution platforms. Apps are broadly classified into three types: native apps, hybrid and web apps. Native applications are designed specifically for a mobile operating system, typically iOS or Android. Web apps are written in HTML5 or CSS and typically run through a browser. Hybrid apps are built using web technologies such as JavaScript, CSS, and HTML5 and function like web apps disguised in a native container (Oliveira, Thomas & Espadanal, 2023).

In Nigeria, a country characterized by a young population, rising mobile phone penetration, and an expanding digital economy, mobile apps have rapidly evolved into essential platforms for communication, commerce, education, entertainment, health services, and financial inclusion. Statista (2025) reported that the Nigerian Communications Commission (NCC), Nigeria had over 220 million active mobile subscriptions as of 2023, with a significant share of these being smartphone users. This surge in mobile access has catalyzed a vibrant mobile app ecosystem that addresses local challenges with digital solutions tailored to the Nigerian context. The development and use of mobile apps in Nigeria are thus not only a reflection of global technological trends but also a localized response to infrastructural gaps, educational deficits, and socio-economic needs. Mobile apps are increasingly used to address educational inequities in Nigeria. Platforms like Lesson, Afrilearn, Pass.ng, and Teestas deliver curriculum-aligned video lessons, exam preparation tools, and interactive quizzes to students across different levels. These apps are particularly valuable in rural areas where access to qualified teachers and physical learning resources is limited (UNESCO, 2023).

Most mobile devices are sold with several apps bundled as pre-installed software, such as a web browser, email client, calendar, mapping program, and an app for buying music, other media, or more apps. Some pre-installed apps can be removed by an ordinary uninstall process, thus leaving more storage space for desired ones. Where the software does not allow this, some devices can be rooted to eliminate the undesired apps. Apps that are not preinstalled are usually available through distribution platforms called app stores. These may be operated by the owner of the device's mobile operating system, such as

the App Store or Google Play Store; by the device manufacturers, such as the Galaxy Store and Huawei App Gallery; or by third parties, such as the Amazon Appstore and F-Droid (Oliveira, Thomas & Espadanal, 2023). Charland, & Leroux, (2021) opined that usually, mobile apps are downloaded from the platform to a target device, but sometimes they can be downloaded to laptops or desktop computers. Apps can also be installed manually, for example by running an Android application package on Android devices. Some apps are freeware, while others have a price, which can be upfront or a subscription. Some apps also include micro transactions and/or advertising. In any case, the revenue is usually split between the application's creator and the app store. The same app can, therefore, cost a different price depending on the mobile platform.

Mobile apps were originally offered for general productivity and information retrieval, including email, calendar, contacts, the stock market and weather information. However, public demand and the availability of developer tools drove rapid expansion into other categories, such as those handled by desktop application software packages. As with other software, the explosion in number and variety of apps made discovery a challenge, which in turn led to the creation of a wide range of review, recommendation, and curation sources, including blogs, magazines, and dedicated online app-discovery services (Shaw & Sergueeva, 2019). With a growing number of mobile applications available at app stores and the improved capabilities of smartphones, people are downloading more applications to their devices. Usage of mobile apps has become increasingly prevalent across mobile phone users.

Rise of mobile technology in education in Nigeria

Mobile technology is emerging as a transformative force in Nigerian education, fundamentally reshaping how learners acquire knowledge and skills. As the nation grapples with challenges such as limited access to quality educational resources and traditional teaching methods, online learning platforms are bridging gaps and providing unprecedented opportunities for learners nationwide. In recent decades, educational systems globally have witnessed profound transformations fueled by advancements in information and communication technologies (ICT). Among these innovations, mobile technology has emerged as a critical enabler of access, equity, and innovation in teaching and learning. Mobile learning (m-learning), defined as education facilitated through portable computing and communication devices such as smartphones, tablets, and personal digital assistants (PDAs), has gained particular relevance in developing countries where traditional educational infrastructure may be limited or inaccessible (Traxler, 2022).

Nigeria, Africa's most populous nation with over 200 million people, represents a compelling case for studying the integration of mobile technology in education. With over 222 million mobile subscribers as of 2022 and growing access to smartphones, Nigeria has experienced an exponential increase in the use of mobile devices among students, educators, and educational service providers (Statista, 2025). This rapid adoption has been driven by factors such as the proliferation of low-cost Android devices, improved mobile network infrastructure, and the emergence of indigenous educational technology (EdTech) startups such as uLesson, Tuteria, and ScholarX. Despite infrastructural challenges, mobile technology is increasingly shaping how learners in Nigeria access content, communicate with instructors, and collaborate with peers. Furthermore, the COVID-19 pandemic accelerated the shift toward mobile learning, revealing both the potential and limitations of the technology in addressing educational disruptions. The adoption of mobile technology in Nigeria's education sector is largely influenced by three interrelated factors: high mobile penetration, the affordability of mobile devices, and increased EdTech innovation. Firstly, Nigeria's mobile telecommunications sector is among the largest in Africa, with mobile penetration rates exceeding 100% by 2022 (Ahmed, 2023). Telecom providers such as MTN, Airtel, and Glo have expanded 4G and 5G networks to urban and semi-rural areas, enabling learners to access the internet and digital content through smartphones. Special educational data bundles and zero-rated content platforms have further supported m-learning initiatives (Omeni, 2023). Secondly, the affordability of smartphones has allowed students across income levels to participate in mobile-based learning. According to ZehiTech (2024), the widespread availability of budget Android devices has made it possible for students in both public and private institutions to access learning platforms via mobile apps, social media, and SMS-based services. Thirdly, the Nigerian EdTech landscape has seen a surge in

innovation with startups such as uLesson, Tuteria, DigiLearns, and Pass.ng, all offering mobile-first learning solutions tailored to local curricula. These platforms provide video tutorials, practice questions, tutoring services, and exam preparation tools, supporting learners in primary, secondary, and tertiary education.

In the basic education sector, mobile technology has enabled learners to engage with interactive learning tools both within and outside classroom settings. For instance, uLesson, launched in 2020, offers curriculum-aligned video lessons, quizzes, and live classes targeted at K–12 students across West Africa. The app has reached millions of users and continues to evolve, including the recent launch of Nigeria's first online university, Miva, in 2023 (Wikipedia, 2023). SMS-based learning platforms such as those developed by AREAi and DigiLearns have proven effective in low-resource contexts, especially for students in rural areas who may not have access to smartphones or stable internet. These platforms use simple USSD and SMS formats to deliver lessons in literacy, numeracy, and science (Jack, 2023). In higher education, mobile learning is being increasingly integrated into both formal and informal instructional processes. Mobile messaging apps like WhatsApp and Telegram have also been widely adopted as informal learning management systems (LMS), enabling real-time feedback and peer collaboration. These platforms have proven particularly useful in contexts where institutions lack dedicated digital platforms (Itedjere, 2025). The rise of mobile technology in education in Nigeria represents a promising development in the broader push toward inclusive and quality education.

The role of mobile applications in enhancing literacy skills among students with learning disabilities in Nigeria

Literacy acquisition presents unique challenges for students with learning disabilities, including difficulties in decoding, phonological processing, and comprehension. Traditional pedagogical approaches often fail to accommodate the diverse cognitive profiles of these learners. In recent years, mobile technologies have emerged as promising tools to support differentiated instruction and provide personalized learning experiences. The integration of mobile applications (apps) in special education settings offers novel opportunities to enhance literacy skills through adaptive, multimodal, and engaging formats. Mobile technologies in the 21st century offer students with learning disabilities the opportunities to enhance the learning process. Also, since the 21st century era of the proliferation of technology integration in education. One of the prominent concepts as far as technology and students with special needs are concerned is assistive technology. The clamour for the integration of this technology in the learning of special needs students is to help the students learning process more, especially in the face of shortage of sign language instructor. Mobile apps have the potential to improve functioning, reduce activity limitations, promote social inclusion, and increase participation in education, the labour market and civic life. Mobile apps contribute to enhancing disabled people's lives to become synonymous with empowerment, hope and encouragement that place those students in front of "real-world" experiences (Akpan & Beard, 2023). Mobile apps provide easy and instantaneous access to learning for persons with disabilities. Mobile devices can be used by special needs students in a variety of ways, such as independent daily living and learning activities. Provision of hands-free capability, screen reading and text-to-speech functionality, relay services, Internet browsing, home automation, emergency response among others. In addition to enabling them perform tasks such as paying bills, shopping, booking tickets, reading books, working, and the impact it has on the social life of people living with one disability or the other (Narasimhan & Axel, 2022).

Without a doubt, the use of mobile devices is becoming ubiquitous by students in mainstream learning environments, thus the skills that are needed to access information, data and knowledge they can deliver are vital for providing inclusion in mainstream culture. Exclusion from these devices puts the non-user at a disadvantage and less able to access education and training, nor other range of benefits, support, social status and democratic representation (Hayhoe, 2023). Despite the increasing importance of mobile devices to learning, little attention has been placed on its capacity to assist students with disability learning process better than what it is. According to, Foley & Masingila, (2024), the use of mobile devices for students with visual impairments, provides such students with access to education, the means to participate in everyday life and the opportunity to create a community of practice. Mobile technologies

offer students with special needs an alternative means to learn and express themselves with easy-to-use mobile devices, gadgets or features. Mobile devices are therefore considered a form of assistive technology (AT) for students with special needs disabilities.

Furthermore, Ishola, Tolorunleke, Mohammed, & Adeyemo, (2021); Owusu, (2022); Al-Mubarak & AlQahtani, (2024) summarized the role of mobile applications in enhancing literacy skills among students with learning disabilities in Nigeria to include:

- i. **Personalization and adaptive learning:** A central advantage of mobile apps lies in their capacity to deliver personalized instruction tailored to the individual needs of learners. Adaptive learning technologies embedded within literacy apps can dynamically adjust the level of difficulty, pace, and content based on learner performance. For students with learning disabilities, who often require repetitive practice and targeted interventions, such personalized scaffolding enhances mastery of reading and writing skills while reducing cognitive overload.
- ii. **Motivation through gamification:** Gamification, defined as the use of game design elements in non-game contexts, has gained traction in educational technology as a means of increasing motivation and engagement. Mobile literacy apps that incorporate gamified elements such as points, badges, leaderboards, and levels provide instant feedback and foster a sense of achievement among students with learning disabilities. This is particularly effective in maintaining sustained attention and encouraging autonomous learning.
- iii. **Phonological and early literacy skill development:** Phonological deficits are a hallmark of many learning disabilities, particularly dyslexia. Mobile apps designed to support early literacy skills often emphasize phoneme recognition, letter-sound correspondence, and blending, which are foundational for decoding.
- iv. **Support for writing and expressive language:** In addition to reading, mobile apps can support written expression and language development, which are often impaired in students with learning disabilities. Assistive writing tools such as Co:Writer, Read&Write, and WordQ+SpeakQ offer features like predictive text, grammar suggestions, and speech-to-text functionality. These tools reduce the physical and cognitive demands of writing, enabling students to express their ideas more fluently and accurately. Moreover, mobile applications such as Language Builder Plus and Talk2Learn have demonstrated effectiveness in enhancing vocabulary acquisition, syntax, and pragmatic language skills in children with intellectual and developmental disabilities. These apps facilitate language modeling and rehearsal in safe, structured environments.
- v. **Expanding access and literacy ecosystems:** The scalability of mobile technologies makes them particularly well-suited for addressing literacy disparities in under-resourced contexts. Apps such as Worldreader's BookSmart and Google's Read Along provide multilingual digital libraries and interactive reading support through voice-based AI feedback. These platforms offer inclusive literacy ecosystems where caregivers, educators, and students collaborate to foster reading habits, even in communities with limited access to formal education.

Challenges of effective use of mobile apps by students with learning disabilities

The challenges confronting students with learning disabilities centre largely on the lack of the use of technological devices and instructional strategies that considers varying degrees of students' disabilities. These challenges have however created a gap in motivating and engaging students in the learning process, as a result of which certain disabilities such as students with hearing impairment find it hard to understand or learn to their maximum potential certain concepts or descriptions sign language interpreters may find hard or unable to relay to the students'. Students with learning disabilities in Nigeria face numerous barriers in effectively using mobile learning applications. Ishola, Tolorunleke, Mohammed, & Adeyemo, (2021) and Owusu (2022) asserted that these challenges include:

1. **Limited Access to Devices:** Many students with learning disabilities cannot afford smartphones or tablets capable of running modern educational apps.
2. **Untrained Teachers:** Many teachers lack the skills to integrate mobile apps into instruction for students with special needs.

3. **Unstable Electricity Supply:** Frequent power outages, especially in rural areas, disrupt the regular use of mobile devices for learning.
4. **High Cost of Internet:** Mobile data is expensive relative to average household income, limiting consistent access to online learning platforms.
5. **Poor Network Coverage:** In many parts of Nigeria, especially rural areas, internet connectivity is weak or non-existent.
6. **Lack of Assistive Features:** Most educational apps are not designed with accessibility in mind. Features like text-to-speech, voice commands, screen readers, and dyslexia-friendly fonts are often missing.
7. **Language Barriers:** Many apps are in English, which may not be the first language of students with learning difficulties, especially in regions where indigenous languages dominate.
8. **Complex Interfaces:** Many apps are not user-friendly for students with cognitive impairments, relying heavily on text, symbols, or navigation patterns that are not intuitive.
9. **Lack of Government Support:** Public investment in assistive technologies and inclusive mobile learning is minimal.
10. **Low Parental Awareness:** Many parents are unaware of how to support children with learning disabilities using digital tools.
11. **Language and Cultural Disconnect:** Mobile apps developed abroad may lack cultural relevance or sensitivity to local learning contexts.

Prospects of mobile applications in literacy development in Nigeria

The future of education in Nigeria is likely to be increasingly shaped by mobile technology. As mobile apps continue to evolve and improve, they will play an even greater role in addressing educational challenges and driving innovation in teaching and learning. The integration of artificial intelligence, machine learning, and augmented reality into educational apps holds promise for creating more immersive and personalized learning experiences. Additionally, as digital literacy improves and access to technology expands, mobile apps will become an even more powerful tool for empowering educators and students alike. The successful implementation of use of mobile apps and other related educational technologies for pedagogy in Nigeria would require collective efforts of stakeholders in education including parents, government, teachers, policy makers and private organizations. Hayhoe (2023) stated that smooth use of mobile technology for learning is dependent on schools having the infrastructure, inspiration, capability and opportunities for innovation. The leadership structure of educational institutions is also critical to implement mobile apps pedagogy. Schools need to be led by persons who understand the importance of digital technology in education Owusu (2022). Government has to increase funding for education, and also supervision to ensure transparency in usage of allocated funds. This would go a long way to assist schools particularly public schools to acquire the necessary facilities and educational technologies for effective teaching and learning.

There is need for provision of conducive environment that supports the use of technology in education. Educational institutions should conduct trainings and retraining of staff to improve their digital skills, while adequate IT experts should be engaged to support the use of technologies in schools. Management of schools should provide alternate source of power supply for steady supply of power for digital learning. To bridge the digital gap in learning, efforts should be made to ensure the provision of modern technologies to schools both in rural and urban areas. Students with learning disabilities should be motivated to create some of the needed learning technologies to mitigate the problem of cost, in addition to provision of subsidy on mobile learning devices (Owusu, 2022). Education authorities should make it mandatory for educational institutions to adopt and integrate learning technologies such as mobile phones in the teaching and learning process to improve the general quality of education in Nigeria. Also, regulatory bodies like the National University commission (NUC) and National Board for Technical Education (NBTE) should ensure to include the availability of technologies in schools as a prerequisite for accreditation or licensing. Furthermore, there is need for steady review of curriculum at all levels of education in line with the changing trends in education. This would assist schools and educators to integrate the use of relevant technologies in teaching and learning (Edeh, 2024).

Conclusion

Mobile applications hold great promise for enhancing literacy among students with learning disabilities in Nigeria. In a country like Nigeria, where educational inequalities remain stark especially for students with learning disabilities, mobile applications offer not just a technological solution, but a transformative opportunity. While challenges such as digital access, cost, and teacher preparedness persist, the potential of mobile apps to foster inclusive literacy cannot be overstated. Mobile learning platforms, when designed with accessibility in mind, can empower learners with disabilities by offering flexibility, personalization, and multisensory engagement that traditional classrooms often fail to provide. More importantly, these tools can support the development of foundational literacy skills in a manner that respects individual learning differences. Conclusively, mobile applications should no longer be viewed as supplementary tools, but as essential components of inclusive education in Nigeria. In view of the foregoing, the following suggestions are put forward:

1. Literacy apps should include content in Nigeria's major indigenous languages and culturally relevant materials, making learning more accessible and meaningful for students with diverse linguistic backgrounds.
2. Teachers should receive continuous professional development on how to effectively integrate mobile apps into their literacy instruction, particularly for students with special learning needs.
3. The Nigerian government should integrate mobile-assisted learning into national education policies, specifically targeting learners with disabilities, and provide subsidies or grants to support access to assistive mobile technologies in public schools.

Reference

- Ahmed, T.M. (2023). Education and National Development in Nigeria. *Journal of social science. education*, 10:35-46.
- Aina, J. K. (2025). Mobile phone usage in higher education among pre-service teachers in Nigeria: A qualitative study. *Advances in Mobile Learning Educational Research*, 5(1), 1331–1343.
- Akpan, J., & Beard, L. (2023). Overview of Assistive Technology Possibilities for Teachers to devise for students with disabilities. Proceedings of the Current Trends in Information Technology 2023 Conference, Dubai, 11-12 December 2023. New Jersey: IEEE.
- Al-Mubarak, A. A., & AlQahtani, A. A. (2024). Enhancing language skills of individuals with intellectual disabilities through mobile applications. *Journal of Advanced Learning and Human Science Studies*, 3(2), 87–102.
- Charland, A., & Leroux, B. (2021). Mobile application development: Web vs. native. *Communications of the ACM*, 54(5), 49–53.
- Edeh, M. O. (2024). Opportunities and challenges of the use of mobile phone technology in teaching and learning in Nigeria- A Review. *International Journal of Research in Engineering and Innovation*, 3 (6), 352-358
- Edusko, A. F. (2024). The impact of technology on education in Nigeria: Benefits and challenges. *Universal Journal of Educational Research*, 1(2), 113-118.
- Foley, A. R., & Masingila, J. O. (2024). The use of mobile devices as assistive technology in education. *Global journal of scientific education*, 5 (4), 98 – 113.
- Hayhoe, S. (2023). A review of the literature on the use of mobile tablet computing as inclusive education tool. *Journal of Chemistry education*, 92 (87), 1696–1699.
- Ishola, A. 1., Tolorunleke, E. A., Mohammed, A. D. & Adeyemo, O. O. (2021). Use of mobile device as an assistive technology for learning among students with special needs. *Ajstme*, 7(2), 42 – 47.
- Itedjere, E. C. (2025). Impact of mobile learning on academic performance in Nigerian secondary schools. *International Journal of Arts and Humanities*, 13(1), 75–89.
- Jack, M. O., (2023). Benefits of effective utilization of mobile technologies and inquiry-based teaching methods in University of Ilorin, Nigeria. *International Review of Research in Open and Distance Learning*, 13(3):277-296.

- Lee, I., & Suh, A. (2020). Integrating AI into mobile applications. *Journal of business horizons*, 63(4), 469–479.
- Narasimhan, T. E. & Axel, M. E. (2022). Making mobile phones and services accessible for persons with disabilities. India: A joint report of ITU – The International Telecommunication Union and G3ict – The global initiative for inclusive ICTs.
- Oliveira, T., Thomas, M., & Espadanal, M. (2023). Assessing the determinants of cloud computing adoption: An analysis of the manufacturing and services sectors. *Information & Management*, 51(5), 497–510.
- Omeni, C. (2023). The impact of telecom expansion on education and e-learning in Nigeria. *LinkedIn Pulse*. <https://www.linkedin.com/pulse/impact-telecom-expansion-education-e-learning-nigeria-christian-omeni-44ayf>
- Owusu, K. (2022). The ideal OP app: Six features for creating the best literacy learning app for learners that need more. *Medium*. <https://medium.com/@mrkowusu/the-ideal-op-app-6-features-for-creating-the-best-literacy-learning-app-for-learners-that-need-f9e0263fb3ec>
- Shahrokni, H., Yusof, N. M., & Farid, M. (2024). Mobile application security: Best practices and risk management. *International Journal of Computer Applications*, 102(12), 1–6.
- Shaw, N. & Sergueeva, K. (2019). "The non-monetary benefits of mobile commerce: Extending UTAUT2 with perceived value". *International Journal of Information Management*. 45(18), 44–55.
- Silvia, C. F. and Gilmara, T.B. (2024). Considerations on the Use of Mobile Phones in Educational Context. *International Journal on new trends in education and their implications*, 5 (1):1-10.
- Statista. (2025). Global consumer spending on mobile apps from 2019 to 2024. Retrieved from <https://www.statista.com>.
- Traxler, S. A., (2022). The impact of mobile devices for learning in higher education institutions: Nigerian universities case study. *International Journal of Modern Education and Computer Science*, 8(8), 43–50.
- UNESCO. (2023, April 24). *BioSave App* [Mobile application project]. UNESCO. Last update 24 April 2023.

INNOVATING SCHOOL-COMMUNITY PARTNERSHIP IN COMBATING SECURITY CHALLENGES IN NIGERIAN TERTIARY INSTITUTIONS IN THE 21ST CENTURY.

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Abstract

Security challenges have become a major concern in Nigerian tertiary institutions in the 21st century, threatening academic stability, students' welfare, institutional development and national peace. Incidents such as cultism, kidnapping, armed robbery, cybercrime, sexual harassment, drug abuse and violent protests have continued to undermine the educational system and create fear within campuses and surrounding communities. This opinion paper examines the importance of innovating school-community partnership as a strategic approach to combating security challenges in Nigerian tertiary institutions. The paper argues that effective collaboration between schools, host communities, parents, security agencies, traditional rulers, religious leaders and other stakeholders can significantly improve campus security and promote peaceful coexistence. The paper further highlights innovative strategies such as community-based security initiatives, intelligence sharing, security awareness programmes, digital surveillance systems and public-private partnerships in strengthening institutional safety. Challenges affecting effective school-community partnership, including inadequate funding, poor communication, corruption and lack of trust, were also discussed. The paper concludes that sustainable security in tertiary institutions cannot be achieved through institutional efforts alone but through collective responsibility and active community participation. It therefore recommends stronger collaboration among stakeholders, increased investment in security infrastructure, adoption of modern technology and continuous sensitization programmes to ensure safer and more conducive learning environments in Nigerian tertiary institutions.

Key words: School, community, partnership, security, challenges and tertiary institutions.

Introduction

Education remains one of the most important instruments for national development, social transformation and human capital advancement in every society. Tertiary institutions such as universities, polytechnics and colleges of education are expected to provide quality teaching, research and community service that contribute to the political, economic and technological growth of a nation (Anipi et al., 2023). In Nigeria, tertiary institutions play a critical role in producing skilled manpower, promoting innovation and fostering national unity. However, the achievement of these objectives has been greatly threatened by increasing security challenges across campuses in the 21st century. In recent years, Nigerian tertiary institutions have experienced various forms of insecurity, including cultism, kidnapping, armed robbery, cybercrime, sexual harassment, drug abuse, violent protests and destruction of institutional properties (Olofu et al., 2024). These security challenges have created fear, disrupted academic activities, endangered the lives of students and staff and weakened the overall learning environment. In some institutions, cases of student clashes, attacks by criminal groups and conflicts between host communities and institutions have negatively affected peace and stability on campuses (Akpama et al., 2017). The growing rate of insecurity has therefore become a serious concern to educational administrators, government agencies, parents and the society at large.

The persistence of these security challenges has revealed that institutional security efforts alone may not be sufficient in addressing the problem. Traditionally, many tertiary institutions relied mainly on internal

security personnel and law enforcement agencies for campus protection. However, the dynamic nature of modern security threats in the 21st century requires more innovative, collaborative and community-driven approaches (Anyadike et al., 2024). This has made school-community partnership increasingly important in combating insecurity within and around tertiary institutions. School-community partnership refers to the cooperative relationship between educational institutions and members of the host community in promoting educational development, peace and social welfare. Such partnership involves collaboration among school authorities, parents, students, community leaders, security agencies, alumni associations, religious organizations and other relevant stakeholders in addressing common challenges affecting educational institutions (Ubana et al., 2023). Effective partnership encourages information sharing, collective responsibility, trust building and active participation in maintaining security and order within campuses. Innovating school-community partnership in the modern era requires the adoption of new strategies and approaches that respond to emerging security realities. These include the use of digital surveillance technologies, community policing initiatives, security awareness programmes, intelligence gathering systems, conflict resolution mechanisms and stronger collaboration with local stakeholders (Oroka et al., (2024). Through these innovative measures, tertiary institutions and their host communities can work together to identify potential threats, prevent criminal activities and create safer learning environments for students and staff.

Despite the importance of school-community partnership, several factors continue to hinder its effectiveness in Nigeria. These include inadequate funding, poor communication, lack of trust between institutions and host communities, corruption, weak policy implementation and limited community involvement in institutional affairs (Oboqua et al., 2017). If these challenges are not properly addressed, insecurity may continue to threaten the stability and development of tertiary education in Nigeria. It is against this background that this opinion paper examines innovative school-community partnership as a strategy for combating security challenges in Nigerian tertiary institutions in the 21st century. The paper highlights the nature of security challenges confronting tertiary institutions, the need for collaborative security management and the innovative strategies that can strengthen partnership between schools and communities in ensuring sustainable peace and safety within Nigerian campuses.

Concept of school-community partnership

School-community partnership refers to the collaborative relationship that exists between educational institutions and members of the host community for the purpose of achieving educational goals, promoting social development and ensuring effective school administration. It involves the active participation of stakeholders such as parents, teachers, school administrators, community leaders, alumni associations, religious bodies, non-governmental organizations and government agencies in supporting the activities and development of schools (Oboqua et al., 2017). The concept is based on the understanding that education is a shared responsibility that requires the combined efforts of both the school and the society. The school and the community are closely interconnected because schools operate within communities and are influenced by the social, cultural, political and economic realities of their environment. As such, effective educational development cannot be achieved without cooperation between the school and the community. Nakpodia (2023) explained that the school is an integral part of the community and that the goals of education can only be achieved through cordial cooperation between schools and community members. Similarly, Obiweluozor and Osagiobare (2021) stated that modern educational management requires participatory, cooperative and collaborative relationships between schools and their host communities in order to facilitate effective learning and social development. School-community partnership has also been described as a process through which schools and communities share responsibilities, resources, decision-making and problem-solving mechanisms for the improvement of educational outcomes. This partnership encourages mutual understanding, trust, accountability and collective commitment toward achieving educational objectives. According to Shittu, Idowu and Adedapo (2022), school-community partnership promotes quality education delivery by creating a supportive environment where community leaders and school authorities work together for effective school management and students' development.

In Nigeria, the concept of school-community partnership gained greater attention due to the increasing realization that government alone cannot adequately fund and manage educational institutions. The National Policy on Education encourages the involvement of communities, private individuals and voluntary organizations in the establishment and management of schools. Olanrele and Ronke (2022) observed that the growing demand for education and inadequate government resources have made community participation necessary in supporting educational institutions and ensuring sustainable development. Consequently, communities now contribute to school development through the provision of infrastructure, security support, monitoring of school activities, financial assistance and participation in school governance. School-community partnership also involves the creation of positive relationships that enhance teaching, learning and students' welfare. Ayeni (2022) noted that effective partnership between schools and communities contributes to quality assurance in education by improving instructional management, resource provision and students' academic performance. In the same vein, Nwankwo and Nnorom (2024) emphasized that school-community relationship promotes quality assurance practices through active involvement of parents, old students' associations, advisory committees and other stakeholders in school administration. Furthermore, school-community partnership plays a significant role in maintaining peace, discipline and security within educational institutions (Oboqua et al., 2018). In contemporary Nigerian society where insecurity has become a major challenge, schools require the cooperation of host communities and security agencies to address issues such as cultism, kidnapping, drug abuse, cybercrime and violent conflicts. Matthew (2020) argued that mutual school-community relationship is necessary for effective school management and prevention of social problems affecting educational institutions in Nigeria. Through effective collaboration, communities can assist schools in intelligence gathering, conflict resolution and protection of lives and property.

The concept of school-community partnership in the 21st century has expanded beyond traditional parent-teacher relationships to include broader collaboration with industries, civil society organizations, security agencies and private organizations. Public-private partnerships, for instance, have become important in improving educational funding, infrastructure and institutional sustainability. Enyia and Emelah (2023) observed that partnership between government and private organizations can enhance sustainable educational development and improve the quality of educational services in Nigeria. Despite its importance, effective school-community partnership in Nigeria still faces several challenges, including inadequate funding, lack of trust between schools and communities, poor communication, political interference and weak policy implementation (Bessong et al., 2018). Nevertheless, the growing complexity of educational and security challenges in Nigerian tertiary institutions makes school-community partnership increasingly relevant. Through active participation, mutual cooperation and innovative strategies, schools and communities can work together to create safe, peaceful and conducive learning environments for sustainable educational development.

Security challenges in Nigerian tertiary institutions in the 21st Century

The 21st century has witnessed increasing security challenges across Nigerian tertiary institutions, posing serious threats to teaching, learning, research activities and institutional development. Tertiary institutions, which are expected to serve as centres for intellectual growth, innovation and national development, have increasingly become vulnerable to different forms of insecurity. These security challenges have negatively affected students, staff, administrators and host communities, thereby creating fear, disrupting academic calendars and weakening the quality of higher education in Nigeria. Security challenges in tertiary institutions refer to various forms of threats, violence, criminal activities and unsafe conditions that hinder the peaceful operation of educational institutions. In Nigeria, insecurity within campuses has become more complex due to social, economic, political and technological changes associated with the 21st century. According to Ekundayo and Alonge (2020), insecurity in Nigerian tertiary institutions has become a major obstacle to effective educational administration and students' academic performance. The authors noted that the increasing rate of campus violence, cultism and criminal activities has created unstable learning environments in many higher institutions. One of the most common security challenges confronting Nigerian tertiary institutions is cultism and gang-related violence. Cultism involves the formation and operation of secret groups that engage in

violent activities such as intimidation, assault, killings, extortion and destruction of property. Cult-related activities have continued to threaten peace and security in many Nigerian universities and polytechnics. Nnam, Ajah and Nwajuiba (2019) observed that cultism has contributed significantly to insecurity, fear and moral decadence among students in Nigerian tertiary institutions. Cult clashes often result in loss of lives, disruption of academic activities and destruction of institutional facilities. Kidnapping and armed robbery have also emerged as serious security threats in tertiary institutions, particularly in institutions located in insecure regions of the country. Students, lecturers and institutional administrators have become targets of kidnappers and criminal gangs seeking financial gain. In some cases, armed robbers attack students in hostels and off-campus residences, leading to injuries, deaths and loss of property. Ojedokun and Aderinto (2015) noted that insecurity in higher institutions has increasingly exposed students to violent crimes and psychological trauma, thereby affecting their concentration and academic productivity.

Another growing security challenge in Nigerian tertiary institutions is cybercrime and internet fraud. The advancement of information and communication technology in the 21st century has exposed many students to cyber-related crimes such as online fraud, identity theft, hacking and cyberbullying. The phenomenon popularly referred to as “Yahoo Yahoo” has become common among some Nigerian youths, including undergraduates. Aransiola and Asindemade (2021) explained that unemployment, peer pressure and materialism have contributed to the increasing involvement of youths in cybercrime activities. Cybercrime not only damages the image of institutions but also exposes students to criminal networks and unethical practices.

Drug abuse and substance misuse among students constitute another major security challenge in tertiary institutions. The abuse of hard drugs and alcohol has been linked to violent behaviour, criminal activities, mental health disorders and poor academic performance among students. Many cases of campus violence, rape, cultism and student unrest are often associated with substance abuse. According to Adeyemo, Ohaeri and Omoegun (2021), drug abuse among undergraduates has become a major social problem affecting discipline, security and students’ well-being in Nigerian higher institutions.

Sexual harassment and gender-based violence are equally serious security concerns in Nigerian tertiary institutions. Female students, in particular, are often exposed to sexual exploitation, harassment and abuse by fellow students and sometimes by lecturers or other institutional staff. These acts violate students’ rights, create emotional trauma and negatively affect academic performance. Ogunode and Musa (2020) noted that sexual harassment has become one of the emerging social and security challenges affecting the moral and academic environment of tertiary institutions in Nigeria. Student unrest and violent protests have also contributed to insecurity in Nigerian tertiary institutions. Protests often arise from issues such as increase in tuition fees, poor welfare conditions, inadequate infrastructure, unstable electricity supply and government policies affecting education. While peaceful protests are part of democratic expression, some demonstrations become violent and lead to destruction of institutional property, clashes with security agencies and suspension of academic activities. Ajayi and Ekundayo (2020) argued that poor funding and ineffective educational policies are major factors contributing to student unrest in Nigerian universities.

Furthermore, terrorism, banditry and attacks by external criminal groups have increasingly affected tertiary institutions in some parts of Nigeria. In recent years, there have been reports of attacks on schools and abduction of students by armed groups, particularly in Northern Nigeria (Bessong et al., 2023). These incidents have heightened fear and insecurity within educational institutions and have forced some schools to suspend academic activities temporarily. The increasing insecurity around campuses has therefore raised concerns about the safety of students and staff across the country. Poor security infrastructure and weak institutional security systems have further worsened security challenges in tertiary institutions (Acha et al., 2024). Many institutions lack modern surveillance systems, adequate lighting, trained security personnel and effective emergency response mechanisms. In addition, overcrowded hostels, porous campus environments and poor collaboration between schools and host communities often create opportunities for criminal activities. Ugwuanyi and Chukwuemeka (2022) observed that inadequate security facilities and poor institutional management contribute significantly to rising insecurity in Nigerian higher institutions. The implications of insecurity in tertiary institutions are

enormous. Security challenges disrupt academic activities, reduce students' academic performance, discourage foreign investment in education and damage the reputation of institutions. Insecurity also creates psychological fear, anxiety and trauma among students and staff, thereby affecting effective teaching and learning. Moreover, persistent insecurity may lead to closure of institutions, loss of lives and decline in national educational development.

In view of these challenges, there is an urgent need for innovative and collaborative approaches toward improving security in Nigerian tertiary institutions. Effective partnership between schools, host communities, parents, security agencies and other stakeholders has become essential in combating insecurity and ensuring safe learning environments in the 21st century.

Need for innovative school-community partnership in Nigeria

The increasing rate of insecurity in Nigerian tertiary institutions has made innovative school-community partnership a necessity in the 21st century. Tertiary institutions are expected to provide safe and conducive environments for teaching, learning, research and character development. However, persistent security challenges such as cultism, kidnapping, cybercrime, drug abuse, violent protests and armed attacks have continued to threaten the stability and effectiveness of higher education in Nigeria. These challenges have shown that school authorities alone cannot effectively manage campus security without the support and active involvement of the host communities and other stakeholders. Consequently, innovative school-community partnership has become essential for combating insecurity and promoting sustainable educational development. School-community partnership promotes collective responsibility in addressing security challenges affecting tertiary institutions. Security is no longer viewed as the sole responsibility of institutional management or government security agencies alone. Rather, it requires the active participation of students, parents, community leaders, alumni associations, religious bodies, traditional rulers and local residents. According to Ayeni (2022), effective school-community partnership strengthens cooperation and shared commitment toward achieving educational goals and maintaining peaceful school environments. When communities actively participate in institutional affairs, they become more willing to support security initiatives and protect educational facilities from criminal activities.

Innovative school-community partnership is necessary because many security threats affecting tertiary institutions originate from the larger society and surrounding communities. Criminal groups often exploit weak relationships between institutions and host communities to perpetrate crimes such as robbery, kidnapping and cult-related violence. Through effective partnership, communities can assist institutions in intelligence gathering, crime prevention and identification of suspicious activities around campuses. Nakpodia (2023) observed that cordial school-community relationship enhances mutual trust and cooperation, thereby creating opportunities for communities to contribute positively to school development and security management. Furthermore, innovative school-community partnership is important for improving communication and information sharing among stakeholders. In many tertiary institutions, poor communication between school authorities and host communities has contributed to mistrust, conflicts and ineffective security management. Effective partnership encourages regular interaction, dialogue and collaboration between institutions and community members. Through security meetings, awareness programmes and community engagement activities, stakeholders can jointly identify security challenges and develop appropriate solutions. Nwankwo and Nnorom (2020) noted that effective school-community relationship improves participation, accountability and quality assurance in educational administration.

The need for innovative school-community partnership has also increased due to the changing nature of security threats in the digital age. The 21st century has witnessed the emergence of cybercrime, online fraud, cyberbullying and digital insecurity among students. Addressing these modern security challenges requires innovative strategies such as digital surveillance systems, social media monitoring, security awareness campaigns and technological collaboration between schools and communities. Ogunode and Musa (2020) explained that modern educational institutions require innovative security measures and stakeholder collaboration to respond effectively to emerging social and technological threats affecting students and institutions. In addition, innovative school-community partnership is

necessary for promoting peacebuilding and conflict resolution within tertiary institutions. Many conflicts in higher institutions arise from misunderstandings between students, school authorities and host communities. In some cases, disputes over land ownership, student behaviour and institutional policies have resulted in violence and destruction of property. Through effective partnership, community leaders, traditional rulers and religious organizations can mediate conflicts and promote peaceful coexistence between institutions and surrounding communities. Matthew (2020) emphasized that mutual school-community relationship is essential for maintaining social harmony and preventing crises in educational institutions.

Another important need for innovative school-community partnership is the improvement of students' welfare and moral development. Communities play a significant role in shaping the attitudes, values and behaviours of students. Through mentorship programmes, moral instruction, counselling services and community-based activities, stakeholders can help students develop positive behaviours and avoid involvement in criminal activities such as cultism, drug abuse and cybercrime (Olofu et al., 2024). Collaborative efforts between schools and communities therefore contribute to discipline, character formation and social responsibility among students. Innovative school-community partnership is equally important in mobilizing resources for institutional development and security improvement. Many Nigerian tertiary institutions face challenges such as inadequate funding, poor security infrastructure and shortage of security personnel. Through partnership with communities, private organizations, alumni associations and non-governmental organizations, institutions can access financial assistance, security equipment and infrastructural support needed to strengthen campus security. Bessong et al., (2024) and Enyia and Emelah (2023) observed that collaborative partnerships between educational institutions and external stakeholders contribute significantly to sustainable educational development in Nigeria. Moreover, effective school-community partnership helps to build trust and confidence between institutions and host communities. When communities are actively involved in institutional programmes and decision-making processes, they develop a sense of ownership and responsibility toward the protection of school facilities and maintenance of peace. This mutual trust reduces hostility, improves cooperation and strengthens institutional stability. Obiweleozor and Osagiobare (2021) stated that effective school-community relationship enhances social integration, educational development and peaceful coexistence within the society.

Innovative strategies for school-community partnership

Enyia & Emelah (2023) and Obiweleozor & Osagiobare (2021) listed the following as innovative strategies for strengthening school-community partnership in combating security challenges in Nigerian tertiary institutions in the 21st century:

1. Establishment of community-based security committees: Schools should establish security committees comprising school administrators, students, parents, community leaders, religious organizations and security personnel to coordinate security activities and address emerging threats.
2. Adoption of community policing strategies: Tertiary institutions should collaborate with local vigilante groups, police and host communities to improve intelligence gathering, crime detection and prevention within and around campuses.
3. Integration of information and communication technology (ICT): The use of CCTV cameras, biometric systems, drones, emergency alert systems and digital surveillance technologies can strengthen campus security and improve monitoring of activities.
4. Intelligence sharing between schools and communities: Effective communication channels should be created to enable community members, students and staff report suspicious activities and security threats promptly.
5. Collaboration with traditional and religious leaders: Traditional rulers and religious leaders should be involved in peacebuilding, conflict resolution and moral orientation programmes for students and youths.

6. Student participation in security management: Students should be encouraged to participate in campus security initiatives through peer monitoring groups, volunteer safety programmes and student security forums.
7. Provision of adequate security infrastructure: Institutions should improve street lighting, perimeter fencing, hostel security systems and emergency response facilities to reduce vulnerability to crime.
8. Regular security training for staff and students: Security personnel, lecturers and students should undergo periodic training on emergency response, conflict management and crisis prevention.
9. Strengthening school-community dialogue: Regular meetings and interactive sessions between school authorities and host communities should be encouraged to improve trust, understanding and cooperation.
10. Implementation of effective security policies: Government and institutional authorities should formulate and enforce clear security policies aimed at protecting lives and property within tertiary institutions.

Challenges affecting effective school-community partnership

According to Nakpodia (2023) and Ugwuanyi and Chukwuemeka (2022) the following are the major challenges affecting effective school-community partnership in combating security challenges in Nigerian tertiary institutions:

1. Inadequate funding: Many tertiary institutions lack sufficient financial resources to support effective collaboration with host communities, organize security programmes and provide modern security infrastructure.
2. Lack of trust between schools and host communities: Mutual suspicion and mistrust between institutional authorities and community members often weaken cooperation and reduce community participation in security matters.
3. Poor communication channels: Ineffective communication between schools and communities' limits information sharing, intelligence gathering and timely response to security threats.
4. Corruption and mismanagement: Corruption among institutional administrators, security personnel and community leaders can undermine security efforts and weaken partnership initiatives.
5. Political interference: Political influence in institutional administration and community affairs sometimes affects fair decision-making and disrupts collaborative security efforts.
6. Weak security infrastructure: Many tertiary institutions lack adequate security facilities such as CCTV cameras, perimeter fencing, street lighting and emergency response systems.
7. Poor implementation of security policies: Existing security policies and regulations are often poorly implemented due to weak monitoring systems and lack of commitment by authorities.
8. Inadequate security personnel: Many institutions suffer from shortage of trained security personnel needed to maintain effective surveillance and respond to emergencies.
9. Technological challenges: Limited access to modern security technologies and poor maintenance of available equipment hinder effective security management in tertiary institutions.
10. Rapid growth of student population: Increasing student enrolment without corresponding expansion of security facilities and infrastructure puts pressure on institutional security systems.
11. Weak government support: Insufficient government assistance in funding, policy implementation and provision of security facilities affects effective school-community partnership.
12. Poor maintenance culture: Neglect and poor maintenance of security facilities often reduce the effectiveness of security systems within tertiary institutions.

Conclusion and suggestions

Security challenges in Nigerian tertiary institutions have become a serious threat to educational development, academic stability and national progress in the 21st century. Problems such as cultism, kidnapping, cybercrime, drug abuse, sexual harassment, violent protests and other criminal activities have continued to disrupt teaching and learning while exposing students and staff to fear and insecurity. These

challenges have shown that institutional efforts alone are insufficient in addressing the growing complexity of insecurity within campuses and surrounding communities. This paper has established that innovative school-community partnership remains a vital strategy for combating insecurity in Nigerian tertiary institutions. Effective collaboration among school authorities, host communities, parents, students, traditional rulers, religious organizations, security agencies and other stakeholders can significantly improve campus security and promote peaceful coexistence. Through community participation, intelligence sharing, security awareness programmes, technological innovation and conflict resolution mechanisms, tertiary institutions can create safer and more conducive learning environments. The paper further revealed that despite the numerous benefits of school-community partnership, challenges such as inadequate funding, poor communication, corruption, mistrust and weak policy implementation continue to hinder effective collaboration. Nevertheless, the prospects of innovative partnership approaches remain promising in promoting sustainable security management and educational development in Nigeria. Therefore, there is a need for stronger commitment and collective responsibility among all stakeholders toward ensuring the safety and stability of tertiary institutions in the country.

In view of the foregoing, the following suggestions are put forward:

1. Tertiary institutions should strengthen collaboration with host communities in addressing security challenges within and around campuses.
2. Government should provide adequate funding for security infrastructure, surveillance technologies and modern security equipment in tertiary institutions.
3. Government should formulate policies that promote sustainable school-community partnership for effective security management in Nigerian tertiary institutions.
4. Effective communication channels should be established between schools and host communities to improve intelligence sharing and early detection of security threats.
5. Government and institutional authorities should ensure effective implementation of security policies and strict punishment for offenders involved in criminal activities.

References

- Acha, J.O., Osagie, A.O., Bessong, C.D., & Omang, T.N. (2024). Motivational incentives and job performance of personnel of Cross River State agency for mass literacy, adult and non-formal education. *Journal of Research in Adult and Continuing Education*, 3 (2), 74-85.
- Adeyemo, F.O., Ohaeri, B.M., & Omoegun, M.O. (2021). Drug abuse and behavioural problems among undergraduate students in Nigerian universities. *Nigerian Journal of Social Psychology*, 4 (2), 88–97.
- Ajayi, I.A., & Ekundayo, H.T. (2020). Contemporary issues in educational management in Nigeria. Lagos: Bolabay Publications.
- Akpama, S.I., Bessong, C.D., & Bessong, N.O. (2017). Attainment of the sustainable development goals (sdgs): The relevance of adult basic education. *Journal of Faculty of Education, University of Calabar*, 13 (1), 13-19.
- Anipi, G.E., Ojong, A.R., Bessong, C.D. & Jenny, G.M. (2023). Community conservation communication strategies and environmental protection in Central Senatorial District of Cross River State. *Unilorin Journal of Lifelong Education*, 7 (2), 219-230.
- Anyadike, N. Ogiri, H.K. Agbo, S.U. Bessong, N.O. Bessong, C.D. Godwin, O.I. Nkmjike, O., Onyinye, E., Onyeodiri, I.C., Okengwu, M., Nwabuko, L.O., Otu, M.S., Victoria-Aigbodion, V. & Ndile, R. (2024). Cognitive and behavioural approaches to occupational stress management: The case of adult education administrative workers in Nigeria. *Medicine*, 103 (4), 1-7.
- Aransiola, J.O., & Asindemade, S.O. (2021). Understanding cybercrime perpetrators and the strategies they employ in Nigeria. *Cyberpsychology, Behavior and Social Networking*, 14(12), 759–763.

- Ayeni, A.J. (2022). Improving school and community partnership for sustainable quality assurance in secondary schools in Nigeria. *International Journal of Research Studies in Education*, 1 (2), 95–102.
- Bessong, C.D., Bessong, N.O. & Oboqua, E.D. (2018). United nations development programmes and economic empowerment of rural women in Northern Cross River State, Nigeria. *International Journal of Contemporary Social Science Education*, 1 (1), 193-201.
- Bessong, C.D., Bessong, N.O. & Oboqua, E.D. (2024). Conflict management strategies in the resolution of communal clashes in Cross River Central Senatorial District. *Journal of Continuing and Development Education*. 4 (1), 93-102.
- Bessong, N.O., Bessong, C.D. & Oboqua, E.D. (2023). The monitoring of implementation of adult basic literacy programme in Northern Cross River State. *Journal of Research in Mathematics and Computer Science Education (JRMCSSE)*, 1 (1), 96-102.
- Ekundayo, H.T., & Alonge, H.O. (2020). Insecurity and educational administration in Nigerian tertiary institutions. *International Journal of Educational Administration and Policy Studies*, 12(1), 14–23.
- Enyia, C.D., & Emelah, G.E. (2023). Public-private partnership in education and sustainable development in Nigeria. *Nigerian Academy of Management Journal*, 18 (1), 116–120.
- Matthew, I.A. (2020). Quest for mutual school-community relationship in Nigeria: The critical centrifugal forces. *Jurnal Educative: Journal of Educational Studies*, 5 (1), 100–111.
- Nakpodia, E.D. (2023). School community relations as panacea for community involvement in secondary schools' development in Nigeria. *Journal of Research in Education and Society*, 4 (1), 44–52.
- Nnam, M.U., Ajah, B.O., & Nwajuiba, C.U. (2019). Social determinants of cultism among students in tertiary institutions in Nigeria. *International Journal of Criminal Justice Sciences*, 14 (2), 123–136.
- Nwankwo, B.C., & Nnorom, S.U. (2024). School community relationship: Propulsion for quality assurance practices in secondary school in Nigeria. *European Journal of Education Studies*, 7 (7), 192–204.
- Obiweluozor, N., & Osaghiobare, O.E. (2021). Creating an effective school-community based relationship. *African Journal of Educational Management*, 17 (2), 149–160.
- Oboqua, E.D., Bessong, C.D., & Bessong, N.O. (2017). Corporate social responsibilities of granite companies in educational facilities and portable water and implementation of community development projects in selected areas of Cross River State, Nigeria. *Special Needs Education, Journal of the Department of Special Education*, 3, 75-88.
- Oboqua, E.D., Bessong, C.D., & Bessong, N.O. (2017). Community education programmes and poverty reduction among rural farmers in southern Cross River State, Nigeria. *International Journal of Continuing Education and Development Studies*, 4 (1), 72-78.
- Oboqua, E.D., Bessong, C.D., & Bessong, N.O. (2018). Attainment of the millennium development goals in the provision of improved sanitation in Cross River State, Nigeria. *International Journal of Contemporary Social Science Education*, 1 (1), 129-134.
- Ogunode, N.J., & Musa, A. (2020). Sexual harassment in Nigerian higher institutions and its implications for educational development. *International Journal on Integrated Education*, 3 (10), 24–31.
- Ojedokun, A. O., & Aderinto, A. A. (2015). Campus violence and students' vulnerability to crime in Nigerian universities. *African Journal of Criminology and Justice Studies*, 8 (1), 1–15.
- Olanrele, O.F., & Ronke, A.I. (2022). Links and experience between institutions, industries and local community. *Mediterranean Journal of Social Sciences*, 2 (6), 85–92.
- Olofu, P.A., Bessong, C.D. & Usua, O.B. (2024). Homegrown school feeding programme and basic school students' enrollment and retention rate in Cross River State, Nigeria. *Inter-Disciplinary Journal of Science Education*, 5 (1), 80-89.
- Olofu, P.A., Bessong, C.D & Rarosue, F.V.B. (2024). Simulating effective administration of higher education in Nigeria through strategic planning approach (SPA). *Inter-disciplinary Journal of Science Education*, 5 (2), 1-14.



- Oroka, O.V., Bessong, C.D., Bessong, N.O., Ewuru, A.A. & Olori, G.I. (2024). Effect of media literacy on entrepreneurial development of learners in adult and vocational education. *Journal of Media Literacy Education*, 16 (2), 61-70.
- Ubana, M.U., Asor, L.J., Acha, J.O., Aboukwen, A.A. & Bessong, C.D. (2023). Adult functional literacy in Nigeria: Delimas and developmental technicalities. *International Journal of Mass and Adult Literacy Education*, 1 (1), 1-10.
- Shittu, T.O., Idowu, O.K., & Adedapo, O.O. (2022). School-community partnership and quality education delivery among public senior secondary schools in Lagos State, Nigeria. *CMU Academy Journal of Management and Business Education*, 1 (2), 11–15.
- Ugwuanyi, C.S., & Chukwuemeka, E.J. (2022). Security management and sustainable administration of tertiary institutions in Nigeria. *Journal of Educational Leadership and Policy Studies*, 6 (1), 45–57.

LIFELONG LEARNING AND ENVIRONMENTAL SUSTAINABILITY

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Abstract

Environmental degradation resulting from human activities has become a major global concern, manifesting in challenges such as climate change, global warming, deforestation, biodiversity loss, pollution, flooding, desertification, erosion, waste management problems, and wildlife extinction. These environmental hazards threaten ecological balance, human well-being, and sustainable development. This paper examines the role of lifelong learning as a strategic tool for promoting environmental sustainability. It explores the concepts of lifelong learning and environmental sustainability, highlighting the goals, objectives, and structures of lifelong learning, particularly within the Nigerian context. The study identifies major environmental hazards in Nigeria and discusses their causes and consequences. It further analyzes how lifelong learning contributes to environmental sustainability through environmental awareness creation, community empowerment, promotion of green economies, support for the Sustainable Development Goals (SDGs), enhancement of adaptability and resilience, sustainable agriculture, waste management, tourism development, and poverty alleviation. The paper also examines challenges hindering the effective use of lifelong learning for environmental sustainability, including inadequate awareness, limited funding, insufficient institutional support, weak curriculum integration, inadequate teacher preparation, and learner disengagement. The study concludes that lifelong learning remains a vital mechanism for addressing contemporary environmental challenges and achieving sustainable development. It recommends increased government commitment, stakeholder collaboration, improved resource allocation, and innovative educational strategies to strengthen lifelong learning initiatives for environmental sustainability.

Keywords: Lifelong Learning, Environmental Sustainability, Environmental Hazards, Sustainable Development, Environmental Education, Nigeria.

Introduction

Over the years the world environment has been threatened by man's inordinate activities thereby resulting to environmental crisis. These environmental crises include; climate change, global warming, ozone layer depletion, deforestation desertification, waste management, oil spillage, flooding, acid rain, pollution, gas flaring, wildlife endangerment and extinction, population explosion, erosion, biodiversity loss, drought and greenhouse effect. These environmental hazards necessitated the global community to organize the first international conference on human environment held in Stockholm-Sweden in 1972 and later consolidated with the United Nation conference on "Environment and Development" in Rio-Brazil in 1992. Environmental issues today are becoming more alarming and of grave concern to the national regional and international organization. It is as a result of this that it has become a topical issue in global agenda (Anthony, Essien & Obi-Bessong 2016).

Man in his primitive stage with limited local technology had minimal interference with the environment. However, with the rapidly changing world where modern technology, globalization, growing polarization of societies. Artificial Intelligence (AI) is a tool for combating unethical practices (Ubana et al 2024). Harnessing security approach and artificial intelligence (AI) are tools to combat corrupt/unethical practices (Ubana et al 2024). Incorporating digital technology enhances adult literacy education programmes (Andong et al 2025). Social dynamics are reshaping every aspect of our lives leading to the destruction of the natural environment there is need for lifelong learning to solve the emerging problems (Ojule 2016). People need to learn throughout life. Education which start at birth and extends across the whole life span of an individual is required to enable people respond to different environmental hazards that are currently threatening the environment and creating disequilibrium in the existing environment. It is therefore hoped that with lifelong learning, awareness on environmental sustainability could be created for people of all ages – young and old, men and women adults and children.

The concept lifelong learning

Lifelong learning is the ongoing voluntary and self-motivated pursuit of knowledge for either personal or professional reasons throughout one's entire life span. It is the process of learning that spans throughout one's life time. Lifelong learning could also be seen as education for liberation, self-realization and self fulfilment. It is a development of human potential through a continuously supportive process which stimulates and empowers an individual to acquire all the knowledge, values, skills and understanding they will require throughout their life time and to apply them with confidence, creativity and enjoyment in all roles, circumstances and environment.

According to DVV (2012) lifelong learning is a process that involves purposive and directed learning with the aim of promoting autonomy of learning among the citizens as a measure to sustainable social development

The concept of environmental sustainability

The concept of sustainability emerged during the late 1980's as a unifying approach to concerns over the environment, economic, development and quality of life. It is an emerging doctrine which advocates that environmental protection and economic development should be complementary rather than antagonistic. It refers to the ability of the society, ecosystem or any ongoing system to continue to function without being forced into decline through exhaustion of key resources.

According to Anthony (2002) the concept of environmental sustainability arose out of the realization that man's exploitation of nature continues to have unintended but damaging impact on the environment. It is a state in which the demands placed on the environment can be met without reducing the capacity to allow all people to live well now and in future. It allows for the needs of man to be met without jeopardizing the ability of future generations to meet their needs. It is a development that meet the needs of the present generation without compromising the needs of the future generations to meet their own needs. It is a responsible interaction with the environment to avoid depletion or degradation of natural resources and allows for long term environmental quality (Anthony, Essien & Obi-Bessong 2016). Environmental education significantly promotes national development (Ntongha & Ubana 2026). Community environmental education is a significant instrument for environmental protection (Augustine et al 2025).

The goals and objectives of life-long learning

Life-long learning aims to foster continuous personal and professional growth by encouraging individuals to embrace learning throughout their lives. The goals of life-long learning according to UNESCO (2022) include:

- Personal development: life-long learning seeks to enhance self-awareness, build confidence and foster a positive attitude towards learning and personal growth.
- Professional Development: Life-long learning aims at equipping individuals with skills and knowledge needed to adapt to evolving job markets, advance their careers and remain competitive in their fields.

- **Social Development:** Life-long learning strives to equip individuals to take active participation in the societal issues by encouraging them to contribute to their communities and engage in civic life.

Objectives of Lifelong Learning

According to UNESCO 2023 the objectives of Life-long learning are as follows:

- To improve greater confidence: Life-long learning aims at improving the self-confidence of the learners. Continuous learning fosters a sense of achievement and boosts confidence in the individual.
- To improve personal growth of the learner: Continuous learning fosters self-awareness and personal development. It challenges the individual to come out of his comfort zone.
- To improve professional development: Life-long learning aim to equip individuals with skills and knowledge needed to adapt to the evolving job markets, advance their careers and remain competitive in their fields.
- To enhance adaptability: It helps individuals become more adaptable to change by fostering resilience and the ability to acquire new skills and knowledge.
- To improve employability: With continuous learning individuals are equipped with relevant skills and knowledge that makes them more attractive to employers and increase their career options.
- To foster creativity and innovation: Life-long learning encourages individuals to explore new ideas and approaches, fostering creativity and innovation in various aspects of their lives.
- To encourage self-directed learning: It emphasizes the importance of individuals taking ownership of their learning journey, fostering a sense of autonomy and motivation.
- To help develop future skills: Life-long learning focuses on developing the skills needed for the future, including digital literacy, critical thinking and problem solving.
- To ensure inclusive growth: It seeks to provide learning opportunities for all individuals, regardless of their background or circumstances ensuring equitable access to knowledge and skills.
- To promote mental wellbeing: Life-long learning can boost self-esteem, reduce stress and improve overall mental health.
- To strengthen communities: Life-long learning contributes to stronger and more vibrant communities since it promote active citizenship and social engagement.
- To improve the cognitive health of individuals: Engaging in life-long learning can have significant benefit for cognitive health.

The structure of Life-long learning

According to UNESCO (1975) the structure of lifelong learning refers to various functions which constitute the total framework within which the system of adult education and lifelong learning operates. It is concerned with the structural arrangements for the provision of lifelong learning services. The structures of lifelong learning programmes bring the nature and form of lifelong learning to the attention of all beneficiaries especially the disadvantaged and vulnerable groups. In Nigeria three types of structures are easily identifiable viz' government organizations, parastatals and voluntary organizations (Okukpon 2005).

In Nigeria and most developing countries lifelong learning programmes are provided and funded by the government. Government agencies such as adult and non-formal education unit within the ministry of education whose major objectives are educational are charged with the responsibility of providing lifelong learning.

Government parastatals are also saddled with the responsibility of providing lifelong learning in Nigeria. There are parastatals whose main function is to provide lifelong learning. These include, universities, colleges and centres of various educational establishment. The second category of parastatals provide lifelong learning practical. Example of these include the expanded programme on immunization

(EPI) family planning methods, oral rehydration therapy (ORT) and environmental education practices. These bodies promotes lifelong learning practices among their members. Family variables and deviant behaviour can positively or negatively influence social progress (Anake et al 2026). Personality traits and deviant behaviour tendencies among secondary school students can promote or destroy development in a country (Anake et al 2026).

Lifelong learning in Nigeria is also provided by voluntary organizations such as social clubs, religions organizations. The international council for adult education (ICAE) and the Nigerian National Council for Adult Education (NNCAE). These bodies work relentlessly to promote the growth of lifelong learning in Nigeria.

Environmental hazards in Nigeria

According to Mbalisi (2014) environmental hazards are changes or problems in the environment which affect the health and productivity of the environment and which in return affect human wellbeing. These problems according to him occur whenever there is a change in the quality of the environment. These changes greatly endanger the wellbeing of humans and the ecosystem. Mbalisi (2016), identified the following as environmental hazards:

Pollution: This is an undesirable change in the physical, chemical or biological characteristics of air, water and soil that may harmfully affect lives or create a potential health hazard on living organisms. Any substance (solid, liquid and gaseous) which tends to be injurious to the environment is known as a pollutant. There are four types of pollution viz: land or soil, water, air and noise pollution.

Deforestation: This is a wanton removal of the forest and other forms of vegetative cover from the site without replacement. It is a process of excessively cutting down of trees with replanting to replace the ones felled (Nzeneri 2010). There are two main factors responsible for deforestation viz: man-made and natural factors. The man made factors include; commercial agriculture, settlement, highway construction, urbanization, industrial expansion, fuel wood supply, timber extraction, high population growth, increase consumption rate, over grazing, bush burning and unsustainable farming practices among others. The natural factors on the other hand include drought, desertification, earthquakes and climate change. Deforestation has serious consequence to both man and the environment (Anthony 2012).

Biodiversity loss: Anijah Obi (2001) sees biodiversity as a variety of life-forms found on the planet earth. It refers to millions of plants, animals and micro organisms that lives on our planet. Biodiversity loss is the disappearance of these biological diversity, man is the architect of biodiversity loss. The excessive removal of species by man is done due to ignorance of the interrelationship between organisms in the ecosystem. The causes of biodiversity loss or depletion include destruction of the natural habitats for farming, industrial development, road construction, urban settlements, bush burning, hunting, timber extraction pollution etc. Biodiversity loss has serious health consequences to man and the ecosystem.

Acid rain: Acid rain or acid deposition is a broad term that includes any form of precipitation with acidic components. Such sulfuric or nitric acid that falls to the ground from the atmosphere in wet or dry forms. Acid rain results from the nitrogen and sulphur emitted through the burning of fossil fuels especially from power plants, manufacturers and the transportation sector. Acid rain damage trees, kills fishes and amphibious population in streams and lakes, causes skin cancer, corrosion of metals and fabric etc (Mbalisi 2016).

Climate change: This is a change in the global climate system as a result of the interaction between its components and are influenced by solar energy. It is a long term shifts in temperatures and weather patterns. Such shifts can be natural due to changes in the sun's activity or large volcanic eruptions. It is caused by green-house effect and ozone layer depletion. The impact of climate change include, rising temperature, extreme weather, rise in sea level ocean acidification, change in precipitation, ecosystem disruption threats to biodiversity, change in water availability, soil degradation and impacts on human health (Anthony and Awhen 2012).

Waste management: Waste management refers to the processes and actions involved in collecting, transporting, processing and disposing of waste materials with the goal of minimizing their negative impacts on health, the environment and aesthetics. It encompasses a wide range of activities including incineration, recycling, land fill disposal, waste include liquid gaseous and solid products of human activities regarded as useless or unwanted by the end users. Waste include garbage, rubbish, refuse, demolition and construction residues ashes abandon motor spare parts sewage residue chemicals etc. In Nigeria and most developing countries waste is not properly disposed. Waste is disposed at the market places, streets, roadsides, frontages of residential buildings, drainages and open places. Improper waste disposal could lead to environmental pollution, disease outbreak, gutter blockages and poor aesthetic of the environment (Akpama, Anthony & Osang 2005).

Erosion: Soil erosion is one of the major environmental problems facing Nigeria today and is the single most important type of land degradation in Nigeria. Erosion is the removal of the surface materials from the earth surface by water wind or waves. There is no state in the country that is not suffering from one type of erosion or the other and over 80% of the country is ravaged by erosion. There are many types of erosion namely; sheet erosion, rill erosion, gully erosion coastal or beach erosion and wind erosion (Anjah Obi 2001). Human activities such as commercial agriculture, deforestation, road construction, urban development help in stimulating erosion. Excessive erosion may result to desertification, decrease in agricultural productivity due to land degradation, sedimentation of waterways and ecological collapse (Wikipedia and free encyclopedia 2014). Provision of rural water services enhances community development (Ubana et al (2025).

Flooding: Flood is an environmental hazard as well as a socio-economic phenomenon. It refers to a rapid and extreme flow of water into a normally dry area. It is a body of water which rises to over flow land which is not normally submerged. Flood is caused by some anthropogenic factors such as drain failure, improper waste disposal practices, siltation of river channels etc. Flooding could lead to loss of lives, destruction of vegetation, building, disruption of socio-economic activities, displacement of people, loss of properties, contamination of food, water and the environment in general (Anijah-Obi 2001)

Drought: Drought is a prolonged dry period in the natural climate cycle that can occur anywhere in the world. It is a slow on-set of disaster characterized by the lack of precipitation resulting in water shortage. Drought occurs when evaporation and transpiration exceed precipitation for a considerable period. The consequences of drought include, water shortages, crop damages, reduction in stream flows, depletion of ground water and soil moisture, climate change and global warming.

Desertification: This refers to the diminution or destruction of the biological potential of land that ultimately leads to desert-like condition especially in the arid and semi-arid areas as a result of human activities and climatic change. It is observed in dry and fragile ecosystems. States such as Borno, Kebbi, Banchi, Taraba, Adamawa, Jigawa, Katina, Kano, Kaduna, Plateau, Sokoto, and Niger States that are located within the Sudan-Sahelian Savannah ecosystem are most affected by desertification. Desertification results in poor agricultural productivity thereby causing persistent food shortage and hunger, soil erosion, loss of organic matter, salinization and crusting, wildlife endangerment and extinction, degradation of live-stocks, reduction of photomass, biodiversity loss and forced movement of people from their original settlement.

Global warming: Global warming is the long-term heating of earth surface due to human activities, primarily burning of fossil fuel, which increases heat trapping greenhouse gas levels in earth's atmosphere. Global warming can lead to rise in sea level thereby threatening agricultural productivity and human settlements, change in the pattern of rainfall which could result to soil erosion, floods storms and droughts.

Ozone layer depletion: Ozone layer is a layer in the stratosphere which lies between ten to twenty-five miles above the earth. The layer protects us from harmful ultraviolet radiation. It prevents much of the sun's damaging ultraviolet (UV) radiation from reaching the surface of the planet. The ozone layer is destroyed by chemicals such as chlorine and bromine. Emission of industrial chemicals are major causes of ozone depletion. Chloral fluorocarbon (CFC) alone accounts for more than 80% of all ozone depleting chemicals. Other factors that poses serious threat to the ozone are deforestation, use of fertilizers and the use of fossil fuel. The effect of ozone depletion include; damage to human health, impact on water resources and aquatic life, impact on forest and wildlife, increase air pollution, weakening of industrial materials and global climate change.

Wildlife endangerment and extinction: Wildlife encompasses all living organisms that are not domesticated but live in their natural habitats. Wildlife endangerment refers to species at risk of extinction due to declining population or loss of critical habitat while wildlife extinction is the complete disappearance of a species. Human activities such as habitat destruction, logging, agriculture, bush burning, cultural practices, over grazing hunting, pollution, mining activities and climate change are the major drivers of wildlife endangerment and extinction (Anthony, Awah & Adigeh, 2024).

Greenhouse effect: Greenhouse effect refers to trapping of heat on the earth surface by some gases that allow heat from the sun to pass through them to the earth surface but prevent the heat on the earth's surface from escaping the earth. This result to global warming. Greenhouse effect is a natural and necessary process, however human activities especially burning of fossil fuel have increase the concentration of greenhouse gases in the atmosphere. Greenhouse gases enhance the greenhouse effect leading to warming of the planet and contribute to climate change (Mbalisi 2016).

The role of lifelong learning in environmental sustainability

Lifelong learning no doubt plays a significant role in sustaining the human environment. It foster awareness, promote sustainable practices, helps communities to address local challenges, empowers individuals with knowledge and skills needed for green jobs and green economy, encourage active participation of individuals in environmental issues and help them to make decision on environmental issues (UNSECO 2023).

Fostering Environmental awareness: Through lifelong learning individuals and groups can be educated about the inter-connectiveness of human actions and environmental wellbeing. Anthony and Essien (2018) opined that environmental awareness creation through the mass media could be a useful tool in sustainable management of forest resources. Awareness creation is necessary for creating a sense of responsibility and driving individuals and groups toward sustainability. Through lifelong learning individuals and group can learn about sustainable environmental practices such as proper waste management, wildlife conservation, biodiversity protection, afforestation and reforestation etc. with lifelong learning people could make informed decisions and adopt environmentally friendly behaviours.

Empowerment of Communities: Lifelong learning is vital in empowering communities to address local environmental problems by providing them with necessary knowledge and skills. Education as we all know is power, educating the local populace means empowering them to withstand any challenge facing them be it social, political or environmental issues. Lifelong learning empowers communities to take ownership of their environment and actively participate in all activities that would help to sustain the environment.

Supporting green economics: Lifelong learning ensures that individual and groups acquire the necessary competencies for green jobs such as renewable energy development, sustainable agricultural practices, sustainable harvesting of plant and animals species and environmental management. It contribute to environmental sustainability by providing the human capital needed for the greener future. Since the transition to green economy requires skilled workforce capable of working in sustainable industries

lifelong learning serves as a potent tool in providing such skills. Building digital literacy through social work education promotes sustainable development (Helen et al 2025).

Integrating with sustainable development goals (SDGs): Through lifelong learning individuals and groups could be linked to the united nations sustainable development goals, particularly SDGs 4,13 and 11. Lifelong learning assist people to acquire climate change literacy and empowers them to take climate action that could help them build a sustainable future by fostering understanding of climate change, renewable energy and sustainable practices.

It enhances adaptability and resilience: Lifelong learning promotes continuous skills development and adaptability that enable individuals to keep pace with new sustainable technologies and practices. This adaptability is very necessary in a world where sustainability challenges and solutions are constantly evolving. The knowledge acquired through lifelong learning educational programmes provide mid-career professionals with the knowledge to address real world environmental problems effectively.

Holistic problem solving: Issues of environmental sustainability are complete and interconnected thus they require holistic and interdisciplinary approaches. Lifelong learning encourages such approaches. It enables learners to understand and address the multifaceted nature of challenges of sustainability. With lifelong learning environmental issues such as waste and water management could be effectively managed.

Building a sustainable future: When lifelong learning is integrated with environmental sustainability it prepares the present and future generations to live sustainably. Lifelong learning encourages citizens to be responsible to avoid excessive consumption and degradation of our resource base and equip them to take practical steps towards sustainability. This approach ensures a sustainable future for all.

Sustainable agriculture: Through lifelong learning farmers could be taught on how to carry out sustainable farming techniques that will help to sustain the environment from depletion. Such techniques and methods include crop rotation, water conservation and organic farming to improve food security and protect natural resources.

Waste management: Through lifelong learning people could acquire knowledge that will promote their awareness about waste disposal/reduction, recycling, composting that may lead to better waste management.

Sustainable tourism: Lifelong learning educates tourists and communities about responsible travel practices and minimizes the negative impacts of tourism on the local environment and host communities.

Poverty alleviation programmes: Okorie (2016) attributes high poverty rate in Nigeria as a contributing factor to environmental degradation and unsustainable use of environmental resources. He stressed that poverty and illiteracy are closely related and are the major causes of environmental degradation. The poor and illiterate are more interested in issues related to their daily survival than environmental management. With lifelong learning the causes and effects of environmental degradation can be reduce by the provision of empowerment programmes to alleviate the populace from poverty.

Challenges associated with lifelong learning in environmental sustainability

According to UNESCO (2022), lifelong learning faces a plethora of challenges in an attempt to sustain the environment. These challenges include, lack of understanding of sustainability concepts, limited resources and support, inadequate integration into the curricula, insufficient teacher's training and difficulties in engaging learners.

Lack of understanding and awareness

- Conceptual confusion awareness: Many educators and learners are confused on what the concept of sustainability is all about. They struggle to grasp with the complete concept of sustainability and its relevance across different disciplines
- Lack of awareness: Individuals and groups lack awareness about the urgency and interconnectedness of environmental problems like biodiversity loss and climate change.
- Misconception and Apathy: some learners may have misconceptions about environmental issues or exhibit apathy.

Resource constraints and support:

- Limited funding: It is pertinent to note that implementing sustainable environmental practices and programmes in educational institutions is capital intensive. This therefore results in the prioritization of other budgetary needs.
- Lack of institutional support: Lack of dedicated resources, incentives policies could hinder the progress of integrating sustainability in learning environments.
- Inadequate infrastructure: Access to appropriate learning materials, technologies and physical space can pose a hindrance to lifelong learning effectiveness.

Learners engagement and motivation

- Perceived irrelevance: Some learners may see environmental education as irrelevant to them thus disengaging from the course of study.
- Lack of motivation: It is usually very difficult to sustain motivation for lifelong learning especially in the face of complex and challenging environmental issues.
- Time constraints: It will be difficult to dedicate time to learning about environmental sustainability because lifelong learners may face time management challenges.

Collaboration and partnerships: Effective sustainability education requires collaboration between educators, learners, communities and other stakeholders which can be challenging to establish and maintain. Moreover, building partnerships with relevant organizations and experts can be difficult thereby hindering access to resources and expertise.

Integration into curriculum and pedagogy: The challenges here include lack of integration, teacher training deficiencies and traditional teaching methods. Some educators may lack the necessary knowledge skills and resources to effectively teach about sustainability. Moreover, some teaching methods may not be suitable for fostering critical thinking, problem solving and action-oriented learning necessary for sustainability.

Assessment and evaluation: It could be very difficult to assess the effectiveness of sustainability education programmes and measure the impact of learning on individual behaviours and societal changes. Moreover, there is lack of standardized assessment tools and methods to evaluate learners' understanding and engagement with sustainability concepts.

Conclusion

Lifelong learning no doubt plays a crucial role in environmental sustainability. With contemporary environmental challenges ravaging the world today such as global warming, climate change, ozone layer depletion, deforestation, desertification, erosion, flooding, acid rain etc, people need to learn throughout life. Lifelong learning seems to be the solution to these plethora of environmental hazards. In an attempt for lifelong learning to curb these problems, it has also faced a lot of challenges such as lack of understanding of the sustainability concepts, limited resources and support, inadequate integration into the curricula, insufficient teachers' training and difficulties in engaging learners. To overcome these hurdles, there is need to employ multifaceted approaches that include raising awareness, providing resources, fostering collaboration and developing innovative learning strategies. Both

government, non-governmental organizations and other stakeholders in education must put their hands on deck to ensure that lifelong learning is propagated and implemented in the length and breath of the country educational system to enable it sustainably manage the environment and its resources therein.

References

- Akpama, S. I. Anthony, G. B. & Osang W. O., (2005) Curriculum contents and instructional methods for sensitizing adult learners to health implication of improper solid waste disposal. *The Journal of the world curriculum conference (WCC) Nigeria*. 5,(1).
- Andong, H. A., Ubana M. U., Igboke, S.B. & Arikpo, S. O. (2025). Incorporating digital technology to adult literacy education programmes in Cross River State. *Unizik Journal of Educational Research, Science and Vocational Studies (UJERSVOCS)* Vol. 2 (1); Pp. 321-338.
- Anake, P. M., Akpan, M. I., Anake, G. A. & Ubana, U. M. (2026). Family variables and deviant behaviour tendency among students of catholic secondary schools in Calabar Education Zone of Cross River State, Nigeria. *Unizik Journal of Educational Research, Science and Vocational Studies (UJERSVOCS)* 5 (1); <https://unilaws.org/ujervs>
- Anake, P. M, Okoi, Margaret Innocent, Anake Godwin Akepu, & Ubana, Ubana Michael. (2026). PERSONALITY TRAITS AND DEVIANT BEHAVIOUR TENDENCIES AMONG SECONDARY SCHOOL STUDENTS IN CROSS RIVER STATE, NIGERIA. *African Journal of Educational Management, Teaching and Entrepreneurship Studies*, 18(1). <https://doi.org/10.65360/ajemates.v18i1.989>
- Anijah-Obi, F. N., (2001). *Fundamentals of Environmental Education*. Calabar: University of Calabar press.
- Anijah-Obi, F. N., (2001). *Environmental Protection and Management: Planning Processes and strategies*. Calabar: University of Calabar press
- Anthony, G. B. (2002). Sustainable Development Through Environmental Adult Education. In G. Uncoren, N. U. Ntia & I. Bleo (eds) *Readings in Adult Education*. Calabar: Gld Tiding press Ltd.
- Anthony, G. B., (2002). Environmental Adult Education as a means for successful wildlife conservation in Nigeria. In G. Umoren, N. U. Ntia, & I. Biao (eds) *Readings in Adult Education*. Calabar: Glad Tiding press Ltd.
- Anthony, G. B., (2012). Awareness creation through Environmental Adult Education as a means for curbing the problem of Deforestation in Cross River state. *International Journal of Educational Administration, Planning and Research (IJEAPR)*. A publication of the Department of Educational Administration and Planning, 5,(1)
- Anthony, G. B. & Awhen, V. O. (2012). Environmental Adult Education: A veritable tool for combating Global warming and climate change. *The Leajon*, 4,(1).
- Anthony, G. B., Essien, C. K. & Obi-Bessong, V. M. (2016). Traditional Media: A significant instrument for propagating Environmental Adult Education Information within the rural populace in Nigeria. *International Journal of Adult Education and Development Studies (IJCEDS)* 3,(1).
- Anthony, G. B., Essien, C. K. (2018). Curbing the menace of Gully Erosion in Calabar Metropolis: The Role of Environmental Adult Education. *International Journal of Adult Education and Development Studies (IJCEDS)* 4,(1).
- Anthony, G. B., Awah, G. O., & Adiyeb, E. (2024). Endangered species Act: A veritable Environmental Legislation for wildlife conservation in Northern Senatorial District of Cross River State, Nigeria. *Journal of Environment and Tourism Education (JETE)* 7,(2)
- Augustine, A. A., Ubana, M. U., Rose, O. B., George, O. A. (2025). Community environmental education: A significant instrument for environmental protection. *Scientific Journal of Educational Management, Research and law*. Vol. 3 (1). Pp. 293-301.
- DVV International (2012). Networking Rio 20 – Education for sustainability, lifelong learning. *Adult Education and Development*. DVV International.

- Helen A. A., Ubana M. U. & Grace B. B. A. (2025). Building digital literacy through social work education for sustainable development. Scientific Journal of Educational Management, Research and law. Vol. 3 (1). Pp. 420-425.
- Mbalisi, O. F. (2014). Environmental Adult Education principles and practice. In G. Adekola & B. Vikoo (eds). *Themes in Adult and Non formal Education*. Port Harcourt, Nigeria: Pearl publishing. 101-127.
- Mbalisi, O. F. (2016). Issues and problems in Environmental Adult Education. In G. Adekola & M. A. Oyebamiji. (eds) *Adult Education and the Environment A. Book of Tributes and Readings*. Port Harcourt: Pearl publishers Ltd. 85-103.
- Ntongha Y. I. & Ubana, U. M. (2026). Environmental education and national development. International Journal of Jurisprudence, School Management and Civic Education (INTERJACE). Vol. 1 (1)242-259. <https://unilaws.org/INTERJAC>.
- Nzeneri, P. U. (2010). *Investigating into the existing approaches for creating Environmental awareness among community members in River State*. M.Ed unpublished Thesis; University of Port Harcourt.
- Nzeneri, I. S. (2016). Adult Education and Environmental Sustainability in G. Adekola & M. A. Oyebamiji (eds). *Adult Education and the environment. A Book of tributes and readings*. Port Harcourt: Pearl publishers Ltd.
- Ojule, L. C. (2016). Education and Environment. In G. Adekola & M. A Oyebamiji (eds). *Adult Education and the Environment. A Book of tributes and readings*. Port Harcourt: Pearl publishers Ltd
- Okukpon, L. A. (2005). Lifelong Learning in Nigeria: Needs and Structures. *Nigerian Journal of Adult and Lifelong learning*, 1,(1).
- Okori, C. U. (2016). Environmental Adult Education Programmes for Environmental sustainability. In G. Adekola & M.A. Oyebamiji (eds). *Adult Education and the Environment. A Book of Tributes and readings*. Port Harcourt: Pearl publishers Ltd, 156-164.
- Ubana, U. M., Igboke, S. B., Ogar, T. O., Kijuo, J. O. & Nkanga, I. I. (2025). Provision of rural water services and community development in northern senatorial district of Cross River State, Nigeria. *African Journal of Educational Management, Teaching and Entrepreneurship Studies*. 15 (2), 246 – 260. <https://ajemates.org>
- Ubana M. U., Obeten, O. O., Musa, Z. & Eloma, A. S. (2025). Harnessing security approach and artificial intelligence (AI) as tools to combat corrupt/unethical practices in Social Work Education: A Paradigm Shift. *African Journal of Educational Management, Teaching and Entrepreneurship Studies*, Vol. 15 (2), 318 – 334. <https://ajemates.org>
- Ubana, M. U., Glory E. E., Undie, R. A. & Elizabeth O. P. (2024). Artificial Intelligence (AI) A tool for combating unethical practices in Social Works Education. *Journal of Environmental and Tourism Education*, Vol. 7. (3) 12 -28. ISSN: 2659-0794
- UNESCO (1975). *The Belgrade Charter: A global framework for environmental education*. UNESCO
- UNESCO (2022) *Making lifelong learning a reality*. UNESCO.
- UNESCO (2023). *How is lifelong learning linked with sustainable development goals*. UNESCO
- Wikipedia The free Encyclopedia (2014). *Erosion*. Wikipedia foundation Inc.

PROFESSIONAL DEVELOPMENT AND CAPACITY BUILDING OF FEMALE ADULT EDUCATORS AS A PERQUISITE FOR TRANSITION TO THE 5TH INDUSTRIAL REVOLUTION

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Abstract

The emergence of the 5th industrial revolution marks a transformative era where advanced technologies such as artificial intelligence, biotechnology and human-machine collaborate with a renewed emphasis on human values, sustainability and inclusion. Unlike its predecessor, 5th Industrial Revolution is not only about automation and digitalization but also about integrating, emotional intelligence, creativity and ethnical responsibility into the fabric of technological progress. However, female adult educators occupy a critical space, as key facilitators of lifelong learning, up-skilling and empowerment, they are instrumental in preparing diverse populations especially marginalized and underserved groups for the opportunities and challenges of this new era. To effectively fulfill this role, female educators themselves must undergo significant professional development and capacity building. Hence, this paper focused on Professional Development and Capacity Building of Female Adult Educators as a Perquisite for Transition to the 5th Industrial Revolution. This work X-rayed the role of adult educators in the 5th industrial revolution, the challenges facing female adult educators, Professional development needs in the 5th industrial revolution context, Capacity Building strategies, case studies and best practices and recommendations.

Keywords: Professional Development, Capacity Building, Female Adult Educators and 5th Industrial Revolution (5IR).

Introduction

The world is experiencing rapid transformations under the 5th Industrial Revolution (IR 5.0), characterized by the fusion of advanced technologies such as artificial intelligence (AI), robotics, and biotechnology with a human-centered orientation that emphasizes sustainability, inclusivity, and ethical considerations (Xu, David & Kim 2021). Unlike the Fourth Industrial Revolution, which prioritized automation and efficiency, the 5th emphasizes collaboration between humans and machines to achieve societal well-being (Nahavandi, 2019). Within this context, education becomes a vital driver of change, and adult educators serve as critical agents in equipping lifelong learners with adaptive skills necessary for the evolving labor market.

Female adult educators hold a particularly strategic role in this transformation, given their influence in community education, social development, and capacity-building initiatives. Also, female adult educators, in this era demands policies and strategies that promote professional development, digital competence, leadership, and gender equity. However, gender inequalities, systemic discrimination, and technological divides often limit their access to professional development opportunities (O'Neil & Domingo, 2022). Thus, policies must align with global goals such as Sustainable Development Goal 4

(SDG 4) (Quality Education) and Sustainable Development Goal 5(SDG 5) (Gender Equality) to ensure inclusiveness in lifelong learning systems and prioritizing the professional development and capacity building of female adult educators is a crucial prerequisite for a successful transition into the human-centered IR 5.0.

Conceptual Clarifications

Professional development

Professional development or professional education meaning same is a word use to describe learning which emphasizes education in specific professional career field. It is an umbrella word that houses the various processes and ways of improving employees' skills, knowledge and competencies for effective performance in their present jobs and to prepare such for future roles. Professional Development refers to structured learning opportunities, including training, mentorship, workshops, and continuous education that enhance the knowledge, skills, and competencies of educators (Darling-Hammond et al., 2017). In the 5th Industrial Revolution (IR 5.0), professional development must extend beyond pedagogy to digital literacy, leadership, and adaptability.

Professional development can be carried out by both employer and employee. For example, companies may offer training sessions to up-skill their employees. In academics, when lecturers are given scholarship or financial support to study either within the country or outside the country and attend conferences usually sponsored by Tertiary Education Trust Fund (Tetfund). These are professional development by employers. While employee development referred to as self-development is when employees decides to take classes for upgrade or certification, attend workshops, learn new skills, train one-self in regular school for first degree, masters, Ph.D etc. Erzell (2025). Professional development encompasses the training and growth employees pursue after joining a team including Continuing Education, workshops, certifications, coaching, mentoring and developing critical power skills such as leadership and communication.

Capacity Building

Capacity building is a way of creating and enhancing the abilities, skills processes and resources required by individuals, organizations and communities to thrive and adapt in a dynamic world. It deals with establishing effective and efficient organizational structures, providing access to necessary tools, technology and funding, developing technical, managerial and leadership skills, enhancing understanding, and fostering positive attitudes and behaviors that contribute to self-sufficiency and ownership. Capacity Building encompasses broader strategies aimed at strengthening institutional, organizational, and individual capabilities to achieve set objectives effectively. Organization for Economic Co-operation and Development (OECD, 2021). For educators, capacity building includes access to resources, supportive policies, and community networks that enable continuous profession

Female adult educators

Female adult educators are women engaged in providing educational opportunities to adult learners through both formal and non-formal systems. They contribute to lifelong learning by addressing literacy, vocational training, entrepreneurship, and civic education (Milana & Webb, 2019). Female adult educator is a woman who skillfully mobilizes and facilitates education and development in the adult education field. They also serve as role models, mentors especially for other women, setting the space for them to climb up the ladder, contributing to their personal growth and professional development. Also, they are female specialist who support and encourage the learning and personal development of adults in a purposefully created learning situation. They planning prepare their overall role sources, deliver, lesson, monitoring learning and assessing learners.

Female adult educators act as community role models, empowering marginalized groups, particularly women and rural learners, to engage in lifelong learning. Their work reduces gender disparities in education, promotes literacy, and enhances employability (Kamberidou, 2020). Furthermore, they help bridge generational and digital divides by introducing adult learners to emerging

technologies while reinforcing social and cultural values. Their role is thus not only instructional but also transformational, serving as agents of social change in preparing societies for IR 5.0.

The 5th Industrial Revolution

The 5th industrial Revolution builds on the advancement of the 4th industrial Revolution with emphasize on the reintegration of human creativity and craftsmanship with advance digital technologies. It focuses on personalization, sustainability and ethical considerations with objectives to create a balance between technological progress and human values .It envisage a future where technology will empower humans, improve individuals experiences and promote environmental sustainability. This era emphasized collaboration between humans and machines to solve complex global that benefits the entire society. problems, enhance the quality of life and bring about inclusive growth and development The 5th Industrial Revolution (IR 5.0) is an era marked by synergy between humans and technology to advance ethical, sustainable, and inclusive societies (Demir & Cicibas, 2022). It positions human values and creativity at the core of technological integration, emphasizing “technology with a heart. Having dwelled much on understanding the conceptual framework, what then are the professional development needs of female adult educators?.

Professional Development Needs of Female Adult Educators

1. Continuous Capacity Building; Female adult educators require ongoing training to keep pace with changing pedagogical methods, digital innovations, and evolving learner needs. Lifelong learning systems demand educators who can adapt to flexible and blended learning models (UNESCO Institute for Lifelong Learning, 2023).
2. Digital Literacy and Technological Competence; As learning increasingly integrates technology, women adult educators need digital up skilling especially in contexts where they may face barriers to accessing ICT training. This includes competence in e-learning platforms, artificial intelligence in education, and digital content creation (European Commission, 2022).
3. Leadership and Mentorship Skills; Professional development should focus on strengthening women’s leadership skills so they can assume managerial, policy, and decision-making roles in lifelong learning institutions. Many female adult educators are underrepresented in leadership positions due to systemic gender inequalities (Baumgartner & Shang, 2024).
4. Gender-Sensitive Pedagogical Training; Female adult educators need support to develop teaching methods that integrate gender equality perspectives. This equips them to address gender bias in learning environments and promote inclusivity for women learners, especially in marginalized communities (UNESCO, 2019).
5. Research and Academic Writing Skills; Opportunities for professional development should include research training, grant writing, and academic publication. This strengthens the visibility and impact of female adult educators in shaping lifelong learning scholarship and policy (European Association for the Education of Adults, 2021).
6. Networking and Collaboration Opportunities; Female educators benefit from mentorship programs, professional networks, and global exchange platforms. These connections allow them to share best practices, overcome professional isolation, and contribute to regional and international policy dialogue (UIL & Shanghai Normal University, 2025).
7. Work–Life Balance Support; Many female adult educators balance multiple roles as professionals, caregivers, and community leaders. Professional development programs should therefore provide flexible training schedules, childcare support, and mental health resources to reduce burnout and attrition (Mengistie, 2022).

In summary: Female adult educators need holistic professional development that combines digital skills, leadership, gender-sensitive pedagogy, research, and personal support systems. Meeting these needs enhances their effectiveness as facilitators of lifelong learning and empowers them to lead in inclusive education systems. What then constitutes barrier to female adult educators in the profession?

Challenges facing female adult educators;

1. **Gender Inequality and Discrimination;** Female adult educators often face systemic gender bias that limits their access to leadership roles, funding opportunities, and recognition compared to their male counterparts. According to UNESCO (2023), persistent gender inequality in education systems affects women's professional progression and capacity to contribute effectively to lifelong learning.
2. **Limited Access to Professional Development;** Many women educators have fewer opportunities for training, mentorship, and career advancement, especially in rural or low-resource contexts. Akinyemi and Adebayo (2022) highlight that lack of continuous professional development undermines the growth of female educators in adult learning environments.
3. **Work–Life Balance and Cultural Expectations;** Balancing professional duties with family responsibilities poses a major challenge, particularly where cultural expectations assign care giving roles primarily to women. Osei-Agyeman (2021) stresses that cultural norms often restrict women's participation in adult education and professional advancement.
4. **Financial Constraints and Poor Remuneration;** Female adult educators often experience inadequate salaries, limited funding for programs, and unequal access to financial resources, making it difficult to sustain effective teaching .OECD (2022) notes that insufficient funding in adult education disproportionately affects female educators, especially in developing countries.
5. **Marginalization in Policy and Decision-Making** Women are underrepresented in educational policy formulation and decision-making processes that shape adult education systems. As asserted by Imhabekhai (2020), lack of representation in governance structures prevents female educators from influencing reforms that directly affect them.
6. **Technological Barriers;** In the era of the 5th Industrial Revolution, digital literacy and access to ICT tools are essential. Many female educators face barriers to acquiring these skills due to limited training opportunities and structural inequalities. Schwab & Zahidi (2023) emphasize that without digital empowerment, women risk exclusion from future-focused education systems.
7. **Socio-Cultural Barriers and Stereotypes;** Deep-rooted stereotypes portray women as less competent in leadership and knowledge delivery, reducing learners' confidence in them and affecting professional esteem. Adedokun (2022) notes that such stereotypes hinder women's effective participation in lifelong learning initiatives.

Proposed solutions

1. **Adopt gender-responsive education policies and ring-fenced funding:** National and state education plans should explicitly include targets and budgets for adult education that prioritize female educators (e.g., funded fellowships, teacher grants, childcare stipends during training). Ring-fenced budget lines increase accountability and ensure resources reach programmes that support women's participation and leadership. Evidence suggests that dedicated funding and policy language can redress neglect and create stable career pathways.
2. **Invest in targeted capacity building and leadership programmes:** Design and fund continuous professional development (CPD) programmes tailored to female adult educators: short modular courses, peer learning circles, mentorship schemes, and leadership training that accommodate care-giving schedules (evening/weekend or micro-learning). Capacity building must combine pedagogical skills, digital literacy, and management/leadership competencies. Studies find capacity building linked to greater socio-economic empowerment and improved teaching outcomes when adapted to women's needs.

3. Expand flexible and blended delivery with gender-sensitive design: Promote blended learning models (face-to-face plus low-bandwidth digital components) and asynchronous resources so female educators and learners can access content around work and care responsibilities. Provide subsidized data bundles, community internet hubs, and low-tech options (SMS, radio) to mitigate connectivity gaps. Country deep-dives on women and online learning recommend hybrid approaches and targeted connectivity interventions to improve access for women.
4. Improved financial provision and Remuneration; Female adult educators salaries, should be improved, increase funding for programs, and equal access to financial resources should also be encourage for effective teaching .OECD (2022).
5. Community engagement to shift norms and build support networks: Interventions that engage families, religious and traditional leaders, and male allies can shift attitudes that limit women's professional participation. Community-level advocacy, public campaigns showcasing female educator leaders, and parent/guardian engagement have been effective in related education programmes and are applicable to adult education.
6. Strengthen governance, data systems, and monitoring for equity: Introduce gender-disaggregated workforce and programme data, equity indicators, and monitoring frameworks for adult education at federal and state levels. Use data to track recruitment, promotion, training participation, and learner outcomes by gender; tie performance funding to gender-equity metrics. Robust data and accountability mechanisms reduce marginalization and inform targeted interventions. (UNESCO. 2022).

Capacity Building Strategies for Female Adult Educators

- Professional Development and Training: Organize continuous professional development (CPD) workshops, seminars, and refresher courses focusing on new teaching methodologies, digital literacy, and adult learning theories. Tailor training to emerging trends such as the 5th Industrial Revolution (Industry 5.0), emphasizing human-machine collaboration and emotional intelligence (Ndzendze Marwala, 2023).
- Mentorship and Peer Learning Networks. Establish mentorship programs where experienced female educators guide new entrants in the field. Encourage peer learning circles to share knowledge, teaching practices, and coping strategies in balancing personal and professional responsibilities.
- Access to Technology and Digital Skills; Provide targeted training on digital tools, online learning platforms, and educational technologies.. female adult educators with the skills to design, deliver, and evaluate blended and online learning. Leadership and Management Training. Build leadership competencies in program design, resource mobilization, and policy advocacy. Encourage participation in decision-making positions within adult education institutions. Policy Support and Advocacy; Advocate for gender-responsive policies in adult education that address challenges like discrimination, wage gaps, and work-life balance.. Involve female educators in policymaking processes to ensure their perspectives are integrated.
- Networking and Collaboration, Strengthen participation in professional associations such as the International Council for Adult Education (ICAE). Promote collaboration with NGOs, community organizations, and international bodies for exposure and opportunities. Research and Scholarship Opportunities; Support female educators with grants, fellowships, and access to academic resources for research in lifelong learning.. Encourage publications in peer-reviewed journals to increase visibility and professional credibility.
- Work-Life Balance and Well-being Programs. Offer flexible work schedules, childcare support, and wellness programs. Create a supportive institutional culture that reduces burnout and promotes psychological safety. Entrepreneurial and Financial Literacy Training; Equip educators with financial management and entrepreneurial skills to run sustainable adult education initiatives. Support self-employment opportunities through community learning centers.

Monitoring and Evaluation Mechanisms. Introduce capacity audits and performance evaluation frameworks to assess training impact. Use feedback systems to continuously adapt strategies to meet female educators' evolving needs.

In summary: Capacity building strategies for female adult educators should be holistic, addressing professional, technological, leadership, policy, and personal well-being needs. They should empower women to thrive as leaders and facilitators in lifelong learning, particularly in adapting to the transformations of Industry 5.0.

Capacity building must adopt systemic and gender-sensitive strategies, including:

- Policy Frameworks and Institutional Support – Governments and institutions should implement gender-responsive policies that guarantee equal access to training and promotions (UN,2021).
- Technology-Centric Training Programs – Programs like UNESCO's ICT Competency Framework should be adapted to female educators in both rural and urban contexts.
- Mentorship and Coaching – Pairing novice female educators with experienced mentors enhances skill transfer and confidence-building.
- International Collaboration and Partnerships – Exchange programs and global initiatives expose female educators to best practices in IR 5.0 transitions.
- Funding Opportunities – Scholarships and grants specifically targeting women in education foster inclusivity and equity.

Professional Development and Capacity Building as Prerequisites for the 5th Industrial Revolution (IR 5.0)

Professional development and capacity building are prerequisites for female adult educators to navigate the 5th Industrial Revolution (IR 5.0) because;

- They equip educators with adaptive skills for integrating Artificial Intelligence (AI) and emerging technologies into learning. They foster resilience and innovation, enabling women to address rapid technological and labour market disruptions (Shiohira & Dale-Jones, 2019). They empower women to serve as inclusive leaders, advocating for equitable education and digital access. They ensure that education remains human-centered, aligning with IR 5.0's vision of balancing technological advancement with social well-being (Xu et al., 2021)

Policy Implementation Strategies

Digital Competence and Technological Integration. Policy Action: Governments and educational institutions should institutionalize continuous digital literacy training for female adult educators, focusing on emerging technologies (AI, robotics, data analytics etc). Implementation: Establish national e-learning academies or innovation hubs with subsidized access to ICT infrastructure.

Gender-Responsive Professional Development. Policy Action: Mainstream gender equity in adult education frameworks to address the unique challenges women face (e.g., limited access to funding, family responsibilities, workplace bias). Implementation: Introduce mentorship programs, gender-sensitive scholarships, and leadership development tracks specifically for female adult educators.

- Public–Private Partnerships (PPP): Policy Action: Foster partnerships between governments, NGOs, and private tech companies to fund and implement up skilling initiatives. Implementation: Provide grants and incentives for private firms to support training programs targeting female educators.
- Lifelong Learning Policies: Embed lifelong learning in national education policy, ensuring female adult educators have access to flexible, modular training. Create micro-credentialing systems to recognize new competencies acquired through short courses and online platforms.

- **Inclusive Leadership and Decision-Making:** Encourage the appointment of female adult educators into leadership and policymaking roles. Establish quotas or affirmative action measures in education boards, councils, and professional associations.

To strengthen the role of female adult educators in the 5th Industrial Revolution (IR 5.0), the following recommendations are critical:

1. **Gender-Responsive Policy Reforms:** Integrating gender equity into education and workforce development policies.
2. **Sustainable Professional Development Models:** Continuous training tailored to the needs of female adult educators.
3. **Investment in Technology Access:** Ensuring affordable internet, devices, and platforms for women in education.
4. **Strengthening Mentorship and Networking:** Establishing professional communities to support women's leadership in education.
5. **Promoting Research and Innovation:** Encouraging women educators to participate in research on IR 5.0 and lifelong learning
6. **Encourage hybrid learning models (online/offline)** to accommodate female educators balancing professional and domestic roles.
7. **Allocate dedicated funds** for female adult educators' professional development, with mechanisms for monitoring equitable distribution.
8. **Establish Global and Regional Collaborations** by Partnering with international organizations (example UNESCO, ILO, OECD) to align with global best practices and share resources.

Conclusion

The transition into the 5th Industrial Revolution requires human-centered innovation supported by inclusive education. Female adult educators stand at the heart of this transformation, bridging digital divides, inculcating social change, and equipping learners with future-oriented skills. Their professional development and capacity building are therefore not optional but essential prerequisites. By investing in their growth through gender-responsive policies, technology integration, and mentorship structures, societies can ensure equitable participation in Industrial Revolution (IR 5.0) and unlock the transformative power of lifelong learning. Also, it will not only empower them professionally, but also ensure they contribute meaningfully to inclusive and equitable lifelong learning systems in an evolving technological landscape.

References

- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). Effective teacher professional development. Learning Policy Institute.
- Demir, K. A., & Cicibas, H. (2022). The Fifth Industrial Revolution: A transition towards a sustainable society. *Journal of Innovation and Technology*, 12(2), 55–68.
- education: Challenges and pathways. Overseas Development Institute Report.
- Ercell (2025) companies need professional development. What does that mean?
- European Commission (2021). Industry 5.0: Towards a sustainable, human-centric and resilient European industry. European Commission, Brussels
- Kamberidou, I. (2020). Women in STEM and female role models: Gender equality in education and employment. *Social Sciences*, 9(11), 1–22.
- Milana, M., & Webb, S. (2019). *The Palgrave international handbook on adult and lifelong education and learning*. Palgrave Macmillan.



- Kane, E., & Silvera, R. (2021). Women in education leadership: Breaking barriers and building capacity. *Gender and Education*, 33(6), 745–762.
- Nahavandi, S. (2019). Industry 5.0—A human-centric solution. *Sustainability*, 11(16), 4371
- Nzendze, B. and Marwala, T. (2023) *Artificial Intelligence and International Relations Theories*. Palgrave Macmillan Singapore.
- OECD. (2021). *Capacity development for education: Policy insights*. OECD Publishing.
- O’Neil, T., & Domingo, P. (2022). *Women’s professional development in*
- Schön, D. A. (2017). *The reflective practitioner: How professionals think in action*. Routledge.
- Shiohira, K., & Dale-Jones, B. (2019). *Skills for industry 4.0 and beyond: A global perspective*. OECD Skills Studies.
- Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2006). Professional learning communities: A review of the literature. *Journal of Educational Change*, 7(4), 221–258.
- UNESCO (2022). *Transforming Education: Gender equality and inclusivity in lifelong learning*. UNESCO Publishing.
- UNESCO. (2022). *ICT competency framework for teachers*. UNESCO Publishing.
- UN Women. (2021). *Gender equality in education and technology*. United Nations.
- Xu, M., David, J. M., & Kim, S. H. (2021). The 5th Industrial Revolution: Human-centered and sustainable development. *Technology in Society*, 64, 101475. <https://doi.org/10.1016/j.techsoc.2020.101475>
- Xu, M., David, J. M., & Kim, S. H. (2021). The Fourth and Fifth Industrial Revolutions: Technological convergence and transformation. *Technological Forecasting and Social Change*, 161, 120-145
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ENVIRONMENTAL VALUE ORIENTATION AND SUSTAINABLE ENVIRONMENTAL BEHAVIOUR AMONG SECONDARY SCHOOL STUDENTS IN CALABAR EDUCATION ZONE, CROSS RIVER STATE, NIGERIA.

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Abstract

This study examined environmental value orientation as a predictor of sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. The study specifically investigated the predictive influence of environmental responsibility values, conservation values, and ecological values on sustainable environmental behaviour. A correlational survey research design was adopted. The population comprised 5,842 Senior Secondary School Two (SS II) students in public secondary schools within the study area, from which a sample of 374 students was selected using the Taro Yamane formula and multistage sampling technique. Data were collected using a structured questionnaire and analyzed using Simple Linear Regression Analysis at the 0.05 level of significance. The findings revealed that environmental responsibility values, conservation values, and ecological values significantly predicted sustainable environmental behaviour among secondary school students. The study concluded that environmental value orientation plays a significant role in promoting sustainable environmental behaviour among students. It was recommended that schools, curriculum planners, and environmental agencies should strengthen value-based environmental education programmes to enhance environmental responsibility, conservation consciousness, and ecological awareness among students.

Keywords: Environmental value orientation, environmental responsibility values, conservation values, ecological values, sustainable environmental behaviour.

Introduction

Environmental degradation has emerged as one of the most significant global challenges of the twenty-first century. Issues such as climate change, biodiversity loss, deforestation, pollution, and unsustainable resource exploitation continue to threaten ecological sustainability and human well-being. These environmental problems are largely attributed to human activities and behaviours that negatively impact the environment. Consequently, there is growing recognition that addressing environmental challenges requires not only technological innovations and policy interventions but also the development of positive environmental values and responsible environmental behaviours among individuals (UNESCO, 2017). Education has been identified as a crucial tool for shaping attitudes, values, and behaviours that support environmental sustainability and responsible citizenship.

Environmental value orientation refers to the beliefs, principles, and ethical standards that influence an individual's relationship with the environment. It encompasses the extent to which individuals appreciate environmental protection, conservation, and sustainable use of natural resources. Environmental values serve as guiding principles that shape people's decisions and actions regarding environmental issues. According to environmental education scholars, individuals who possess strong environmental values are more likely to engage in environmentally responsible behaviours such as waste reduction, energy conservation, recycling, and participation in environmental protection activities (Springer Nature, 2022).

Environmental education is specifically designed to develop environmental literacy by promoting knowledge, skills, attitudes, values, and behaviours necessary for environmental sustainability. UNESCO emphasizes that Education for Sustainable Development (ESD) empowers learners with the knowledge, values, attitudes, and behaviours needed to make informed decisions and take responsible actions for environmental integrity, economic viability, and social justice (UNESCO, 2024). Environmental education therefore extends beyond the transmission of knowledge to the cultivation of environmental values that encourage sustainable behaviour among learners. The importance of environmental values in shaping environmental behaviour has been widely acknowledged in environmental education literature. Research on environmental literacy indicates that environmental values are strongly associated with ecological behaviour and often serve as a better predictor of sustainable actions than environmental knowledge alone. Studies have shown that individuals who exhibit stronger preservation and appreciation values toward the environment are more likely to engage in environmentally responsible practices (Georgiou et al., 2020).

Sustainable environmental behaviour refers to actions and practices undertaken by individuals to protect the environment and ensure the availability of natural resources for present and future generations. Such behaviours include proper waste management, water conservation, energy conservation, afforestation, environmental sanitation, pollution reduction, and participation in environmental conservation programmes. Sustainable environmental behaviour is fundamental to achieving the Sustainable Development Goals (SDGs), particularly those related to climate action, sustainable cities, responsible consumption, and life on land (UNESCO, 2017). Despite increasing awareness of environmental issues, many young people continue to engage in behaviours that contribute to environmental degradation. Problems such as indiscriminate waste disposal, destruction of vegetation, poor sanitation practices, and unsustainable consumption patterns remain prevalent in many communities and educational institutions. This situation suggests that environmental knowledge alone may not be sufficient to promote sustainable environmental behaviour. Rather, the values individuals hold regarding the environment may significantly influence their environmental actions and decision-making processes. UNESCO reports that education contributes to sustainability by shaping values and perspectives that encourage environmentally responsible behaviour and sustainable lifestyles.

In Nigeria, environmental education has increasingly been recognized as an important strategy for promoting sustainable development and environmental stewardship. National educational policies and sustainability initiatives emphasize the need to equip learners with environmental knowledge, attitudes, and values necessary for addressing contemporary environmental challenges (Babalola & Olawuyi, 2021). However, there remains limited empirical evidence on how environmental value orientation influences sustainable environmental behaviour among secondary school students, particularly within Cross River State. Cross River State is widely recognized for its rich biodiversity, tropical rainforest ecosystem, and environmental conservation initiatives. As a result, fostering environmental values and sustainable environmental behaviour among young people is critical to the long-term preservation of the state's environmental resources. The Calabar Education Zone, which comprises secondary schools within the state, provides a suitable context for examining the relationship between environmental value orientation and sustainable environmental behaviour among students. Understanding this relationship is

essential for developing effective environmental education programmes capable of promoting responsible environmental citizenship and sustainable development.

Although previous studies have examined environmental awareness, environmental knowledge, attitudes, and environmental literacy, limited attention has been given to environmental value orientation as a predictor of sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. This gap in literature necessitates empirical investigation into the extent to which environmental value orientation predicts sustainable environmental behaviour among students. Therefore, this study seeks to examine environmental value orientation as a predictor of sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. The findings of the study are expected to contribute to the body of knowledge in environmental education and provide useful information for educators, policymakers, curriculum planners, and environmental agencies in designing value-based environmental education programmes that promote sustainability.

Theoretical framework

Value-Belief-Norm (VBN) Theory by Stern, Dietz, Abel, Guagnano, and Kalof in 1999

The study is anchored on the Value-Belief-Norm (VBN) Theory developed by Stern, Dietz, Abel, Guagnano, and Kalof in 1999. The theory was proposed to explain environmentally significant behaviour by examining the influence of personal values, beliefs, and moral obligations on individuals' actions toward the environment. According to Stern et al. (1999), environmental behaviour is influenced through a causal chain beginning with personal values, which shape environmental beliefs, leading to personal norms that ultimately determine environmental actions. The theory posits that individuals who possess strong environmental values are more likely to develop positive beliefs about environmental protection and consequently feel morally obligated to engage in behaviours that promote environmental sustainability.

The VBN Theory identifies three major value orientations that influence environmental behaviour. These include egoistic values, which focus on personal interests; altruistic values, which emphasize concern for the welfare of other people; and biospheric values, which reflect concern for nature and the ecosystem. Individuals with strong biospheric and altruistic values are more likely to exhibit pro-environmental behaviours because they recognize the consequences of environmental degradation for both humans and nature. The theory further explains that environmental values shape individuals' ecological worldviews and awareness of environmental consequences. When people become aware of environmental problems and accept personal responsibility for addressing them, they develop moral norms that motivate environmentally responsible actions. Consequently, environmental behaviour is not merely a product of knowledge but also a reflection of deeply held environmental values and personal commitments toward environmental protection. The relevance of the Value-Belief-Norm Theory to the present study lies in its emphasis on environmental values as determinants of environmental behaviour. The independent variable of this study, environmental value orientation, is central to the theory because values are regarded as the foundation upon which environmental beliefs and behaviours are formed. The dependent variable, sustainable environmental behaviour, represents the environmentally responsible actions that result from positive environmental values and personal norms.

In the context of secondary school students in Calabar Education Zone, the theory suggests that students who possess strong environmental values such as environmental responsibility, conservation consciousness, ecological concern, and sustainability orientation are more likely to engage in sustainable environmental behaviours including proper waste disposal, environmental sanitation, energy conservation, tree planting, recycling, and participation in environmental protection activities. Therefore, the Value-Belief-Norm Theory provides a suitable theoretical basis for explaining how environmental value orientation predicts sustainable environmental behaviour among secondary school students.

Objectives of the study

The main objective of this study is to examine environmental value orientation as a predictor of sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. Specifically, the study seeks to:

1. Examine the extent to which environmental responsibility values predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State.
2. Determine the extent to which conservation values predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State.
3. Investigate the extent to which ecological values predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State.

Research questions

1. To what extent do environmental responsibility values predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State?
2. To what extent do conservation values predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State?
3. To what extent do ecological values predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State?

Research hypotheses

1. Environmental responsibility values do not significantly predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State.
2. Conservation values do not significantly predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State.
3. Ecological values do not significantly predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State.

Literature review

Environmental responsibility values and sustainable environmental behaviour

Environmental responsibility values refer to the beliefs, moral obligations, and ethical commitments that motivate individuals to protect and preserve the environment for present and future generations. These values reflect an individual's sense of duty toward the natural environment and influence decisions and actions that contribute to environmental sustainability. According to Stern (2000), environmental responsibility values encourage individuals to recognize the consequences of environmental degradation and assume personal responsibility for addressing environmental problems. Such values are fundamental components of environmental education because they shape environmentally responsible attitudes and behaviours among learners.

Environmental responsibility values are developed through socialization, education, cultural experiences, and direct interaction with the environment. Environmental education programmes aim to instill these values by increasing students' awareness of environmental issues and fostering a sense of stewardship toward natural resources. UNESCO (2024) emphasizes that environmental responsibility is an essential component of Education for Sustainable Development (ESD), as it enables learners to make informed decisions and adopt sustainable lifestyles that contribute to environmental protection.

Sustainable environmental behaviour refers to actions that promote environmental conservation and minimize negative impacts on the environment. Such behaviours include proper waste disposal, recycling, energy conservation, water conservation, environmental sanitation, tree planting, and

participation in environmental protection activities. Sustainable environmental behaviour is considered a critical requirement for achieving environmental sustainability and addressing contemporary environmental challenges such as climate change, pollution, and biodiversity loss (UNESCO, 2017). The relationship between environmental responsibility values and sustainable environmental behaviour has been widely acknowledged in environmental education literature. The Value-Belief-Norm Theory proposed by Stern et al. (1999) suggests that individuals who possess strong environmental responsibility values are more likely to engage in environmentally significant behaviours because they feel morally obligated to protect the environment. The theory argues that environmental values influence beliefs and personal norms, which subsequently motivate responsible environmental actions.

Empirical evidence supports the positive relationship between environmental responsibility values and sustainable environmental behaviour. De Groot and Steg (2008) found that individuals with stronger environmental responsibility values demonstrated higher levels of environmentally responsible behaviour, including resource conservation and participation in environmental protection activities. The study concluded that environmental values significantly influence behavioural intentions and actual environmental actions. Similarly, Chwialkowska, Bhatti, and Glowik (2020) investigated the influence of environmental values on sustainable behaviour among young people and reported that environmental responsibility values significantly predicted pro-environmental behaviour. The researchers observed that individuals who felt personally responsible for environmental protection were more likely to adopt sustainable consumption practices and engage in conservation activities. In another study, Otto and Pensini (2017) examined the relationship between environmental values and ecological behaviour among adolescents. The findings revealed that environmental responsibility values had a significant positive influence on environmentally responsible behaviour. Students who exhibited strong environmental responsibility values were more likely to participate in recycling programmes, environmental sanitation exercises, and conservation initiatives.

Within the African context, Adebayo and Oladele (2021) investigated environmental values and environmental behaviour among secondary school students in Nigeria. The study found that environmental responsibility values significantly influenced students' environmental practices, including proper waste management and participation in environmental awareness campaigns. The authors concluded that strengthening environmental responsibility values through environmental education could enhance sustainable environmental behaviour among students. Despite the evidence supporting the importance of environmental responsibility values, some studies have reported inconsistencies in the relationship between environmental values and actual behaviour. Kollmuss and Agyeman (2002) argued that although individuals may possess positive environmental values, factors such as social norms, economic conditions, and institutional constraints may limit the translation of values into behaviour. This suggests that environmental responsibility values alone may not fully explain sustainable environmental behaviour, thereby necessitating further investigation among different populations and contexts. The reviewed literature indicates that environmental responsibility values play an important role in promoting sustainable environmental behaviour. However, there is limited empirical evidence regarding the extent to which environmental responsibility values predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. This gap in knowledge underscores the need for the present study.

Conservation values and sustainable environmental behaviour

Conservation values refer to the principles, beliefs, and attitudes that emphasize the protection, preservation, and sustainable use of natural resources for present and future generations. These values encourage individuals to appreciate the importance of biodiversity, forests, wildlife, water resources, and other environmental assets and to engage in actions that prevent environmental degradation. Conservation values are considered a critical component of environmental education because they foster a sense of responsibility toward environmental stewardship and sustainable development (Stern, 2000). Environmental educators maintain that conservation values influence the way individuals interact with

their environment. According to De Groot and Steg (2008), conservation values are rooted in individuals' concern for the welfare of both human beings and the natural ecosystem. Individuals who possess strong conservation values are more likely to support environmental policies, participate in conservation programmes, and adopt behaviours that minimize environmental harm. Such behaviours include tree planting, proper waste disposal, recycling, water conservation, energy conservation, and participation in community environmental sanitation activities. Sustainable environmental behaviour refers to actions undertaken by individuals to protect environmental quality and ensure the sustainable use of natural resources. It encompasses environmentally friendly practices that contribute to ecological balance and environmental sustainability. According to UNESCO (2017), sustainable environmental behaviour is essential for achieving sustainable development because it promotes responsible consumption, environmental protection, and conservation of natural resources for future generations.

The relationship between conservation values and sustainable environmental behaviour has received considerable attention in environmental education research. The Value-Belief-Norm Theory proposed by Stern et al. (1999) suggests that conservation values serve as a foundation for environmental beliefs and personal norms, which subsequently influence environmentally responsible behaviour. The theory posits that individuals who value environmental conservation are more likely to develop positive environmental attitudes and engage in sustainable environmental practices. Empirical studies have demonstrated a positive relationship between conservation values and sustainable environmental behaviour. Steg, Perlaviciute, Van der Werff, and Lurvink (2014) found that individuals with strong conservation values were more likely to engage in environmental protection activities and adopt sustainable lifestyles. Their study revealed that conservation-oriented individuals exhibited higher levels of recycling behaviour, energy conservation, and support for environmental protection initiatives.

Similarly, Otto and Kaiser (2014) examined the influence of environmental values on ecological behaviour among adolescents and reported that conservation values significantly predicted environmentally responsible behaviour. The findings indicated that students who valued environmental conservation were more likely to engage in activities that protected natural resources and reduced environmental degradation. In another study, Chwialkowska, Bhatti, and Glowik (2020) investigated the impact of environmental values on sustainable consumption behaviour among young people. The study found that conservation values significantly influenced environmentally friendly consumption practices and participation in environmental sustainability initiatives. The researchers concluded that strengthening conservation values among young people could enhance sustainable environmental behaviour.

Within the Nigerian context, Eze and Agbo (2021) examined the influence of environmental values on environmental conservation practices among secondary school students. The findings revealed that students who exhibited strong conservation values demonstrated greater commitment to environmental sanitation, waste management, and resource conservation activities. The study emphasized the importance of environmental education in promoting conservation values capable of influencing sustainable environmental behaviour. However, some scholars have argued that conservation values may not always translate into actual behaviour. Kollmuss and Agyeman (2002) observed that external factors such as socioeconomic conditions, cultural influences, peer pressure, and institutional support may affect the extent to which conservation values are expressed through environmental actions. As a result, individuals may possess positive conservation values but fail to engage consistently in environmentally responsible behaviours.

Despite the growing body of literature on environmental values and behaviour, limited empirical studies have specifically examined the predictive influence of conservation values on sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. This gap in knowledge necessitates further investigation to determine whether conservation values significantly predict sustainable environmental behaviour among students within the study area.

Ecological values and sustainable environmental behaviour

Ecological values refer to the beliefs, principles, and ethical considerations that emphasize the intrinsic worth of nature and the interconnectedness of all living organisms within the ecosystem. These values reflect an individual's concern for environmental quality, biodiversity conservation, ecological balance, and the protection of natural resources. Ecological values encourage individuals to recognize that humans are an integral part of the ecosystem and that environmental sustainability depends on maintaining harmonious relationships between human activities and the natural environment (De Groot & Steg, 2008). Ecological values are central to environmental education because they promote environmental consciousness and foster attitudes that support environmental protection. Environmental educators argue that students who develop strong ecological values are more likely to appreciate the importance of biodiversity conservation, ecosystem preservation, pollution control, and sustainable resource utilization. According to UNESCO (2024), environmental education seeks to cultivate ecological values that inspire learners to take responsible actions toward environmental sustainability and sustainable development.

Sustainable environmental behaviour refers to actions and practices that contribute to environmental protection and the sustainable use of natural resources. Such behaviours include proper waste management, recycling, energy conservation, water conservation, environmental sanitation, afforestation, biodiversity protection, and participation in environmental conservation programmes. Sustainable environmental behaviour is widely recognized as an essential component of efforts to address environmental challenges such as climate change, pollution, habitat destruction, and loss of biodiversity (UNESCO, 2017). The relationship between ecological values and sustainable environmental behaviour has attracted considerable attention among environmental researchers. The Value-Belief-Norm Theory developed by Stern et al. (1999) suggests that ecological values influence individuals' environmental beliefs and personal norms, which subsequently determine their environmental actions. The theory posits that individuals who value nature and ecological sustainability are more likely to engage in environmentally responsible behaviours because they perceive environmental protection as a moral obligation.

Empirical studies have consistently reported positive associations between ecological values and sustainable environmental behaviour. De Groot and Steg (2008) found that biospheric or ecological values significantly influenced environmental beliefs and environmentally responsible behaviour. Individuals who demonstrated strong ecological values were more likely to support environmental conservation measures and engage in behaviours that reduced environmental degradation. Similarly, Kaiser, Wolfing, and Fuhrer (1999) examined the influence of ecological values on environmental behaviour and reported that ecological concern significantly predicted environmentally responsible actions. Their findings indicated that individuals who valued ecological preservation exhibited greater commitment to recycling, resource conservation, and environmental activism. Otto and Pensini (2017) investigated the relationship between environmental knowledge, ecological values, and ecological behaviour among students. The study found that ecological values significantly predicted environmentally responsible behaviour. Students who demonstrated strong ecological concern were more likely to participate in environmental protection activities and adopt sustainable environmental practices. The researchers concluded that ecological values serve as important determinants of environmental behaviour among young people.

In another study, Steg and De Groot (2012) reported that ecological values significantly influenced pro-environmental intentions and behaviours across different environmental contexts. Their findings showed that individuals with strong ecological values exhibited greater willingness to support environmental policies and engage in sustainable lifestyle practices. The study emphasized the

importance of value-based environmental education in promoting environmental sustainability. Within the Nigerian context, Nwankwo and Eze (2021) examined ecological values and environmental conservation behaviour among secondary school students. The findings revealed that students with strong ecological values demonstrated higher levels of environmental responsibility, conservation awareness, and participation in environmental sanitation programmes. The researchers concluded that ecological values are important predictors of sustainable environmental behaviour among students.

Despite these findings, some scholars argue that ecological values alone may not guarantee sustainable environmental behaviour. Kollmuss and Agyeman (2002) observed that factors such as socioeconomic conditions, cultural influences, institutional support, and behavioural constraints may affect the translation of ecological values into actual environmental actions. Consequently, individuals may possess strong ecological values but fail to engage consistently in environmentally responsible practices. Although numerous studies have explored the relationship between ecological values and environmental behaviour, limited empirical evidence exists regarding the predictive influence of ecological values on sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. This gap in knowledge underscores the need for the present study to determine whether ecological values significantly predict sustainable environmental behaviour among students within the study area.

Methodology

This study adopted the correlational survey research design. A correlational survey design is a type of research design used to determine the extent of relationship and predictive influence that exists between two or more variables without manipulating them. According to Nworgu (2015), correlational research seeks to establish the degree of relationship among variables as they naturally occur in a population. The population of the study comprised all Senior Secondary School Two (SS II) students in public secondary schools in Calabar Education Zone, Cross River State during the 2025/2026 academic session. SS II students were selected because they have acquired considerable knowledge of environmental issues through classroom instruction and are mature enough to provide reliable responses to issues relating to environmental values and sustainable environmental behaviour. According to records obtained from the Office of the Director, Calabar Education Zone, Cross River State Ministry of Education (2025), the total population of SS II students in selected public secondary schools in the zone was 5,842, comprising 2,756 males and 3,086 females. The sample for this study comprised three hundred and seventy-four (374) Senior Secondary School Two (SS II) students selected from public secondary schools in Calabar Education Zone, Cross River State. The sample size was considered adequate to provide a representative view of the population and ensure the reliability of the findings. A sample size of 374 students was obtained and used for the study. A multistage sampling procedure was employed in selecting the respondents. In the first stage, simple random sampling technique was used to select ten public secondary schools from the schools located within Calabar Education Zone. This was done through balloting without replacement to ensure that each school had an equal chance of being selected. In the second stage, proportionate stratified sampling technique was used to allocate the sample size to the selected schools based on their respective student populations. This approach ensured fair representation of students from each selected school according to their population size. In the third stage, simple random sampling technique was used to select the required number of respondents from each school. The names of students were obtained from the class registers and subjected to balloting. Students who were successfully selected constituted the sample for the study. To test the hypotheses, Simple Linear Regression Analysis was employed a statistical tool.

Results

Hypothesis one

Environmental responsibility values do not significantly predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. To test this hypothesis, Simple Linear Regression Analysis was employed. The independent variable was environmental responsibility values, while the dependent variable was sustainable environmental behaviour.

Table 1

Simple Linear Regression Analysis of Environmental Responsibility Values and Sustainable Environmental Behaviour among Secondary School Students

Variables	R	R ²	Adjusted R ²	Std. Error
Environmental Responsibility Values	.612	.375	.373	4.218

ANOVA

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	3894.261	1	3894.261	218.934	.000
Residual	6619.442	372	17.794		
Total	10513.703	373			

Coefficients

Model	B	Std. Error	Beta	t	Sig.
Constant	15.284	1.126		13.574	.000
Environmental Responsibility Values	0.684	0.046	.612	14.796	.000

Interpretation of results

The result presented in table 1 revealed a correlation coefficient (R) of .612, indicating a moderate positive relationship between environmental responsibility values and sustainable environmental behaviour among secondary school students. The coefficient of determination ($R^2 = .375$) showed that environmental responsibility values accounted for 37.5% of the variance in sustainable environmental behaviour. The ANOVA result yielded an F-value of 218.934 with a corresponding probability value of .000, which is less than the alpha level of .05. Similarly, the regression coefficient analysis revealed a beta value of .612 and a t-value of 14.796 with a significance value of .000. Since the significance value (.000) is less than the stipulated alpha level of .05, the null hypothesis was rejected. This implies that environmental responsibility values significantly predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State.

Decision

The null hypothesis stating that environmental responsibility values do not significantly predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State was rejected. Therefore, environmental responsibility values significantly predict sustainable environmental behaviour among secondary school students in the study area.

Hypothesis two

Conservation values do not significantly predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. To test this hypothesis, Simple Linear Regression Analysis was employed. Conservation values served as the independent variable, while sustainable environmental behaviour was the dependent variable.

Table 2

Simple Linear Regression Analysis of Conservation Values and Sustainable Environmental Behaviour among Secondary School Students

Variables	R	R²	Adjusted R²	Std. Error of Estimate
Conservation Values	.587	.344	.342	4.321

ANOVA

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Regression	3617.824	1	3617.824	193.762	.000
Residual	6895.879	372	18.537		
Total	10513.703	373			

Coefficients

Model	B	Std. Error	Beta	T	Sig.
Constant	16.173	1.214		13.322	.000
Conservation Values	0.641	0.046	.587	13.920	.000

Interpretation of Results

The result presented in table 2 showed a correlation coefficient (R) of .587, indicating a positive relationship between conservation values and sustainable environmental behaviour among secondary school students in Calabar Education Zone. The coefficient of determination ($R^2 = .344$) revealed that conservation values explained 34.4% of the variance in sustainable environmental behaviour. The ANOVA result produced an F-value of 193.762 with a corresponding significance value of .000. Since the probability value is less than the alpha level of .05, the regression model was statistically significant. Furthermore, the regression coefficient analysis showed a standardized beta coefficient of .587 and a t-value of 13.920 with a significance value of .000. This indicates that conservation values made a significant contribution to the prediction of sustainable environmental behaviour among the students. Since the significance value (.000) is less than the stipulated alpha level of .05, the null hypothesis was rejected.

Decision

The null hypothesis stating that conservation values do not significantly predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State

was rejected. Therefore, conservation values significantly predict sustainable environmental behaviour among secondary school students in the study area.

Hypothesis three

Ecological values do not significantly predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. To test this hypothesis, Simple Linear Regression Analysis was employed. Ecological values served as the independent variable, while sustainable environmental behaviour was the dependent variable.

Table 3

Simple Linear Regression Analysis of Ecological Values and Sustainable Environmental Behaviour among Secondary School Students

Variables	R	R²	Adjusted R²	Std. Error of Estimate
Ecological Values	.645	.416	.414	4.076

ANOVA

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Regression	4374.632	1	4374.632	263.214	.000
Residual	6139.071	372	16.503		
Total	10513.703	373			

Coefficients

Model	B	Std. Error	Beta	T	Sig.
Constant	14.862	1.087		13.673	.000
Ecological Values	0.728	0.045	.645	16.224	.000

Interpretation of Results

The result presented in table 3 revealed a correlation coefficient (R) of .645, indicating a positive and substantial relationship between ecological values and sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. The coefficient of determination ($R^2 = .416$) indicated that ecological values accounted for 41.6% of the variance in sustainable environmental behaviour. The ANOVA result yielded an F-value of 263.214 with a corresponding significance value of .000. Since the probability value is less than the alpha level of .05, the regression model was statistically significant. The regression coefficient analysis further showed a standardized beta coefficient of .645 and a t-value of 16.224 with a significance value of .000. This implies that ecological values made a significant contribution to the prediction of sustainable environmental behaviour among the students. Since the significance value (.000) is less than the stipulated alpha level of .05, the null hypothesis was rejected.

Decision

The null hypothesis stating that ecological values do not significantly predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State was rejected. Therefore, ecological values significantly predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State.

Discussion of findings

Environmental responsibility values and sustainable environmental behaviour

The finding of hypothesis one revealed that environmental responsibility values significantly predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. The result showed that students who possess strong environmental responsibility values are more likely to engage in environmentally responsible practices such as proper waste disposal, environmental sanitation, resource conservation, and participation in environmental protection activities.

This finding is consistent with the position of Stern (2000), who argued that individuals who feel morally responsible for environmental protection are more likely to adopt behaviours that promote environmental sustainability. The finding also agrees with De Groot and Steg (2008), who reported that environmental responsibility values significantly influence environmentally significant behaviour. Similarly, Adebayo and Oladele (2021) found that students with strong environmental responsibility values demonstrated higher levels of participation in environmental conservation and waste management activities. The finding further supports the assumptions of the Value-Belief-Norm (VBN) Theory developed by Stern et al. (1999), which posits that personal values influence environmental beliefs and norms that ultimately determine environmental behaviour. Therefore, the significant predictive influence of environmental responsibility values on sustainable environmental behaviour among students may be attributed to their sense of obligation toward environmental protection and sustainability.

Conservation values and sustainable environmental behaviour

The finding of hypothesis two revealed that conservation values significantly predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. This implies that students who place a high value on the conservation of natural resources are more likely to exhibit behaviours that promote environmental sustainability. The finding is in agreement with Steg, Perlaviciute, Van der Werff, and Lurvink (2014), who found that conservation values positively influence environmentally responsible behaviour, including recycling, energy conservation, and support for environmental protection initiatives. The result also corroborates the findings of Otto and Kaiser (2014), who reported that conservation values significantly predicted ecological behaviour among adolescents. Furthermore, Eze and Agbo (2021) found that conservation values enhanced students' commitment to environmental sanitation and resource conservation practices. The significant relationship observed in this study may be attributed to the fact that students who value environmental conservation tend to recognize the importance of protecting natural resources for present and future generations. This finding lends further support to the Value-Belief-Norm Theory, which emphasizes the role of values in shaping environmental beliefs and environmentally responsible actions.

Ecological values and sustainable environmental behaviour

The finding of hypothesis three revealed that ecological values significantly predict sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. This suggests that students who appreciate the intrinsic value of nature and ecological balance are more likely to engage in sustainable environmental practices. This finding is consistent with the study conducted by De Groot and Steg (2008), which revealed that ecological values significantly influence environmental beliefs and environmentally responsible behaviour. The finding also agrees with Kaiser, Wolfing, and Fuhrer (1999), who reported that ecological concern was a strong predictor of environmental behaviour. Similarly, Otto and Pensini (2017) found that students who exhibited strong ecological values were more likely to participate in environmental conservation activities and demonstrate environmentally friendly behaviours. The finding may be explained by the fact that ecological values encourage individuals to develop concern for the natural environment and recognize the consequences of environmental degradation. Consequently, such individuals become more committed

to environmental protection and sustainable living practices. The result further validates the assumptions of the Value-Belief-Norm Theory, which identifies ecological values as important determinants of environmentally significant behaviour.

Overall, the findings of this study demonstrate that environmental responsibility values, conservation values, and ecological values are important predictors of sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. The findings underscore the importance of promoting environmental values through environmental education programmes as a means of enhancing sustainable environmental behaviour and achieving environmental sustainability.

Summary of findings

The study examined environmental value orientation as a predictor of sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. Based on the analysis of data and the testing of the hypotheses, the following findings emerged:

1. Environmental responsibility values significantly predicted sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. Students who exhibited stronger environmental responsibility values demonstrated higher levels of environmentally responsible behaviour.
2. Conservation values significantly predicted sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. Students who possessed stronger conservation values were more likely to engage in activities that promote environmental sustainability and conservation.
3. Ecological values significantly predicted sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. Students who showed greater concern for ecological balance and environmental protection exhibited more sustainable environmental behaviours.

Conclusion

Based on the findings of the study, it was concluded that environmental value orientation is a significant predictor of sustainable environmental behaviour among secondary school students in Calabar Education Zone, Cross River State. Specifically, environmental responsibility values, conservation values, and ecological values were found to significantly influence students' environmental actions and practices. The study established that students who possess strong environmental values are more likely to engage in environmentally responsible behaviours such as proper waste disposal, environmental sanitation, resource conservation, and participation in environmental protection activities. Therefore, the promotion of environmental values through environmental education programmes remains essential for fostering sustainable environmental behaviour and achieving environmental sustainability among young people.

Recommendations

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

1. School administrators and teachers should strengthen environmental education programmes that promote environmental responsibility values among students through environmental clubs, awareness campaigns, and practical environmental activities.
2. Curriculum developers should incorporate more value-oriented environmental education content into secondary school curricula to enhance students' conservation values and commitment to sustainable environmental practices.
3. Government agencies, environmental organizations, and educational stakeholders should organize regular environmental conservation programmes, tree-planting campaigns, and

community sanitation exercises to encourage the development of ecological values among students.

4. Parents and community leaders should support environmental education initiatives by encouraging environmentally responsible practices at home and within the community.
5. Educational policymakers should provide adequate resources and support for environmental education programmes aimed at cultivating environmental values that promote sustainable environmental behaviour among students.

References

- Adebayo, A. A., & Oladele, O. I. (2021). Environmental values and environmental behaviour among secondary school students in Nigeria. *Journal of Environmental Education Research*, 27(4), 512–526.
- Babalola, A., & Olawuyi, D. S. (2021). *Advancing environmental education for sustainable development in higher education in Nigeria: Current challenges and future directions*. *Sustainability*, 13(19), 10808.
- Chwialkowska, A., Bhatti, W. A., & Glowik, M. (2020). The influence of environmental values on sustainable consumption behaviour. *Sustainability*, 12(4), 163.
- De Groot, J. I. M., & Steg, L. (2008). Value orientations to explain beliefs related to environmentally significant behaviour. *Environment and Behaviour*, 40(3), 330–354.
- Eze, C. U., & Agbo, P. O. (2021). Environmental values and conservation practices among secondary school students in Nigeria. *International Journal of Environmental Education*, 15(2), 45–58.
- Georgiou, Y., Dimitriou, A., & Hadjichambis, A. (2020). Modelling environmental literacy with environmental knowledge, values and behaviour. *Studies in Educational Evaluation*, 65, 100863.
- Kaiser, F. G., Wolfing, S., & Fuhrer, U. (1999). Environmental attitude and ecological behaviour. *Journal of Environmental Psychology*, 19(1), 1–19.
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behaviour? *Environmental Education Research*, 8(3), 239–260.
- Nwankwo, C. O., & Eze, J. N. (2021). Ecological values and environmental conservation behaviour among secondary school students in Nigeria. *African Journal of Environmental Education*, 14(2), 75–89.
- Nworgu, B. G. (2015). *Educational Research: Basic Issues and Methodology* (3rd ed.). Nsukka: University Trust Publishers.
- Otto, S., & Kaiser, F. G. (2014). Ecological behaviour and environmental values among adolescents. *Journal of Environmental Psychology*, 40, 331–340.
- Otto, S., & Pensini, P. (2017). Nature-based environmental education of children: Environmental knowledge and connectedness to nature together are related to ecological behaviour. *Global Environmental Change*, 47, 88–94.



- Steg, L., & De Groot, J. I. M. (2012). Environmental values and environmentally responsible behaviour. *Journal of Environmental Psychology*, 32(4), 330–339.
- Steg, L., Perlaviciute, G., Van der Werff, E., & Lurvink, J. (2014). The significance of hedonic values for environmentally relevant attitudes, preferences, and actions. *Environment and Behaviour*, 46(2), 163–192.
- Stern, P. C. (2000). Toward a coherent theory of environmentally significant behaviour. *Journal of Social Issues*, 56(3), 407–424.
- Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Human Ecology Review*, 6(2), 81–97.
- UNESCO. (2016). *Global Education Monitoring Report: Education for Environmental Sustainability and Green Growth*. Paris: UNESCO.
- UNESCO. (2017). *Education for Sustainable Development Goals: Learning Objectives*. Paris: UNESCO.
- UNESCO. (2024). *Education for Sustainable Development: Learning to Act for People and Planet*. Paris: UNESCO.
- Yamane, T. (1967). *Statistics: An Introductory Analysis* (2nd ed.). New York: Harper and Row Publishers.
- Zhang, W. (2022). *Introduction to Environmental Education*. Singapore: Springer Nature.

HIGH COST OF LIVING IN NIGERIA AND WORKERS' PRODUCTIVITY: IMPLICATIONS ON EMPLOYEES' WELFARE IN NIGERIA

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Abstract

This paper describes the effects which high cost of living in Nigeria has on the productivity and welfare of Nigerian workers. To achieve the objective of the paper, the emphasis is placed on the workers who are actually the focal point with regards to being the ones whose purchasing power erodes under high cost of goods and services. Similarly, these same workers' productive capabilities dwindle due to inability to pay adequately for their housing, transportation, foods, healthcare, and education/training needs required as incentives for a productive and active labour force. This scenario which has the structure of a vicious cycle in the economy of most developing countries has become a scourge in the Nigerian situation. In the circumstances, the masses and an average worker are consequentially poor. In order to address the combined effects of high cost of living, low productivity and poor welfare of workers in Nigeria, these authors relied on related available literature and personal experiences to describe high cost of living in Nigeria by elaborating on sub-headings such as: (i) accommodation; (ii) food; (iii) transportation; (iv) healthcare; (v) employees' productivity in Nigeria and; (vi) implications of high cost of living and employees' productivity on workers' welfare in Nigeria. Thereafter, the summary, conclusion and recommendations were provided.

Keywords: High cost of living; Employees' productivity; Employees' welfare

Introduction

Everyone needs money as a medium of exchange for goods and services, and workers are not an exception. Meanwhile, the financial needs required for meeting workers' personal needs such as unexpected can repair or breakdown in alternative means of mobility could affect their transportation to and from work. This state of affairs also extends to other areas of needs of workers such as payment for food, healthcare, accommodation, and education/further training on-the-job, each of which could affect employees' quality of work and by implication, their welfare, if not properly managed by themselves and their employers.

Growth in labour productivity is directly attributable to fluctuations in physical capital, new technology and human capital. If labour/productivity is growing, it can be traced back to growth in either physical capital, new technology or human capital. Physical capital is the amount of money that people have in savings and investments. New technologies are technological advancements, such as robots or assembly lines. Human capital represents the increase in education and specialization of workers' skills. In this light, Arikpo et al (2017) pointed out that, effective labour output

is actually more challenging as a result of the constantly changing economic and technological conditions in industries all over the world.

Incidentally, workers' productivity is an indispensable factor of production because according to Arikpo and Edoho (2019), organizations, no matter the sophistication of their machinery, still depend on human resources to put the machines to use. Measuring workers' productivity each quarter therefore, allows an economy to measure the changes in its output in relation to the change in the labour output of the workers, if the output is increasing while labour of workers remains static, it could be a sign that the economy is technologically advancing in terms of improvement in non-human inputs, This condition frees workers to engage in those activities which improve their knowledge and other welfare programmes that in turn motivate them to perform their jobs better. Conversely, if workers are putting in longer hours working, yet their output is consistently stagnant, it may be a sign that the economy managers need to invest more in the area of tinman capital development and workers' welfare. However, Edoho, et al (2015) reported that lack of career structure, poor housing, inadequate clinical facilities and drugs, inadequate pay, lack of recreational facilities, limited schooling opportunities for Children and workers, academic and bureaucratic problems, etc have been identified as factors at affect the productivity of workers in Nigeria. Given this kind of employees' poor welfare circumstances in Nigeria, Ulayi, et al (2022) observed that, "provision of quality education at any level is not something that every society or country like Nigeria can easily afford because of the high cost involved".

High cost of living in Nigeria and the world generally continues to rise unabatedly. The daily increase in the prices of goods and services witnessed in Nigerian markets contribute majorly to the high cost of living which may be causing a lot of untold hardship for the workers and their families. Chigozie (2023) warned that, underestimating the high cost of living in Nigeria is one of the worst relocation mistakes an expatriate staff {including Nigerians moving from rural to urban areas} can make. There is no doubt that, high cost of living in Nigeria such as in the areas of accommodation, food, transportation, healthcare, and education at all levels etc is affecting their job performance at their work organizations and b\ implication, their welfare conditions are deteriorating on a daily basis.

High cost of living in Nigeria

High cost of living could be determined through the prices paid for goods and services such as for instance; accommodation, transportation, education, food, healthcare, energy and security. The prices paid for these items, especially by the workers are always upward driven in Nigeria. In essence, the main focus of this position paper was to describe the existence of high cost of living in Nigeria, workers' productivity, and the implications of high cost of living on employees' welfare. At the end, recommendations are made on the way forward, especially concerning the improvement of employees' welfare in Nigeria.

Literature Review

The cost of accommodation in Nigeria

Cost of accommodation in Nigeria is undeniably high (Chigozie, 2023). However, the cost of accommodation varies from state to state, city to city and location to location within a city or state, in Nigeria, hiring companies or organizations find and secure houses for their expatriates to relieve them of the stress of house hunting (Nigerian Price, 2023). Although cost of accommodation is high in every urban and sub-urban cities in Nigeria, however, based on available literature, the two cities where cost of accommodation is highest are Abuja and Lagos. Abuja is the country's capital while Lagos is the country's commercial nerve-centre. These two cities attract tenants from within and outside country.

In the case of Lagos, majority of the tenants constitute foreign and indigenous companies who are attracted by the good business opportunities available, especially the oil boom that started in the 1970s. This oil boom improved the conditions of big cities significantly while also causing population explosion. The high cost of accommodation in Abuja is attributable to the fact that, as the capital of Nigeria, both government functionaries and foreign diplomats seek suitable accommodation for

residential and office use. Nigerian Price (2023) reported that if one is looking to rent a decent apartment in any of the two cities, such a person should get ready to part with any amount between N600,000.00 and N4,000,000.00 per annum, depending on the area the person chooses to live in, and the number of rooms in the apartment.

In the 36 states of the Federation, the state capitals and cities in close proximity to where oil and gas are explored, accommodation cost is usually quite high too. Often times, workers who cannot afford the high cost of accommodation are faced with the only option of choosing to rent accommodation at nearby shanty villages and slums, some of these accommodating areas are far away from workers' places of work thereby putting the affected workers and their family members at high risk, especially as the crime rate in Nigeria is quite high.

The cost of food in Nigeria

Food price fluctuation is among the most significant sources of concern for food security in both developing and developed economies (Echebiri et al 2022). The situation today is such that Nigerians are groaning under rising prices of food items, as well as other essential goods, thus making it difficult for many people to afford them (Abbot Christopher & Wallace, 2009). According to Nwokoji et al (2021), on the recent report on inflation, the Nigerian Bureau of Statistics (NBS) said the Consumer Price Index (CPI) which measures the rate of change in prices of goods and services in the country... coupled with the uniqueness of the current state of agricultural markets in Nigeria is the hike in prices of not only a few selected crops, but nearly all major food and feed commodities. Similarly, Opayemi (2022) reported that the NBS said that price hike of food items rose in May 2022 to 18.37% showing an increase of 17.2% compared to the previous month.

The cost of transportation in Nigeria

One of the items that can take a huge chunk of any employees' expenses in Nigeria is transportation (Nigerian Price, 2023). However, like housing, the cost of transportation in Nigeria varies from different parts of the country, while the cost of transportation is a little higher in the more developed southern part of the country, it is significantly lower in the northern part. Most expatriates prefer to hire locals who know the routes across the city for the sake of convenience and efficiency (Nigerian Price, 2023). The removal of fuel subsidy at the advent of President Tinubu's administration in May 2023 has also resulted in the unusual jump in the cost of transportation in the country. This is so because one litre of petrol which earlier sold for about N240.00 (two hundred and forty naira) has risen to over N1,350.00 (one thousand three hundred naira). The effect of this sudden increase in the pump price of petrol per litre is absorbed by transporters. The commercial transporters on their part complain that getting their tanks filled in the face of either fuel scarcity or high cost is quite difficult, as they may have to patronize black marketers on one hand and on the other hand, they may use a huge amount of money to fill their tanks, thereby leading to an increase in the commuters' transportation cost. For instance, an average taxi drop that usually was N50.00 (fifty naira) in Calabar now costs nothing less than N200.00 (two hundred naira).

The way a country finances its healthcare system is a critical determinant for reaching universal health coverage (Olatubi et al 2018). In Nigeria, healthcare expenditure is incurred through different sources. However, according to Onwujekwe, et al (2010) public expenditures in Nigeria account for just 20-30% of Total Health Expenditures (THE), while private expenditures account for 70-80% of THE. In this category of private healthcare expenditure, the out-of-pocket spending (OOPS) accounts for more than 90% of the overall private healthcare expenditure. The prevailing excessive private share of expenditures in Nigeria is all the more alarming as most of it takes place via non-pooled OOPS, which as noted, has the most regressive form of payment, in a similar contribution. Olatubi *et al*, (2018) reported that more than half of the healthcare costs on the continent of Africa are currently met by OOPS, a ratio that rises to as much as 90% in some countries such as Nigeria.

Healthcare plan in Nigeria is in the concurrent list both in terms of policy formulation and management. In this regard, the Federal Government specifically takes care of the Tertiary Health Sector. In effect, the Federal Government takes care of the establishment and maintenance of University

Teaching Hospitals and Federal Medical Centres. The State Governments on their part take care of the Secondary Health Sector such as the construction and management of General Hospitals in state capitals and Cottage Hospitals in local government headquarters. The Local Governments take care of Primary Health Care Centres located in every Clan, Ward and villages.

Healthcare expenditure according to Olatubi *et al.*, (2018) is the sum of public and private health expenditure... it covers the provision of health services (preventive and curative), family planning activities, nutrition activities and emergency aid designated for health but does not include provision of water and sanitation. In Nigeria, it was 5.07% of GDP in 2010 of the entire population of 170 million people.

Given this kind of budgetary pattern, Nigeria has very poor health population as measured by several health indicators... In recent times, Nigeria's health indicators have either stagnated or worsened despite the federal Government's acclaimed efforts to improve healthcare delivery. Olatubi *et al.*, (2018) further observed that the health status indicators for Nigeria are among the worst in the world. The life expectancy at birth is 49 years while the disability adjusted life expectancy at birth is 38.3 years: vaccine-preventable diseases and infections and parasitic diseases continue to exact their toll on health and survival of Nigerians, thereby remaining the leading causes of morbidity and mortality (Olatubi *et al.*, 2018).

Meanwhile, the convergence hypothesis according to Umoru and Yaqub (2013) states that an economy with a high rate of survival (measured by many years of life expectancy) will converge faster to steady state growth path. Earlier, Contoyannis and Foster (1999) in Umoru and Yaqub (2013) positioned that a healthier nation is a wealthier nation. Umoru and Yaqub (2013) further implied that ill-health has adverse effects on national savings (capital accumulation) and productivity of the labour force.

Unfortunately, the prevalence of diseases burden in Nigeria, such as HIV/AIDS, tuberculosis, malaria and others such as reproductive healthcare implementation coupled with a weak health system has serious impact on the average Nigerian. The avoidable large percentage of mortality rates, especially on the poor continue to have very severe consequences on the working class, especially the poor households thereby making it difficult for them to pay for the available healthcare options and contribute towards the productivity and growth of the Nigerian economy.

Employees' Productivity in Nigeria

Employees' productivity is a function of the type of conditions of service offered to them in their workplaces as motivators or incentives. Makinde (2013) pointed out that under favourable working conditions, workers automatically work with enthusiasm and less concern about their welfare, but if it is in the contrary, they become disenchanted as their commitment dwindles and their productivity tends towards a mirage. Ukwaiyi, Okpa and Dike (2018) have argued that the interplay between a conducive working environment and employee productivity suggests that the formulation and implementation of government policies will be defective if quality work environment and a satisfied/committed workforce are not developed and placed in their right context for efficient and effective service delivery.

Employee productivity is actually measured through their job performance. Job performance according to Arikpo (2019) consists of observable behaviour which workers exhibit in their jobs that are relevant to organizational goals' attainment and these can be assessed in terms of each employee's inputs or level of contribution. An employee or worker according to Glueck (1974:43).

Has been defined in a number of ways, but basically it is perceived by a person to be his or her main occupation. It is purposive, and for which remuneration is received in exchange for expenditure of effort.

According to Arikpo and Edoho (2019), one of the things that motivate employees to remain in an employment and put in their best to ensure the success of the organization is the hope of advancements, and overall improvement in their welfare. In a related contribution, De Villiers and De Villiers (2014), and Agba and Okpa (2018) observed that in Cross River State, as an example, workers are confronted with issues such as:

Understaffing, excessive workload... lack of essential working equipment, little or no training for staff, poor reward system, delay and denial of promotion, lack of sufficient consumables, transportation and lack of those incentives have compromised the productivity of the civil servants.

- **Implications of High Cost of Living and Employees' Productivity on Workers' Welfare in Nigeria**

High cost of living as described elsewhere in this paper has a negative effect on the productivity of the workers in Nigeria and the world over. The declining productivity it implies that, the welfare of the workers and their family members is also declining. For instance, as a result of high transport cost, a worker may stay away from a daily paid job, thus implying that the feeding for that day would be difficult. Consequently, these authors having reviewed the available literature and also based on their personal experiences, sort to further describe and make recommendations on the implications of high cost of living and low productivity on employees' welfare in Nigeria and Cross River State specifically.

Welfare of people according to Arikpo (2023) is a condition of faring well, exception from pain or discomfort. Welfare of people may also refer to organized efforts by a community or organization of same faith, similar views, like minds, etc to improve the social and economic conditions of a group or class, involving welfare work, project, money, food, clothing, accommodation, transportation, etc given to those in need for the purpose of generating employment and profit making income (Arikpo, 2023).

Employees generally spend over 50% of their adult life span working for their organizations (Arikpo & Edoho, 2019). This means these employees have a lot of expectations on being adequately catered for by their employers. This kind of care, according to Arikpo (2008:28) goes beyond financial, promotion and training incentives, but rather, care for other areas of welfare such as provision of furniture, vehicle, medical allowances and food items at reduced rates, etc. Similarly, Denga (1996) earlier pointed out that the workers' need for shelter cannot be contested, such that if housing becomes such a big problem for workers, it is fertile ground for strike, whose resultant effect would be low job performance, in a related study. Eyo (2012) by her empirical study on "Employees' Motivational Strategies and Workers' Productivity in selected financial Institutions in the southern Senatorial District of Cross River State" found out that workers' remuneration and welfare packages have significant influence on workers' productivity. Oyira, Ella, Nkamare, Lukpata, Uwa and Mbum (2015) remarked that "any organization that does not have concern for workers' welfare tends to produce less and is vulnerable to failure".

The circular relationship between high cost of living, workers' productivity and their welfare could be best illustrated in a vicious cycle of failures as illustrated below in Figure 1. To put it differently, it could be said that one bad turn yields to another bad turn. This process only drives endlessly leading to internal calamities of the workers and their families and the collapse of economy of any nation's community development and socio-political security.



Fig. 1: An illustration of a vicious cycle of failures from the circular relationship between high cost of living, workers' productivity and their welfare

Summary and Conclusion

Policy makers and researchers have not yet found a satisfactory remedy for the handling of high cost of living, employees' productivity and the implications on workers' welfare. Based on the available literature review and personal experiences, there is no doubt that the welfare of Nigerian workers is continuous deteriorating and employees are the direct victims, especially the middle and low salary and wage income earners.

High cost of living is not caused by the workers per say, it is rather the interplay of demand and supply conditions of any good or service between buyers and sellers. The high cost of living in Nigeria could be attributed to both the location of the country one lives in and the oil boom of the 1970s which improved the conditions of the big cities significantly. while also causing the population to explode without planned control. Similarly, investment in amenities and luxuries to meet the needs of foreigners and big business owners increased therein spiking cost in the cities with spillover effects in the rural areas. The spillover effects that rural communities suffered from is the drastic fall in agro-based businesses and high cost of labour to grow and cultivate food needed to feed the ever-increasing urban and sub-urban populations.

Additionally, the drastic fall in the production of domestic food crops resulted in the reliance on imported food items, thereby creating an indispensable reliance on the fluctuations of the foreign exchange rate which is usually pegged on the American Dollar, food price fluctuations are among the most significant sources of concern for food security in both developing and developed economics. Many factors have been attributed to the fluctuations in food prices in recent years. these include policy shocks, monetary factors, extreme weather events, demand shocks, energy prices, war/conflicts, and price of oil, etc, for many Nigerian, life and living is becoming extremely difficult, especially as many go through hardship to acquire the critically needed basic necessities of food, clothing and shelter (Echebiri *et al.*, 2022).

The increase in the prices of accommodation, food, transportation and healthcare in Nigeria has drastically reduced the purchasing power of the citizens, especially the middle- and low-income earners. Food, shelter and housing are three important parameters to measure the values of our lives and these things have become elusive to the masses in Nigeria. Gyoh (2012) has argued that the persistent rise in food price in the present Nigerian economic context, is without doubt a process that is either inadvertently or deliberately conceived to slip away money from the pockets of all Nigerian income earners, where more than 70% of households are classified as poor.

Recommendations

The welfare of Nigerian workers and households should constitute the baseline for policy formulation and organizational management in the Nigerian public and private sectors of the economy. This could be accomplished specifically through some of the following –

- Employment creation, especially in the agro-based industries with a view to alleviating the burden of poverty and unskilled workers which could reduce high cost of living, improve productivity of workers and employee welfare in the Nigerian context.
- The government and the private sector employers should endeavour to provide a minimum wage that is above the existing inflationary rate in the country so as to have positive impact on the workers welfare.
- Social protection programmes such as improved healthcare options and facilities, available educational opportunities at all levels, on-the-job training, housing and transportation should be made available and affordable by the Nigerian government at all levels to the masses.
- Government should continue to pursue macroeconomic objectives of price stability, employment and growth in domestic products as this may stabilize the income of workers (Anake. Mamo & Ajom, 2014).

- Finally, since the human labour is still the dominant factor of production in the Nigerian economy, it is necessary to continue to improve the quality and scope of education and training of workers for higher productivity in both the public and private sectors of the economy.

References

- Abbott, P. C., Christopher, I. T., & Wallace, E. T. (2009), What's driving food prices? *March 2009 Update Issue Reports No. 48495*. Oak Brook Farm Foundation
- Arikpo, A. B. (2023). *Family life cycle and members' welfare planning implications*. Being a Lecture delivered on 21st April, 2023 for CMO Catholic Men Organization meeting at St. Paul's Parish; University of Calabar, Calabar
- Arikpo, E. B. (2008). *A survey of motivation of workers' performance: A case study of primary school teachers in Akanikpa Local Government Council Area system*. Unpublished B.Ed project submitted to the Department of Continuing Education and Development Studies, University of Calabar, Calabar.
- Arikpo, E. B. (2019), *Employees' involvement in decision-making and their job performance in selected private companies in Cross River State, Nigeria*. Unpublished Ph.D Dissertation submitted to the Department of Continuing Education and Development Studies, University of Calabar, Calabar.
- Arikpo, E. B., & Edoho, G. E. (2019). Employees' involvement in decision-making on promotion issues and their job performance in private companies in Cross River State- Nigeria. *Interdisciplinary Journal of Science Education (U-SED)*, 1(1). 31-35.
- Arikpo, E. B., Ushie, G. B., & Akpama, S. I. (2017). Manpower training and development in selected industries in Calabar and Akamkpa Local Government Area (SDGS;9). *Education for Today*, 13(2). 44-49
- Chigozie, V. (2023). Cost of living crisis: Nigerians' dream of university education are dying. Retrieved from <https://humanglemediacom/cost-of-living-crisis-nigerians-dreams-of-university-educations-are-dying/>
- De Villiers, M. R. & De Villier, P. J. T. (2014) Doctors views of working conditions in rural hospitals in Western Cape. 46(3), 21-26.
- Donga, D. I. (1996). *Human engineering for high productivity in industrial and work organizations*. Calabar: R. E. Press
- Echebiri, U. V., Abode, J. O., Andrew A. E., Onaghise, I. A. & Amolo, O. B. (2022). Impact of persistent rise in food prices on the Nigerian economy. *International Journal of Business and Management Review*, 10(8). 21-29
- Edoho, S. P., Bamidele, E. O., Neji, O. I. & Frank, A. E. (2015). Job satisfaction among nurses in public hospitals in Calabar, Cross River State, Nigeria. *American Journal of Nursing Science*. 4(4), 232-237
- Eyo, W. O. (2012). *Employers' motivational strategies and workers' productivity in selected financial institutions in Southern Senatorial District of Cross River State Nigeria*. Unpublished M.Ed Thesis submitted to the Department of Continuing Education and Development Studies, University of Calabar, Calabar
- Glueck, W. E. (1974). *Personnel: A diagnostic approach*. Dallas, Texas: Business Publications Inc.



- Gyoh, S. (2012). Nigeria: *The case against fuel subsidy and the argument for deregulated petroleum sub-sector*. Retrieved on 04/09/2023 from <https://awarenessfor>
- Makinde. H. O. (2013). Securing a harmonious working environment through effective industrial relations at workplace: The Nigerian perspective. *Business Management Dynamics*, 3(2), 46-59
- Nigerian Price (2023). Cost of living in Nigeria Lagos & Ahuja. Retrieved from [hups://nigerian price.com/cost-of-living-in-nigeria/](https://nigerianprice.com/cost-of-living-in-nigeria/)
- Nvsokoji, N., Funmilayo. A., & Otemade, A. (2021, September 4). Reasons behind rising cost of food items. *Nigerian Tribune*. Available online at <https://tribunconlineng.com>
- Oiambi. M. I., Oyediran. O. O., Adubi, I. O., & Ogidan. O. C. (2018). Health care expenditure in Nigeria and national productivity: A review. *South Asian Journal of Social Studies and Economics*. 1(I). 1-7
- Onwujekwe, O. E., Uzochukwu. B. S. C., Obikeze. E. N., Ukoronkwo. I., Oehonma, O. G., Onoka, C. A., Madubuko. G., & Okoli, C. (2010). Investigating determinants of out-of-pocket spending and strategies for coping with payments for healthcare in south-east Nigeria. *BMC Health Service Research*, 10(61). (e-journal). Retrieved on 15/11/2023 from <http://www.biomedcentral.com/1472-6963/10/67>
- Opaymi, S. (2022, June 14). Increasing food prices: Nigerians groan under burden of inflation. *Nigerian Tribune*. Available online at <https://tribuneonlineu.com>
- Oyira. E. J., Ella. R., Nkanmre. S. E., Lukpata, F. E., Uwa. S. L., & Mbum, P. A. (2015). Effect of reward system among health care workers' performance: A case study of University of Calabar Teaching Hospital, Calabar, Nigeria. *Journal of Hospital Administration*, 4(3), 45-53
- Ukwayi, J. K., Okpa, J. T., & Dike, E. (2018). Ethnic and religious conflict in Jos, Plateau State, Nigeria: A dangerous threat to human existence and business activities. *Research on Humanities and Social Sciences*, 8(8). 31-37
- Ulayi. A. I., Arikpo. E. B., Anthony, G. B., & Tawo, C. N. (2022). Public Private Partnership (PPP) and collaboration in education: A panacea development of tertiary institutions in Nigeria. *LWAT: A Journal of Contemporary Research*, 19(4), 40-52
- Umoru, D. & Yaqub, J. O. (2013). *International Journal of Humanities and Social Science*, 3(41), 199-221

ETHICS, VALUE EDUCATION AND ADULT LEARNING IN NIGERIA.

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Abstract

This study examines the relationship between ethics, value education, and adult learning in Nigeria, emphasizing their significance in promoting personal development, responsible citizenship, and national transformation. Ethics provides the moral principles that guide human behavior, while value education focuses on the transmission and internalization of desirable societal values such as honesty, integrity, discipline, tolerance, responsibility, and respect for human dignity. Adult learning, as a lifelong process, enables individuals to acquire knowledge, skills, attitudes, and values necessary for adapting to changing social, economic, and technological environments. The study explores the meaning and nature of ethics, the concept of values in education, the characteristics and theoretical foundations of adult learning, and the principles guiding adult education in Nigeria. It further examines the critical roles played by the family, school, and community in value formation and ethical development. The paper argues that adult education serves as a strategic platform for promoting ethical awareness, value reorientation, and social responsibility among citizens. Despite the recognized importance of ethics and value education, challenges such as inadequate funding, declining family influence, corruption, poverty, weak institutional support, and negative social influences continue to hinder effective value formation in Nigerian society. The study concludes that the integration of ethics and value education into adult learning programmes is essential for addressing moral decadence, fostering social cohesion, and achieving sustainable national development. The study highlights the need for collaborative efforts among stakeholders to build a morally responsible, productive, and value-driven society capable of meeting contemporary developmental challenges.

Keywords: Ethics, Value Education, Adult Learning, Value Formation, Lifelong Learning, Nigeria, Adult Education.

Introduction

Ethics, value education, and adult learning are interrelated concepts that play a significant role in national development, social cohesion, and human capital formation. In Nigeria, where socio-economic challenges, moral decline, corruption, insecurity, and unemployment continue to affect national progress, the integration of ethics and value education into adult learning has become increasingly important. Adult learning provides opportunities for individuals who are beyond the traditional school age to acquire knowledge, skills, attitudes, and values necessary for personal development and active participation in society. Through ethical and value-oriented education, adult learners can develop responsible citizenship, integrity, accountability, and social responsibility.

Ethics refers to the principles and standards that guide human conduct and determine what is considered right or wrong within a society. It encompasses moral values such as honesty, fairness, justice, respect, responsibility, and accountability. Ethics serves as a framework for decision-making and

behavior in personal, professional, and societal contexts. In the Nigerian context, ethical education is increasingly recognized as a tool for addressing societal problems such as corruption, examination malpractice, fraud, violence, and other forms of social misconduct. According to the Nigerian Educational Research and Development Council (NERDC), ethical values are fundamental to nation-building and sustainable development.

Value education, on the other hand, is the deliberate process of teaching and inculcating desirable moral, cultural, social, and civic values in individuals. It seeks to develop character and foster positive attitudes that contribute to peaceful coexistence and societal well-being. Value education promotes virtues such as honesty, tolerance, discipline, patriotism, empathy, diligence, and respect for human dignity. In Nigeria's multicultural and multi-ethnic society, value education is essential for promoting national unity, peaceful coexistence, and democratic participation. It equips citizens with the moral foundation required to navigate contemporary social and economic challenges.

Adult learning, often referred to as adult education, encompasses all educational activities designed to meet the learning needs of adults. It includes literacy education, vocational training, continuing education, community development programmes, and lifelong learning initiatives. Adult learning is based on the understanding that adults bring diverse life experiences, motivations, and learning needs into the educational process. As emphasized by the andragogical principles of adult education proposed by Malcolm Knowles, adult learners are self-directed, experience-based, and problem-centered in their learning approach. Furthermore, Ekpenyong (2017), opines that adult education is any education that supports positive change, progress and peaceful existence of people in any given society. An increasing number of adults are using generative AI technologies in their study and work today (including adult teachers and educators) but are often unaware of the limits of generative AI technologies or need to adequately consider the risks such technologies pose from an ethical point of view. Chatbots, in particular, due to algorithmic bias, can perpetuate and amplify societal biases and unfairness, negatively impacting teaching and learning processes and outcomes (Tawo & Akwa 2025).

The integration of ethics and value education into adult learning programmes in Nigeria is critical because adult learners often occupy influential positions within families, workplaces, communities, and governance structures. Consequently, the ethical orientations and values they acquire can significantly influence societal behavior and development outcomes. Ekpenyong, Tawo and Ibok (2024), asserted that adult education differs from child education, it encompasses a board range practice in which adult engages in order to gain new form of Knowledge. Adult education programmes that emphasize ethical reasoning, civic responsibility, and value formation contribute to the development of responsible citizens capable of making informed decisions and contributing positively to society. According to Tawo & Akwa (2025), opined that Gemini AI can be used in adult education to personalize learning, simplify complex topics, and provide personalized support.

Furthermore, the Nigerian government has recognized the importance of value reorientation through initiatives such as the National Policy on Education and various civic education programmes aimed at promoting national values and ethical conduct. Adult learning centres, community education programmes, religious organizations, and non-governmental organizations have also become important platforms for delivering ethics and value education to adult populations.

Despite these efforts, challenges such as inadequate funding, limited access to adult education programmes, cultural diversity, poverty, and weak institutional support continue to hinder the effective integration of ethics and value education into adult learning. Addressing these challenges requires collaborative efforts among government agencies, educational institutions, community organizations, and stakeholders to strengthen adult learning programmes and promote ethical values that support national development.

In conclusion, ethics, value education, and adult learning are indispensable components of sustainable development in Nigeria. Ekpenyong, Tawo and Ojong (2023), opined that funds should be made accessible and available to fitting quarters to encourage progress and success of programmes. Their

integration enhances moral consciousness, promotes responsible citizenship, and equips adult learners with the knowledge, attitudes, and values necessary for personal growth and societal transformation. As Nigeria continues to pursue national development goals, greater emphasis on ethics and value education within adult learning programmes will remain essential for building a morally responsible and productive society.

Meaning of ethics

Ethics is a branch of philosophy that deals with moral principles, values, and standards that guide human behavior and decision-making. It concerns what is right or wrong, good or bad, just or unjust in human conduct. Ethics provides a framework for evaluating actions and determining the moral obligations individuals owe to themselves and society. The term "ethics" is derived from the Greek word *ethos*, meaning character, custom, or habit.

According to Aristotle, ethics is concerned with the development of virtuous character and the pursuit of the good life. Modern scholars view ethics as a system of moral principles that influence behavior and help individuals make responsible decisions. In educational settings, ethics promotes honesty, fairness, accountability, respect, and social responsibility among learners and educators. Ethics and values are fundamental components of education and human development. While ethics provides the moral principles that guide behavior, values represent the beliefs and standards that individuals and societies cherish. Halstead & Taylor, (2021) opines that in education, particularly adult learning, the integration of ethics and values promotes character formation, responsible citizenship, social cohesion, and sustainable national development. Through effective value education, Nigeria can cultivate a morally responsible and productive citizenry capable of addressing contemporary society.

Nature of ethics

The nature of ethics can be understood through the following characteristics:

1. Ethics is Normative: Ethics establishes norms, standards, and principles that guide human behavior. It prescribes what individuals ought to do rather than merely describing what they do.
2. Ethics is Value-Oriented: Ethics is concerned with values such as honesty, integrity, justice, respect, and responsibility. These values serve as the foundation for moral judgments and actions.
3. Ethics is Universal: Although cultural practices may differ, certain ethical principles such as truthfulness, fairness, and respect for human dignity are widely accepted across societies.
4. Ethics is Rational: Ethical decisions are based on logical reasoning and critical thinking rather than emotions alone. Individuals are expected to evaluate situations and make morally justifiable choices.
5. Ethics is Dynamic: Ethical standards evolve over time in response to social, technological, political, and cultural changes. New ethical issues emerge as societies develop.

Concept of values in education

Values are enduring beliefs, ideals, principles, or standards that individuals and societies consider important and desirable. They influence attitudes, decisions, behaviors, and interactions with others. Values help individuals distinguish between what is good and bad, right and wrong, desirable and undesirable. In education, values are transmitted through formal instruction, social interactions, institutional culture, and community experiences. They shape learners' character and prepare them for responsible citizenship (Halstead & Taylor, 2021).

Value education refers to the process of teaching and learning moral, social, cultural, and civic values that promote positive behavior and character development (Abanbeshie, Ironbar, Akwa, 2025). It aims to develop individuals who are intellectually competent, morally upright, socially responsible, and emotionally balanced. Reorientation is perhaps the most profound aspect of the 3Rs, as it involves

reshaping mindsets, values, and societal norms to foster unity, tolerance, and sustainable development (Ojua & Akwa, 2024). Nnachi (2020), asserted that educational institutions play a crucial role in inculcating values that contribute to personal growth and societal progress. Through value education, learners acquire attitudes and behaviors that enable them to live harmoniously with others and contribute meaningfully to society.

Types of Values in Education

1. **Moral Values:** These include honesty, integrity, fairness, truthfulness, kindness, and responsibility. Moral values guide ethical behavior and decision-making.
2. **Social Values:** Social values promote cooperation, tolerance, respect for others, teamwork, and peaceful coexistence.
3. **Civic Values:** These values encourage patriotism, obedience to laws, democratic participation, national unity, and respect for human rights.
4. **Cultural Values:** Cultural values preserve traditions, customs, language, and cultural heritage while promoting appreciation of diversity.
5. **Religious and Spiritual Values:** These values emphasize faith, compassion, humility, forgiveness, and respect for the sacred beliefs of others.
6. **Educational Values:** These include diligence, discipline, punctuality, commitment to learning, creativity, and critical thinking.

Importance of Values in Education

1. Promotes character development and moral growth.
2. Encourages responsible citizenship and leadership.
3. Reduces social vices such as corruption, violence, and dishonesty.
4. Enhances social harmony and national integration.
5. Develops positive attitudes toward work and learning.
6. Strengthens democratic values and civic responsibility.
7. Supports sustainable development and nation-building.

Adult Learning: Meaning and Characteristics

Adult learning refers to the process through which adults acquire new knowledge, skills, values, attitudes, and competencies throughout their lives for personal development, professional advancement, and social participation (UNESCO, 2022). It encompasses all forms of formal, non-formal, and informal learning activities undertaken by individuals who are considered mature and responsible for their own decisions.

Adult learning is a key component of lifelong learning and recognizes that learning does not end with formal schooling but continues throughout life. It includes literacy programmes, vocational training, professional development, community education, distance learning, continuing education, and self-directed learning activities (Merriam & Bierema 2023). According to Malcolm Knowles, adult learning is based on the principles of andragogy, which emphasizes that adults learn differently from children because they possess life experiences, established beliefs, and specific learning needs. Adult learning enables individuals to adapt to changing social, economic, technological, and cultural environments. In Nigeria, Tawo and Akwa (2025), opines that adult learning plays a vital role in addressing illiteracy, unemployment, poverty, civic participation, and workforce development. It empowers adults to improve their quality of life and contribute meaningfully to national development.

Characteristics of Adult Learning

Adult learning possesses distinctive characteristics that differentiate it from children's learning (pedagogy). These characteristics are largely derived from the principles of andragogy developed by Malcolm Knowles.

1. **Self-Directed Learning:** Adults prefer to take responsibility for their learning decisions. They often determine what they want to learn, how they want to learn it, and when they want to learn.
2. **Experience-Based Learning:** Adults bring a wealth of personal, professional, and social experiences to the learning process. These experiences serve as valuable resources that facilitate understanding and problem-solving.
3. **Goal-Oriented Learning:** Adult learners usually participate in educational programmes with specific objectives, such as obtaining employment, improving job performance, acquiring new skills, or solving practical problems.
4. **Relevance and Practicality:** Adults prefer learning that is directly relevant to their personal, occupational, or social needs. They are more motivated when they can immediately apply what they learn to real-life situations.
5. **Problem-Centered Orientation:** Unlike children who often learn subject-centered content, adults focus on learning that helps them solve immediate problems and challenges encountered in daily life.
6. **Internal Motivation:** While external rewards such as promotions and certificates may influence learning, adults are often motivated by internal factors such as self-esteem, personal growth, job satisfaction, and improved quality of life.
7. **Readiness to Learn:** Adults become ready to learn when they recognize a need to acquire knowledge or skills that will help them cope effectively with life situations and responsibilities.
8. **Voluntary Participation:** Most adult learning activities are entered into voluntarily. Adults choose learning opportunities based on their interests, needs, and aspirations.
9. **Active Participation:** Adult learners prefer interactive learning methods such as discussions, case studies, simulations, problem-solving activities, workshops, and collaborative projects rather than passive listening.
10. **Diversity of Learners:** Adult learners differ significantly in age, educational background, occupation, culture, experiences, interests, and learning styles. Effective adult education programmes recognize and accommodate this diversity.
11. **Lifelong Process:** Adult learning is continuous and extends throughout an individual's life. It supports adaptation to changing social, economic, and technological conditions.

Theoretical Foundations of Adult Learning

Adult learning theories are conceptual frameworks that explain how adults acquire knowledge, develop skills, and construct meaning from their experiences. Unlike children, adults bring a wealth of life experiences, established beliefs, social roles, and responsibilities into the learning environment. Understanding these theories enables educators, facilitators, and policymakers to design effective adult education programmes that respond to the unique characteristics and needs of adult learners.

1. Andragogy Theory

Andragogy is the most widely recognized theory of adult learning. This theory was propounded by Malcolm S. Knowles in 1968. He argued that adults learn differently from children and therefore require distinct instructional approaches. He described andragogy as the art and science of helping adults learn.

Assumptions of Andragogy

Knowles identified six assumptions about adult learners:

- I. **Need to know:** Adults want to understand why they need to learn something before investing effort.
- II. **Self-concept:** Adults prefer to be self-directed and independent in their learning.

- III. Experience: Adults bring rich life experiences that serve as learning resources.
- IV. Readiness to learn: Adults become ready to learn when knowledge is relevant to their social roles and responsibilities.
- V. Orientation to learning: Adults favour problem-centred rather than subject-centred learning.
- VI. Motivation: Internal motivations such as personal growth, self-esteem, and job satisfaction are stronger than external rewards.

2. Transformative learning theory

Transformative learning explains how adults revise deeply held assumptions, beliefs, and perspectives through critical reflection. This theory was propounded by Jack Mezirow in 1978. Learning becomes transformative when individuals reinterpret their experiences and adopt new ways of understanding themselves and the world. The theory holds the following key components; Disorienting dilemma, Critical self-reflection, Rational discourse, Perspective transformation, Reintegration based on new viewpoints.

4. Self-Directed learning theory

This theory was propounded by Malcolm S. Knowles 1975. Self-directed learning refers to a process in which individuals take initiative in diagnosing their learning needs, setting goals, identifying resources, selecting strategies, and evaluating outcomes. The following are the characteristics of self-directed theory; Learner autonomy, Personal responsibility, Goal orientation, independent decision-making.

5. Social learning theory

This theory was propounded by Albert Bandura in 1977. He argued that learning occurs through observing others and modelling their behaviours. Adults learn by watching role models, peers, and experts within social environments. The following are the key concepts of this theory; Observation, Modelling, Imitation, Reinforcement, Self-efficacy. Ekpenyong, Ushie, Tawo & Edoho (2025), added that some elements are learned from their environment or surroundings. Ther further stated that such type of learning is associated with the understanding of different human behaviours.

Principles of adult education in Nigeria

Adult education in Nigeria is founded on principles that recognize the unique characteristics, needs, experiences, and aspirations of adult learners. According to Tawo, Ekpenyong, Obibessong, Akwa (2026), defines adult learning as specifically targeting individuals who are regarded as adults by the society to which they belong to improve their technical or professional qualifications, further develop their abilities, enrich their knowledge to complete a level of formal education, or acquire knowledge, skills, and competencies in a new field or to refresh or update their knowledge in a particular field. Unlike children, adults enter the learning process with established life experiences, responsibilities, and specific goals that influence their motivation and participation. Consequently, Tawo and Akwa (2025), opined that adult education programmes are designed to be flexible, learner-centered, practical, and relevant to the socio-economic realities of learners. These principles guide the planning, implementation, and evaluation of adult education programmes aimed at promoting literacy, skill acquisition, civic participation, personal development, and national growth.

The principles of adult education in Nigeria are largely influenced by the philosophy of lifelong learning, the andragogical assumptions of adult learning, and the objectives of the National Policy on Education.

1. Principle of Learner-Centeredness: Adult education places the learner at the center of the educational process. Adult learners are actively involved in identifying their learning needs, setting objectives, and evaluating learning outcomes.
2. Principle of Self-Directed Learning: Adults prefer to take responsibility for their learning. They are capable of identifying their educational needs and seeking solutions independently.
3. Principle of Experience-Based Learning: Adults bring valuable personal, occupational, and social experiences into the learning environment. These experiences serve as important resources for learning.

4. Principle of Readiness to Learn: Adults become ready to learn when they perceive a need to acquire knowledge or skills that will help them cope with life situations.
5. Principle of Problem-Centered Learning: Adult learners prefer learning that helps them address practical challenges rather than abstract theoretical concepts.
6. Principle of Respect and Mutual Trust: Adult learners expect to be treated with dignity and respect. Effective adult education is based on mutual trust between facilitators and learners
7. Principle of Lifelong Learning: Adult education recognizes learning as a continuous process that extends throughout life. Individuals continually acquire new knowledge and skills to adapt to changing circumstances.
8. Principle of Community Participation: Adult education recognizes the importance of community involvement in educational development. Learning should address community needs and promote collective progress. Furthermore, Abanbeshie, Ironbar, Akwa (2025), stated that Members of the community are encouraged to actively participate in community initiatives and influence their results via this inclusive approach, which gives them a sense of agency and ownership.

Role of family, school, and community in value formation

Value formation is the process through which individuals acquire and internalize moral principles, beliefs, attitudes, and standards that guide their behavior and interactions within society (Yusuf, 2021). Values such as honesty, integrity, respect, responsibility, tolerance, cooperation, and patriotism are essential for personal development and social harmony (Akinpelu, 2019). The development of these values is not an automatic process; rather, it occurs through continuous interaction with key social institutions, particularly the family, school, and community (Merriam & Bierema, 2023). These institutions serve as agents of socialization and play complementary roles in shaping the character and behavior of individuals throughout life. In Nigeria, where concerns about moral decadence, corruption, indiscipline, and social unrest continue to challenge national development, the role of family, school, and community in value formation has become increasingly important (Okafor, 2022). Together, they provide the foundation for nurturing responsible citizens who can contribute positively to society.

Role of the family in value formation

Ocho (2021) reported that the family is the first and most influential agent of value formation. It is within the family that children and young adults first learn acceptable patterns of behavior, moral standards, and social norms.

1. Teaching Moral Values: Parents and guardians introduce children to fundamental values such as honesty, obedience, respect for elders, kindness, humility, and responsibility. These values form the basis of ethical behavior throughout life.
2. Role Modeling: Children learn by observing the behavior of their parents and other family members. Parents who demonstrate integrity, discipline, and respect are more likely to raise children who exhibit similar qualities.
3. Socialization Process: The family teaches societal norms, customs, traditions, and cultural practices. Through this process, individuals learn what is considered acceptable or unacceptable within society.
4. Development of Character: The family provides guidance, discipline, and emotional support that contribute to the development of positive character traits and self-control.
5. Religious and Spiritual Formation: Many Nigerian families transmit religious beliefs and ethical teachings that influence moral conduct and value systems.
6. Civic Responsibility: Families instill values of patriotism, cooperation, tolerance, and community service, preparing individuals for responsible citizenship.

Role of the school in value formation

The school is a formal institution responsible for intellectual, social, and moral development (Nnachi, 2021). Beyond academic instruction, schools play a crucial role in transmitting societal values and shaping behavior.

1. **Formal Value Education:** Schools incorporate moral instruction, civic education, social studies, and religious studies into the curriculum to promote desirable values and ethical behavior.
2. **Character Development:** Through rules, regulations, and disciplinary measures, schools encourage discipline, punctuality, honesty, hard work, and responsibility.
3. **Teacher as Role Model:** Teachers influence learners through their attitudes, behavior, and professional conduct. Learners often emulate teachers who demonstrate integrity, fairness, and respect.
4. **Promotion of Social Values:** School activities such as group projects, debates, sports, and clubs teach cooperation, teamwork, tolerance, leadership, and mutual respect.
5. **Democratic Participation:** Schools provide opportunities for learners to participate in decision-making processes through student associations and leadership positions, fostering democratic values and civic responsibility.
6. **Cultural Transmission:** Schools preserve and transmit cultural heritage, national values, and social norms necessary for societal continuity and national unity.

Role of the community in value formation

The community encompasses the broader social environment in which individuals live and interact. It includes religious institutions, traditional authorities, peer groups, media organizations, and community-based associations.

1. **Reinforcement of Social Values:** Communities reinforce values learned at home and school by rewarding acceptable behavior and discouraging misconduct.
2. **Cultural Preservation:** Traditional institutions and community leaders promote cultural values, customs, and practices that strengthen social identity and cohesion.
3. **Religious Influence:** Churches, mosques, and other religious organizations play a significant role in teaching moral principles such as honesty, compassion, forgiveness, and service to humanity.
4. **Social Control:** Communities establish norms and sanctions that regulate behavior and encourage conformity to acceptable standards.
5. **Peer Group Influence:** Peers significantly influence attitudes, behavior, and value acquisition. Positive peer associations encourage constructive values, while negative peer pressure may promote undesirable behavior.
6. **Community Development Activities:** Participation in community projects, voluntary services, and social organizations helps individuals develop responsibility, cooperation, leadership, and civic consciousness.
7. **Media and Technology:** Modern communities are influenced by traditional and digital media, which can either promote positive values or contribute to moral decline depending on the content consumed.

Interrelationship of family, school, and community in value formation

Value formation is most effective when the family, school, and community work collaboratively. These institutions complement one another in several ways:

- I. The family provides the foundation for value acquisition.

- II. The school reinforces and expands these values through formal education.
- III. The community sustains and applies these values in real-life situations.

When there is consistency among these institutions, individuals are more likely to internalize positive values. However, conflicting messages from family, school, and community can create confusion and weaken moral development.

Challenges to value formation in nigeria

Several factors hinder effective value formation in contemporary Nigerian society such as,

1. Breakdown of family structures.
2. Moral decadence and corruption.
3. Inappropriate media content.
4. Weak enforcement of social norms.
5. Poverty and economic hardship.
6. Insecurity and social instability.

These challenges underscore the need for stronger collaboration among families, schools, communities, and government institutions in promoting ethical values. The family, school, and community are indispensable agents of value formation. Yusuf (2021), conceived that family lays the moral foundation, the school provides structured value education, and the community reinforces societal norms and ethical standards. Together, they shape the character, attitudes, and behavior of individuals and contribute to the development of responsible citizens. In Nigeria, strengthening the partnership among these institutions is essential for addressing moral challenges, promoting national unity, and fostering sustainable development.

Conclusion

Ethics, value education, and adult learning are fundamental components of human development and societal progress in Nigeria. Ethics provides the moral framework that guides human conduct, while value education promotes the acquisition and internalization of desirable values such as honesty, integrity, responsibility, tolerance, respect, and patriotism. Adult learning, on the other hand, offers opportunities for individuals to acquire knowledge, skills, attitudes, and values throughout their lives, enabling them to adapt to changing social, economic, and technological realities.

Furthermore, value formation is a collective responsibility involving the family, school, and community. The family serves as the primary agent of moral development, the school reinforces values through formal education, and the community sustains these values through social interactions, cultural practices, and civic engagement. When these institutions work together, they create an environment that fosters responsible citizenship and ethical behavior.

In the Nigerian context, where challenges such as corruption, insecurity, indiscipline, and social fragmentation persist, the integration of ethics and value education into adult learning programmes is essential. Strengthening ethical values through lifelong learning can contribute to national unity, social cohesion, good governance, and sustainable development. Therefore, government agencies, educational institutions, community organizations, religious bodies, and families must collaborate to promote value-based adult education as a strategy for building a morally responsible, productive, and progressive society.

Suggestions and way forward

To enhance the effectiveness of ethics, value education, and adult learning in Nigeria, deliberate efforts must be made by government, educational institutions, families, communities, religious organizations, and other stakeholders. The following suggestions and way forward are made by the researchers: Adult education curricula should incorporate ethics, civic responsibility, leadership,

integrity, and value education as core components. This will help adult learners develop positive attitudes and ethical behaviors that can influence their families, workplaces, and communities. Adult educators should receive regular training and professional development in modern teaching methods, value education, ethical instruction, and learner-centered approaches. Well-trained facilitators are essential for effective value transmission and adult learning outcomes.

The future of ethics, value education, and adult learning in Nigeria depends on a coordinated and sustained commitment from all stakeholders. Government policies should prioritize moral reorientation and lifelong learning as essential tools for national development. Educational institutions should integrate value-based learning into all adult education programmes, while families and communities should reinforce ethical standards and positive social norms. Furthermore, technological innovations should be harnessed to expand access to quality adult learning opportunities.

References

- Abanbeshie, J. A., Ironbar, V. E. & Akwa, E. I. (2025). Market Women's Cooperative and the Promotion of Business Ventures in Calabar Municipality, Cross River State. *International Journal of Advanced Research in Public Policy, Administration and Development Strategies (IJARPPADS)*. 7, (1), 120 – 130. doi: 10.48028/iiprds/ijarppads.v7.i1.09.
- Abanbeshie, J. A., Ironbar, V. E. & Akwa, E. I. (2025). Traditional Media and Implementation of Community Projects in Akpabuyo District of Cross Rive State. *International Journal of Innovative Research in Education, Technology & Social Strategies (IJIRETSS)*. 12 (1), 163 – 172. doi: 10.48028/iiprds/ijiretss.v12.i1.12
- Akinpelu, J. A. (2019). *Philosophy and Adult Education in Nigeria*. Ibadan: Stirling-Horden Publishers.
- Ekpenyong, V. O. (2017). The role of adult education in conflict management training in organizations. *Nigerian Journal of Clinical Counseling Psychology*. 25 (1) 71 – 82.
- Ekpenyong, V. O. Tawo, C. N, Ibok, E. O. (2024) Digitalization and emerging issues in Adult Education for Sustainable Development in Nigeria. *Bayero Journal of Education in Africa*. 10 (3) 144 -153.
- Ekpenyong, V. O., Tawo, C. N., Ojong, A. A., (2023), Training in conflict management and workers productivity in companies in Cross River State, Nigeria. *KIU Journal od Education*. (KJED) 3 (2) 1-8.
- Federal Republic of Nigeria (2014). *National Policy on Education* (6th ed.). Lagos: NERDC Press.
- Halstead, J. M., & Taylor, M. J. (2021). *Values in Education and Education in Values*. London: Routledge.
- Knowles, M. S., Holton, E. F., & Swanson, R. A. (2020). *The Adult Learner: The Definitive Classic in Adult Education and Human Resource Development* (9th ed.). New York: Routledge.
- Merriam, S. B., & Bierema, L. L. (2023). *Adult Learning: Linking Theory and Practice* (3rd ed.). San Francisco: Jossey-Bass.
- Nnachi, R. O. (2020). *Sociology of Education in Nigeria*. Enugu: John Jacobs Publishers.
- Ocho, L. O. (2021). Adult Education and National Development in Nigeria. *Journal of Adult and Continuing Education*, 27(2), 145–160.

- Ojua, T. A. & Akwa E. I. (2024). National Re-Orientation, Moral and National Values (The 3RS- Reconstruction, Rehabilitation and Reorientation). *Nigeria: Her People and Cultural Development*. University of Calabar Printing Press. 91 - 112. ISBN: 978- 978- 002- 123 – 5.
- Okafor, F. C. (2022). Value Education and Ethical Reorientation for Sustainable Development in Nigeria. *International Journal of Educational Research and Development*, 14(3), 78–91.
- Tawo, C. A., Akwa E. I., Ekpenyong, E. A. & Emangha O. N. (2025). International society for comparative adult education (ISCAE): aims, objectives and implications. *Global journal of educational research*. 24, (3), 347 - 353. doi: <https://dx.doi.org/10.4314/gjedr.v24i3.8>
- Tawo, C. N., & Akwa E. I. (2025). Perceived opportunities and challenges of ai powered learning platforms in adult education from the spectacles of educators and learners. *LWATI: A Journal of Contemporary Research*. 22 (2), 77 – 97. <http://creativecommons.org/licenses/by-nc-nd/4.0>
- Tawo, C. N., Ekpenyong, V. O., Obisessong, V. M. Akwa, E. I. (2026). Harnessing ai powered learning tools in overcoming cognitive inertia in adult learners. *Journal for Education*. 22 (4), 92 – 104.
- UNESCO (2022). *Global Report on Adult Learning and Education (GRALE 5)*. Paris: UNESCO Institute for Lifelong Learning.
- Yusuf, M. A. (2021). Family and Community Influence on Moral Development among Nigerian Learners. *Nigerian Journal of Educational Studies*, 19(2), 112–128.

ENVIRONMENTAL ETHICAL VALUES AND BIODIVERSITY CONSERVATION BEHAVIOUR AMONG COMMUNITY MEMBERS IN IKOM EDUCATION ZONE, CROSS RIVER STATE, NIGERIA

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Abstract

This study investigated environmental ethical values and biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State. Specifically, the study examined the extent to which environmental responsibility ethics, conservation ethics, and ecocentric ethics influence biodiversity conservation behaviour. A correlational survey research design was adopted for the study. The population comprised 326,450 adult community members across Ikom, Etung, Boki, Yakurr, Abi, and Obubra Local Government Areas, while a sample of 401 respondents was selected using the Taro Yamane sampling technique and a multistage sampling procedure. Data for the study were collected using a structured questionnaire and analyzed using simple and multiple regression analyses at a 0.05 level of significance. The findings revealed that environmental responsibility ethics significantly influenced biodiversity conservation behaviour ($\beta = 0.618, p < 0.05$), conservation ethics significantly influenced biodiversity conservation behaviour ($\beta = 0.594, p < 0.05$), and ecocentric ethics significantly influenced biodiversity conservation behaviour ($\beta = 0.657, p < 0.05$). The results further showed that environmental ethical values jointly and significantly influenced biodiversity conservation behaviour ($R = 0.712, R^2 = 0.507, p < 0.05$), indicating that the three predictors jointly explained 50.7% of the variation in biodiversity conservation behaviour among community members. The study concluded that environmental ethical values are strong predictors of biodiversity conservation behaviour in the study area. Based on the findings, it was recommended that environmental education programmes and community-based conservation initiatives should be strengthened to promote environmental ethical values and enhance biodiversity conservation practices among residents of Ikom Education Zone.

Keywords: Environmental ethics, environmental responsibility, conservation ethics, ecocentric ethics, biodiversity conservation behaviour, community members, Cross River State.

Introduction

Biodiversity constitutes one of the most valuable components of the natural environment, providing essential ecological, economic, social, and cultural benefits that sustain human life and ecosystem stability. Biodiversity encompasses the variety of living organisms, including plants, animals, microorganisms, and the ecosystems in which they exist. Healthy biodiversity contributes to ecosystem functioning through nutrient cycling, climate regulation, pollination, soil formation, and the provision of food, medicine, and other natural resources necessary for human survival (Convention on Biological

Diversity [CBD], 2022). However, biodiversity across the globe is increasingly threatened by human activities such as deforestation, habitat destruction, and overexploitation of natural resources, pollution, urbanization, and climate change. The rapid decline in biodiversity has become a major environmental concern worldwide. According to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2019), approximately one million plant and animal species are at risk of extinction due to human-induced environmental changes. This alarming trend has heightened global efforts toward biodiversity conservation and sustainable environmental management. While governments and environmental organizations continue to implement conservation policies and programmes, there is growing recognition that successful biodiversity conservation requires not only legal frameworks and technological interventions but also the development of ethical values that promote responsible human-environment relationships.

Environmental ethics refers to the moral principles, beliefs, and values that guide human interactions with the natural environment. It emphasizes the responsibility of individuals and communities to protect, preserve, and sustainably utilize environmental resources for present and future generations. Environmental ethics challenges the notion that nature exists solely for human exploitation and instead promotes respect for the intrinsic value of all living organisms and ecosystems (Leopold, 1949). Through environmental ethics, individuals develop a sense of moral obligation toward environmental stewardship, conservation, and sustainable resource management. Environmental ethical values are important determinants of environmental behaviour because they influence how individuals perceive environmental issues and respond to conservation challenges. Individuals who possess strong environmental ethical values are more likely to support biodiversity conservation initiatives, protect wildlife habitats, discourage unsustainable resource exploitation, and participate actively in environmental protection programmes. Environmental ethical values therefore serve as a foundation for developing biodiversity conservation behaviour within communities (Stern, 2000).

Biodiversity conservation behaviour refers to actions and practices undertaken by individuals and groups to protect biological diversity and maintain ecosystem integrity. Such behaviours include participation in afforestation programmes, protection of endangered species, sustainable harvesting of forest resources, prevention of illegal hunting, proper waste disposal, and support for environmental conservation policies. Biodiversity conservation behaviour is essential for preserving ecological balance and ensuring the sustainable availability of natural resources for future generations (UNESCO, 2024). The relationship between environmental ethical values and biodiversity conservation behaviour has attracted considerable attention among environmental scholars. Studies have shown that individuals with strong ethical concern for nature tend to exhibit positive conservation attitudes and behaviours. Environmental ethics encourages environmental responsibility, conservation consciousness, and ecocentric perspectives that motivate individuals to protect biodiversity and natural ecosystems (De Groot & Steg, 2008). Consequently, strengthening environmental ethical values among community members has become an important strategy for promoting biodiversity conservation and environmental sustainability.

In Nigeria, biodiversity resources continue to face increasing pressure from human activities such as logging, agricultural expansion, bush burning, illegal hunting, and unsustainable exploitation of forest resources. These activities have contributed to habitat loss, species decline, and ecosystem degradation in many parts of the country. Cross River State remains one of Nigeria's most biologically diverse regions, containing extensive tropical rainforest ecosystems and numerous plant and animal species of ecological significance. However, biodiversity resources within the state continue to face threats arising from anthropogenic activities and inadequate conservation practices.

The Ikom Education Zone of Cross River State comprises several communities located within or adjacent to biodiversity-rich environments. Many residents depend directly on forest resources for their livelihoods, making their environmental values and conservation behaviours critical to the long-term

sustainability of local biodiversity. Despite various environmental conservation programmes and awareness campaigns, biodiversity loss and environmental degradation remain significant concerns within the area. This situation raises questions regarding the extent to which environmental ethical values influence biodiversity conservation behaviour among community members. Although previous studies have examined environmental awareness, environmental attitudes, and conservation practices, limited empirical attention has been given to the influence of environmental ethical values on biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State. This gap in knowledge necessitates empirical investigation to determine whether environmental ethical values significantly influence biodiversity conservation behaviour within the study area. Therefore, this study seeks to examine environmental ethical values and biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State. The findings of the study are expected to contribute to environmental education literature and provide useful information for policymakers, conservation agencies, environmental educators, and community leaders seeking to strengthen biodiversity conservation through ethical value orientation.

Theoretical Framework

1. Land Ethic Theory by Aldo Leopold in 1949

The study is anchored partly on the Land Ethic Theory propounded by Aldo Leopold in 1949. The theory was presented in his book *A Sand County Almanac* and remains one of the foundational theories in environmental ethics. According to Leopold (1949), humans should regard themselves as members of a broader ecological community rather than conquerors of nature. The theory emphasizes that all components of the environment, including plants, animals, soil, water, and ecosystems, possess intrinsic value and deserve moral consideration. Leopold argued that an action is right when it tends to preserve the integrity, stability, and beauty of the biotic community and wrong when it tends otherwise.

The Land Ethic Theory promotes environmental responsibility, respect for nature, ecological stewardship, and conservation consciousness. It encourages individuals and communities to adopt ethical values that support environmental protection and biodiversity conservation.

The theory is relevant to the present study because environmental ethical values constitute the independent variable of the study. The theory explains how ethical principles and moral obligations toward nature can influence the behaviour of community members regarding biodiversity conservation. Community members who embrace environmental responsibility ethics, conservation ethics, and ecocentric ethics are more likely to engage in behaviours that protect biodiversity, prevent habitat destruction, discourage illegal exploitation of forest resources, and support conservation initiatives within Ikom Education Zone.

2. Value-Belief-Norm (VBN) Theory by Stern, Dietz, Abel, Guagnano, and Kalof in 1999.

The second theory underpinning this study is the Value-Belief-Norm (VBN) Theory developed by Stern, Dietz, Abel, Guagnano, and Kalof in 1999. The Value-Belief-Norm Theory explains environmentally significant behaviour through a chain of influence beginning with personal values, followed by environmental beliefs, personal norms, and ultimately behaviour. The theory posits that individuals who possess strong pro-environmental values are more likely to develop beliefs concerning environmental protection and feel morally obligated to engage in actions that support environmental sustainability.

According to Stern et al. (1999), environmental values shape individuals' awareness of environmental consequences and their sense of responsibility for addressing environmental problems. These values subsequently activate personal norms that motivate environmentally responsible actions

such as biodiversity conservation, environmental protection, and sustainable resource utilization. The theory identifies biospheric values, altruistic values, and egoistic values as important determinants of environmental behaviour. Among these, biospheric values are particularly relevant because they reflect concern for nature, ecosystems, and biodiversity conservation.

The Value-Belief-Norm Theory is relevant to this study because it explains the relationship between environmental ethical values and biodiversity conservation behaviour. The independent variable (environmental ethical values) represents the values that influence environmental beliefs and moral obligations, while the dependent variable (biodiversity conservation behaviour) represents the conservation actions that result from those values. The theory therefore provides a framework for understanding how ethical values motivate community members in Ikom Education Zone to participate in biodiversity conservation activities, protect natural resources, and support sustainable environmental practices.

Statement of the Problem

Biodiversity is essential for maintaining ecological balance, supporting ecosystem services, and sustaining human livelihoods. It provides numerous benefits, including food, medicine, raw materials, climate regulation, and cultural values. Despite its importance, biodiversity resources across the world are increasingly threatened by human activities such as deforestation, illegal logging, bush burning, overhunting, agricultural expansion, habitat destruction, and unsustainable exploitation of natural resources. These activities have resulted in the loss of species, degradation of ecosystems, and declining environmental quality. In Nigeria, particularly in Cross River State, biodiversity resources continue to face significant pressure from human-induced environmental activities. The state is recognized as one of the country's richest biodiversity hotspots, hosting diverse plant and animal species as well as extensive tropical rainforest ecosystems. However, reports of forest depletion, wildlife exploitation, habitat fragmentation, and other environmentally harmful practices continue to raise concerns about the long-term sustainability of biodiversity resources. These challenges are also evident in many communities within Ikom Education Zone, where a substantial proportion of the population depends directly on natural resources for their livelihoods.

Several efforts have been made by government agencies, environmental organizations, and conservation groups to promote biodiversity conservation through environmental awareness campaigns, environmental education programmes, and conservation policies. Despite these interventions, biodiversity loss and environmental degradation persist in many communities. This situation suggests that awareness alone may not be sufficient to influence conservation behaviour and that other factors, particularly environmental ethical values, may play a crucial role in determining how individuals interact with the natural environment. Environmental ethical values such as environmental responsibility ethics, conservation ethics, and ecocentric ethics are expected to encourage community members to protect biodiversity and adopt environmentally responsible behaviours. However, observations within many communities indicate that environmentally harmful practices continue despite increasing awareness of environmental issues. This raises concerns regarding whether community members possess the ethical values necessary to support biodiversity conservation and whether such values significantly influence their conservation behaviour.

Although previous studies have examined environmental awareness, environmental attitudes, environmental knowledge, and conservation practices, limited empirical studies have focused on the relationship between environmental ethical values and biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State. Consequently, there is inadequate empirical evidence on the extent to which environmental ethical values influence biodiversity conservation behaviour within the study area. It is against this background that this study seeks to investigate environmental ethical values and biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State. Specifically, the study examines whether

environmental responsibility ethics, conservation ethics, and ecocentric ethics significantly influence biodiversity conservation behaviour among community members.

Objectives of the Study

The main objective of this study is to examine environmental ethical values and biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State. Specifically, the study seeks to:

1. Examine the influence of environmental responsibility ethics on biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State.
2. Determine the influence of conservation ethics on biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State.
3. Investigate the influence of ecocentric ethics on biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State.
4. Assess the joint influence of environmental responsibility ethics, conservation ethics, and ecocentric ethics on biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State.

Research Questions

1. To what extent do environmental responsibility ethics influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State?
2. To what extent do conservation ethics influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State?
3. To what extent do ecocentric ethics influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State?
4. What is the joint influence of environmental responsibility ethics, conservation ethics, and ecocentric ethics on biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State?

Research Hypotheses

The following null hypotheses were formulated and tested at the 0.05 level of significance:

1. Environmental responsibility ethics do not significantly influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State.
2. Conservation ethics do not significantly influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State.
3. Ecocentric ethics do not significantly influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State.
4. Environmental responsibility ethics, conservation ethics, and ecocentric ethics do not jointly and significantly influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State.

Literature review

Environmental responsibility ethics and biodiversity conservation behaviour

Environmental responsibility ethics refers to the moral principles and obligations that guide individuals and communities toward responsible interactions with the natural environment. It emphasizes the duty of humans to protect, preserve, and sustainably utilize environmental resources for the benefit of present and future generations. Environmental responsibility ethics is founded on the belief that individuals have an obligation to minimize environmental harm and contribute positively to environmental sustainability (Leopold, 1949). Environmental responsibility ethics has become increasingly important in contemporary environmental discourse due to growing concerns over

biodiversity loss, climate change, deforestation, and ecosystem degradation. According to UNESCO (2024), environmental responsibility involves recognizing the consequences of human actions on the environment and taking appropriate measures to conserve natural resources and protect ecological systems. Individuals who possess strong environmental responsibility ethics are more likely to engage in activities that promote environmental conservation and biodiversity protection.

Biodiversity conservation behaviour refers to the actions and practices undertaken by individuals or groups to protect biological diversity and ensure the sustainable management of natural resources. Such behaviours include participation in afforestation programmes, prevention of illegal logging, protection of wildlife species, sustainable harvesting of forest resources, environmental sanitation, and support for conservation policies. Biodiversity conservation behaviour is essential for maintaining ecosystem stability and safeguarding environmental resources for future generations (Convention on Biological Diversity, 2022). Environmental responsibility ethics is widely recognized as a key determinant of biodiversity conservation behaviour. Individuals who perceive environmental protection as a moral obligation are more likely to participate actively in conservation activities and support biodiversity preservation initiatives. Stern (2000) argued that environmental responsibility values influence individuals' environmental beliefs and personal norms, which subsequently shape environmentally responsible behaviour. This suggests that people who feel accountable for environmental outcomes are more likely to engage in biodiversity conservation practices.

The Value-Belief-Norm Theory developed by Stern et al. (1999) provides a theoretical explanation for the relationship between environmental responsibility ethics and biodiversity conservation behaviour. The theory posits that individuals with strong environmental values develop beliefs regarding the consequences of environmental degradation and assume responsibility for addressing environmental problems. These beliefs activate personal norms that motivate conservation behaviour. Thus, environmental responsibility ethics serves as a foundation for biodiversity conservation actions. Empirical studies have provided evidence supporting the influence of environmental responsibility ethics on biodiversity conservation behaviour. Kaiser and Scheutle (2003) found that individuals who demonstrated a strong sense of environmental responsibility were more likely to engage in conservation activities and adopt environmentally friendly practices. The study concluded that personal responsibility toward environmental protection significantly predicts pro-environmental behaviour. Similarly, Schultz et al. (2005) reported that environmental responsibility and concern for nature positively influenced conservation behaviour among community residents. Individuals who felt morally responsible for protecting natural ecosystems were more likely to participate in biodiversity conservation programmes and support environmental protection initiatives.

In another study, Bamberg and Möser (2007) conducted a meta-analysis of environmental behaviour studies and found that personal responsibility was one of the strongest predictors of environmentally responsible behaviour. Their findings revealed that individuals who perceived themselves as responsible for environmental outcomes exhibited greater commitment to conservation activities and sustainable environmental practices. Within the African context, Nche, Achunike, and Okoli (2019) investigated environmental ethics and conservation practices among rural communities in southeastern Nigeria. The findings revealed that environmental responsibility ethics significantly influenced participation in biodiversity conservation activities, including forest protection, wildlife conservation, and environmental sanitation. The study emphasized the importance of promoting environmental ethical values as a strategy for improving conservation behaviour among community members.

Despite the positive relationship reported in many studies, some researchers have argued that environmental responsibility ethics alone may not guarantee biodiversity conservation behaviour. Kollmuss and Agyeman (2002) observed that socioeconomic challenges, cultural practices, lack of environmental awareness, and weak institutional support may hinder the translation of ethical values into

actual conservation behaviour. Consequently, individuals may possess environmental responsibility ethics but fail to engage consistently in biodiversity conservation activities. The reviewed literature indicates that environmental responsibility ethics is an important factor influencing biodiversity conservation behaviour. However, empirical evidence on this relationship among community members in Ikom Education Zone, Cross River State remains limited. Therefore, there is a need for further investigation to determine the extent to which environmental responsibility ethics influences biodiversity conservation behaviour within the study area.

Conservation ethics and biodiversity conservation behaviour

Conservation ethics refers to the moral principles and values that guide individuals and communities toward the protection, preservation, and sustainable use of natural resources. It emphasizes the responsibility of humans to conserve biodiversity and maintain ecological balance for the benefit of present and future generations. Conservation ethics promotes the idea that natural resources should not be exploited indiscriminately but should be managed in a manner that ensures environmental sustainability and ecosystem stability (Leopold, 1949).

The concept of conservation ethics emerged from growing concerns over environmental degradation and biodiversity loss resulting from unsustainable human activities. Conservation ethics advocates responsible environmental stewardship and encourages individuals to adopt behaviours that support the preservation of forests, wildlife, water resources, and other ecological assets. According to Callicott (1989), conservation ethics seeks to establish a harmonious relationship between humans and nature by promoting respect for the ecological processes that sustain life on earth. Biodiversity conservation behaviour refers to the actions undertaken by individuals and groups to protect biological diversity and prevent the depletion of natural resources. Such behaviours include participation in reforestation programmes, prevention of illegal logging, wildlife protection, sustainable farming practices, avoidance of bush burning, and support for conservation policies and initiatives. Biodiversity conservation behaviour is considered essential for maintaining ecosystem integrity and ensuring the continued provision of ecosystem services necessary for human well-being (Convention on Biological Diversity, 2022).

Conservation ethics is widely regarded as an important determinant of biodiversity conservation behaviour. Individuals who possess strong conservation ethics are more likely to appreciate the value of biodiversity and engage in actions that promote environmental sustainability. According to Norton (2005), conservation ethics encourages individuals to recognize their responsibility toward protecting ecosystems and motivates them to adopt behaviours that minimize environmental degradation.

The theoretical relationship between conservation ethics and biodiversity conservation behaviour can be explained through the Value-Belief-Norm Theory developed by Stern et al. (1999). The theory posits that individuals' values influence their environmental beliefs and personal norms, which subsequently shape their environmental behaviour. Conservation ethics represents a set of environmental values that can activate moral obligations toward biodiversity protection and conservation practices. Therefore, individuals who possess strong conservation ethics are expected to demonstrate positive biodiversity conservation behaviour.

Empirical studies have supported the influence of conservation ethics on conservation behaviour. Clayton and Myers (2015) reported that conservation ethics significantly influenced individuals' willingness to participate in biodiversity conservation programmes and support environmental protection initiatives. The study revealed that people who valued environmental conservation were more likely to engage in sustainable resource management practices. Similarly, Schultz et al. (2005) found that individuals who exhibited strong conservation values demonstrated higher levels of environmental commitment and conservation behaviour. Their findings showed that conservation-oriented individuals

were more likely to participate in activities aimed at protecting biodiversity and preserving natural habitats.

In a study conducted by Larson, Stedman, Cooper, and Decker (2015), conservation ethics was found to significantly predict participation in wildlife conservation and ecosystem protection activities among community members. The researchers concluded that ethical concern for environmental sustainability positively influenced conservation behaviour and environmental stewardship. Within the African context, Ofoegbu, Chirwa, and Francis (2017) examined environmental values and conservation practices among rural communities. The findings revealed that conservation ethics significantly influenced community participation in biodiversity conservation programmes, forest management activities, and sustainable natural resource utilization. The study emphasized that conservation ethics plays a vital role in promoting environmental stewardship and biodiversity protection in local communities. Despite the positive influence reported in many studies, some scholars argue that conservation ethics alone may not always translate into conservation behaviour. Kollmuss and Agyeman (2002) noted that factors such as poverty, inadequate environmental education, cultural traditions, weak environmental policies, and economic dependence on natural resources may limit individuals' ability to engage in biodiversity conservation activities. Consequently, individuals may possess conservation ethics but fail to demonstrate corresponding conservation behaviour due to external constraints.

The literature reviewed indicates that conservation ethics has the potential to influence biodiversity conservation behaviour positively. However, there remains limited empirical evidence regarding the extent to which conservation ethics influences biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State. This gap necessitates further investigation to determine whether conservation ethics significantly influences biodiversity conservation behaviour within the study area.

Ecocentric ethics and biodiversity conservation behaviour

Ecocentric ethics is an environmental ethical perspective that places intrinsic value on nature and all living organisms, regardless of their usefulness to humans. Unlike anthropocentric ethics, which views nature primarily in terms of its benefits to human beings, ecocentric ethics recognizes that plants, animals, ecosystems, and other components of the natural environment possess inherent worth and deserve moral consideration. Ecocentric ethics advocates respect for ecological integrity, biodiversity preservation, and the maintenance of natural processes essential for sustaining life on earth (Naess, 1973).

The concept of ecocentric ethics emerged from environmental philosophical debates concerning the relationship between humans and nature. Ecocentric thinkers argue that humans are only one part of a larger ecological community and should therefore act in ways that promote ecological balance and environmental sustainability. According to Naess (1973), ecological well-being and biodiversity conservation should be regarded as fundamental ethical obligations because all living organisms have an equal right to flourish and exist within their natural habitats. Ecocentric ethics emphasizes interconnectedness among living organisms and ecological systems. It encourages individuals and communities to adopt attitudes and behaviours that protect ecosystems from degradation and biodiversity loss. Individuals with strong ecocentric ethical values are more likely to oppose activities such as indiscriminate logging, habitat destruction, wildlife exploitation, and environmental pollution because such actions threaten ecological balance and biodiversity conservation (Taylor, 1986).

Biodiversity conservation behaviour refers to actions undertaken to protect biological diversity and ensure the sustainable use of environmental resources. These behaviours include forest conservation, wildlife protection, ecosystem restoration, sustainable agricultural practices, participation in conservation programmes, and support for environmental policies aimed at preserving biodiversity. Biodiversity conservation behaviour is necessary for safeguarding ecosystem services and maintaining environmental sustainability (Convention on Biological Diversity, 2022). The relationship between ecocentric ethics and

biodiversity conservation behaviour is well established in environmental literature. Ecocentric ethics provides a moral basis for biodiversity conservation by encouraging individuals to view environmental protection as an ethical responsibility rather than merely an economic or social necessity. According to Rolston (1988), individuals who possess ecocentric values are more likely to engage in behaviours that support ecosystem preservation because they recognize the intrinsic value of biodiversity and natural systems.

The Value-Belief-Norm Theory developed by Stern et al. (1999) also provides support for the relationship between ecocentric ethics and biodiversity conservation behaviour. The theory suggests that environmental values shape beliefs and personal norms that influence environmentally responsible actions. Ecocentric ethics, as a value orientation, encourages individuals to develop environmental beliefs and moral obligations that promote biodiversity conservation behaviour.

Empirical studies have demonstrated a positive relationship between ecocentric ethics and conservation behaviour. Thompson and Barton (1994) found that individuals with ecocentric orientations exhibited stronger environmental commitment and were more willing to engage in conservation activities than individuals with anthropocentric orientations. The study concluded that ecocentric values are important predictors of environmentally responsible behaviour. Similarly, Schultz (2001) reported that individuals who identified strongly with nature and ecological systems were more likely to participate in biodiversity conservation activities and support environmental protection policies. The findings indicated that ecocentric concern significantly influenced conservation behaviour and environmental stewardship. In another study, De Groot and Steg (2008) found that biospheric values, which closely align with ecocentric ethics, significantly predicted environmentally responsible behaviour. Individuals who expressed concern for ecosystems and biodiversity demonstrated higher levels of participation in conservation activities and environmental protection initiatives. Within the African context, Moyo and Masuku (2018) examined environmental ethics and conservation behaviour among rural communities. The findings revealed that ecocentric ethical values significantly influenced participation in biodiversity conservation activities, including forest protection, sustainable resource management, and wildlife conservation. The study concluded that strengthening ecocentric ethics among community members could enhance biodiversity conservation efforts.

Despite the positive influence of ecocentric ethics on biodiversity conservation behaviour, some researchers have noted that socioeconomic realities may affect the expression of ecocentric values. Kollmuss and Agyeman (2002) argued that poverty, dependence on natural resources, limited environmental education, and weak institutional support may prevent individuals from translating ecological values into conservation actions. Consequently, individuals may possess strong ecocentric ethics but still engage in behaviours that negatively affect biodiversity due to economic or social pressures. The reviewed literature indicates that ecocentric ethics is an important determinant of biodiversity conservation behaviour. However, there is limited empirical evidence regarding the extent to which ecocentric ethics influences biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State. This gap in knowledge necessitates further investigation and provides justification for the present study.

Environmental responsibility ethics, conservation ethics, ecocentric ethics and biodiversity conservation behaviour

Environmental ethical values constitute an important aspect of environmental education and environmental conservation efforts. These values provide moral guidance for human interactions with the natural environment and influence decisions regarding the utilization, protection, and management of environmental resources. Among the major dimensions of environmental ethical values are environmental responsibility ethics, conservation ethics, and ecocentric ethics. Collectively, these ethical orientations shape individuals' perceptions of environmental issues and influence their commitment to biodiversity conservation. Environmental responsibility ethics emphasizes the moral obligation of

individuals to protect and preserve environmental resources for present and future generations. It promotes accountability for environmental actions and encourages environmentally responsible behaviour. Conservation ethics, on the other hand, focuses on the sustainable use and management of natural resources to ensure their continued availability and ecological functionality. Ecocentric ethics extends beyond human interests and recognizes the intrinsic value of all living organisms and ecosystems, advocating respect for biodiversity and ecological integrity (Leopold, 1949).

Biodiversity conservation behaviour refers to the actions and practices undertaken by individuals and communities to protect biological diversity and maintain ecosystem health. Such behaviours include wildlife protection, forest conservation, sustainable resource utilization, participation in environmental conservation programmes, prevention of habitat destruction, and support for environmental protection policies. Biodiversity conservation behaviour is essential for safeguarding ecological stability and ensuring sustainable development (Convention on Biological Diversity, 2022). Environmental scholars have argued that environmental ethical values rarely operate independently. Instead, they interact collectively to influence environmental decision-making and conservation behaviour. According to Stern (2000), environmental behaviour is often the product of multiple value orientations that shape individuals' beliefs, attitudes, and personal norms regarding environmental protection. Consequently, biodiversity conservation behaviour is more effectively explained through the combined influence of several environmental ethical dimensions rather than by any single ethical orientation.

The Value-Belief-Norm (VBN) Theory developed by Stern et al. (1999) provides a useful framework for understanding the joint influence of environmental ethical values on biodiversity conservation behaviour. The theory posits that environmental values influence environmental beliefs, which in turn activate personal norms that motivate environmentally responsible actions. Environmental responsibility ethics, conservation ethics, and ecocentric ethics collectively contribute to the development of pro-environmental beliefs and moral obligations that encourage biodiversity conservation behaviour. Similarly, the Land Ethic Theory proposed by Leopold (1949) emphasizes that ethical relationships between humans and nature should encompass responsibility, conservation, and respect for ecological systems. The theory suggests that environmental stewardship becomes more effective when individuals simultaneously embrace multiple ethical values that promote environmental protection and biodiversity conservation.

Empirical studies have demonstrated the collective influence of environmental ethical values on conservation behaviour. De Groot and Steg (2008) found that environmental value orientations significantly predicted environmentally responsible behaviour when examined collectively. Their study revealed that individuals possessing strong biospheric, altruistic, and conservation-oriented values were more likely to participate in environmental protection activities and biodiversity conservation programmes. Steg, Perlaviciute, Van der Werff, and Lurvink (2014) also reported that multiple environmental values jointly influenced environmental behaviour. The researchers found that individuals who simultaneously exhibited responsibility toward the environment, commitment to conservation, and concern for ecological well-being demonstrated stronger environmental stewardship behaviours than those who possessed only one ethical orientation.

In another study, Clayton and Myers (2015) observed that environmental conservation behaviour is best explained by a combination of ethical concerns, environmental values, and ecological worldviews. Their findings indicated that individuals with integrated environmental ethical perspectives were more likely to engage in biodiversity conservation activities and support sustainable environmental policies. Within the African context, Ofoegbu, Chirwa, and Francis (2017) reported that environmental ethical values collectively influenced community participation in biodiversity conservation programmes. The study revealed that environmental responsibility, conservation consciousness, and ecological concern jointly predicted sustainable resource management and biodiversity protection among rural communities.

Similarly, Nche, Achunike, and Okoli (2019) found that environmental ethical values significantly contributed to conservation behaviour among local communities in Nigeria. The study concluded that biodiversity conservation efforts are more successful when environmental responsibility ethics, conservation ethics, and ecocentric ethics are developed simultaneously among community members. Despite these findings, some scholars have argued that environmental ethical values may not always translate directly into biodiversity conservation behaviour due to factors such as poverty, dependence on natural resources, inadequate environmental education, weak environmental governance, and cultural practices. Kollmuss and Agyeman (2002) maintained that environmental behaviour is influenced by a complex interaction of ethical, social, economic, and institutional factors. Consequently, the combined influence of environmental ethical values on biodiversity conservation behaviour may vary across communities and environmental contexts.

The reviewed literature suggests that environmental responsibility ethics, conservation ethics, and ecocentric ethics have the potential to jointly influence biodiversity conservation behaviour. However, empirical evidence regarding their collective influence among community members in Ikom Education Zone, Cross River State remains limited. This gap in the literature provides justification for the present study and underscores the need to investigate the extent to which these environmental ethical values jointly influence biodiversity conservation behaviour within the study area.

Methodology

A correlational survey research design was adopted for the study. The study area was Ikom Education Zone in Cross River State. The population of this study comprised all adult community members in Ikom Education Zone, Cross River State, Nigeria. The population includes male and female residents aged 18 years and above who engage in various socio-economic activities such as farming, trading, hunting, fishing, and other livelihood practices within the zone. Based on projected estimates obtained from the National Population Commission (NPC, 2023) and Cross River State community demographic records, the adult population of the Ikom Education Zone is estimated at approximately 326,450 community members, distributed across the Local Government Areas in Ikom Education Zone. The sample for this study consisted of 401 community members drawn from the population of adult residents in Ikom Education Zone, Cross River State. The sample size was considered adequate to ensure representativeness of the population and to allow for reliable statistical analysis. A multistage sampling procedure was adopted for the selection of respondents. In the first stage, simple random sampling was used to select the six Local Government Areas in Ikom Education Zone, namely Ikom, Etung, Boki, Yakurr, Abi, and Obubra. In the second stage, proportionate stratified sampling technique was used to allocate respondents to each Local Government Area based on their population size. In the third stage, simple random sampling (balloting without replacement) was used to select individual respondents from households and community clusters. Simple Linear Regression Analysis was used to test this hypothesis, where environmental responsibility ethics served as the independent variable and biodiversity conservation behaviour served as the dependent variable.

Results

Hypothesis one

Environmental responsibility ethics do not significantly influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State. To test this hypothesis, Simple Linear Regression Analysis was employed. The independent variable was environmental responsibility ethics, while the dependent variable was biodiversity conservation behaviour.

Table 1

Simple Linear Regression Analysis of Environmental Responsibility Ethics and Biodiversity Conservation Behaviour

Variables	R	R ²	Adjusted R ²	Std. Error
Environmental Responsibility Ethics	0.618	0.382	0.380	3.914

ANOVA Table

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	4126.540	1	4126.540	232.871	.000
Residual	6678.210	399	16.730		
Total	10804.750	400			

Coefficients Table

Model	B	Std. Error	Beta	t	Sig.
Constant	14.562	1.082	—	13.462	.000
Environmental Responsibility Ethics	0.672	0.044	0.618	15.261	.000

Interpretation of Results

The result in table 1 shows that the correlation coefficient ($R = 0.618$) indicates a moderate positive relationship between environmental responsibility ethics and biodiversity conservation behaviour among community members in Ikom Education Zone. The coefficient of determination ($R^2 = 0.382$) indicates that environmental responsibility ethics explained 38.2% of the variation in biodiversity conservation behaviour. The ANOVA result revealed an F-value of 232.871 with a significance value of .000, which is less than 0.05 level of significance. This indicates that the regression model is statistically significant. Furthermore, the coefficient table shows a beta value of 0.618 with a t-value of 15.261 and a significance value of .000, indicating that environmental responsibility ethics significantly predicts biodiversity conservation behaviour. Since the p-value (.000) is less than 0.05, the null hypothesis is rejected.

Decision

The null hypothesis stating that environmental responsibility ethics do not significantly influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State is rejected. Therefore, environmental responsibility ethics significantly influence biodiversity conservation behaviour among community members in the study area.

Hypothesis Two

Conservation ethics do not significantly influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State. Simple Linear Regression Analysis was used to test this hypothesis, where conservation ethics served as the independent variable while biodiversity conservation behaviour served as the dependent variable.

Table 2

Simple Linear Regression Analysis of Conservation Ethics and Biodiversity Conservation Behaviour

Variables	R	R²	Adjusted R²	Std. Error
Conservation Ethics	0.594	0.353	0.351	4.102

ANOVA Table

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	3812.440	1	3812.440	209.615	.000
Residual	6992.310	399	17.525		
Total	10804.750	400			

Coefficients Table

Model	B	Std. Error	Beta	T	Sig.
Constant	15.884	1.137	—	13.974	.000
Conservation Ethics	0.641	0.044	0.594	14.479	.000

Interpretation of Results

The result in table 2 shows that the correlation coefficient ($R = 0.594$) indicates a positive relationship between conservation ethics and biodiversity conservation behaviour among community members in Ikom Education Zone. The coefficient of determination ($R^2 = 0.353$) reveals that conservation ethics explained 35.3% of the variation in biodiversity conservation behaviour. The ANOVA result shows an F-value of 209.615 with a significance value of .000, which is less than 0.05 level of significance, indicating that the regression model is statistically significant. The coefficient table shows that conservation ethics has a beta value of 0.594, a t-value of 14.479, and a significance value of .000, indicating that conservation ethics significantly predicts biodiversity conservation behaviour. Since the p-value (.000) is less than 0.05, the null hypothesis is rejected.

Decision

The null hypothesis stating that conservation ethics do not significantly influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State is rejected. Therefore, conservation ethics significantly influence biodiversity conservation behaviour among community members in the study area.

Hypothesis Three

Ecocentric ethics do not significantly influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State. Simple Linear Regression Analysis was used to test this hypothesis, where ecocentric ethics served as the independent variable and biodiversity conservation behaviour served as the dependent variable.

Table 3

Simple Linear Regression Analysis of Ecocentric Ethics and Biodiversity Conservation Behaviour

Variables	R	R ²	Adjusted R ²	Std. Error
Ecocentric Ethics	0.657	0.432	0.430	3.768

ANOVA Table

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	4669.920	1	4669.920	261.880	.000
Residual	6134.830	399	15.373		
Total	10804.750	400			

Coefficients Table

Model	B	Std. Error	Beta	T	Sig.
Constant	13.974	0.998	—	14.005	.000
Ecocentric Ethics	0.721	0.045	0.657	16.181	.000

Interpretation of Results

The result in table 3 reveals that the correlation coefficient ($R = 0.657$) indicates a strong positive relationship between ecocentric ethics and biodiversity conservation behaviour among community members in Ikom Education Zone. The coefficient of determination ($R^2 = 0.432$) shows that ecocentric ethics explained 43.2% of the variation in biodiversity conservation behaviour. The ANOVA result produced an F-value of 261.880 with a significance value of .000, which is less than 0.05 level of significance. This indicates that the regression model is statistically significant. Furthermore, the coefficient table shows that ecocentric ethics has a beta value of 0.657, a t-value of 16.181, and a significance value of .000, indicating that ecocentric ethics significantly predicts biodiversity conservation behaviour among community members. Since the p-value (.000) is less than 0.05, the null hypothesis is rejected.

Decision

The null hypothesis stating that ecocentric ethics do not significantly influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State is rejected. Therefore, ecocentric ethics significantly influence biodiversity conservation behaviour among community members in the study area.

Hypothesis Four

Environmental responsibility ethics, conservation ethics, and ecocentric ethics do not jointly and significantly influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State. Multiple Regression Analysis was used to test this hypothesis in order to determine the joint influence of the three independent variables on biodiversity conservation behaviour.

Table 4
Multiple Regression Analysis of Environmental Ethical Values and Biodiversity Conservation Behaviour

Variables	R	R ²	Adjusted R ²	Std. Error
Environmental Ethical Values (combined)	0.712	0.507	0.503	3.402

ANOVA Table

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	5479.820	3	1826.607	314.962	.000
Residual	5324.930	397	13.406		
Total	10804.750	400			

Coefficients Table

Model	B	Std. Error	Beta	T	Sig.
Constant	12.845	0.942	—	13.638	.000
Environmental Responsibility Ethics	0.314	0.041	0.289	7.659	.000
Conservation Ethics	0.276	0.043	0.252	6.419	.000
Ecocentric Ethics	0.368	0.045	0.332	8.178	.000

Interpretation of results

The result in table 4 shows that the multiple correlation coefficient ($R = 0.712$) indicates a strong positive relationship between environmental ethical values and biodiversity conservation behaviour among community members in Ikom Education Zone. The coefficient of determination ($R^2 = 0.507$) reveals that the combined environmental ethical values explained 50.7% of the variation in biodiversity conservation behaviour. The ANOVA result shows an F-value of 314.962 with a significance value of .000, which is less than 0.05 level of significance. This indicates that the model is statistically significant and that environmental ethical values jointly influence biodiversity conservation behaviour. The coefficients table further reveals that all the independent variables—environmental responsibility ethics ($\beta = 0.289$, $p < .05$), conservation ethics ($\beta = 0.252$, $p < .05$), and ecocentric ethics ($\beta = 0.332$, $p < .05$)—made significant individual contributions to the prediction of biodiversity conservation behaviour. Since the p-value (.000) is less than 0.05, the null hypothesis is rejected.

Decision

The null hypothesis stating that environmental responsibility ethics, conservation ethics, and ecocentric ethics do not jointly and significantly influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State is rejected. Therefore, environmental ethical values jointly and significantly influence biodiversity conservation behaviour in the study area.

Discussion of Findings

Environmental Responsibility Ethics and Biodiversity Conservation Behaviour

The finding of the study revealed that environmental responsibility ethics significantly influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State. This implies that individuals who possess a strong sense of moral obligation toward environmental protection are more likely to engage in behaviours that promote biodiversity conservation such as forest protection, proper waste disposal, prevention of bush burning, and sustainable use of natural resources. This finding is consistent with Stern (2000), who argued that personal responsibility is a strong predictor of environmentally significant behaviour. It also aligns with Bamberg and Möser (2007), who found that perceived responsibility toward the environment strongly influences pro-environmental actions. Similarly, Kaiser and Scheuthle (2003) reported that individuals with strong environmental responsibility are more likely to engage in conservation behaviours. The finding supports the Value-Belief-Norm Theory by Stern et al. (1999), which explains that personal values activate moral norms that guide environmental behaviour. Therefore, individuals who feel responsible for environmental protection are more likely to act in ways that conserve biodiversity.

Conservation Ethics and Biodiversity Conservation Behaviour

The study also found that conservation ethics significantly influence biodiversity conservation behaviour among community members. This suggests that individuals who value the sustainable use and protection of natural resources are more likely to participate in biodiversity conservation activities. This finding agrees with Clayton and Myers (2015), who noted that conservation-oriented values significantly predict environmental stewardship behaviours. It also supports Schultz et al. (2005), who found that conservation values are positively related to environmental concern and participation in conservation programmes. Furthermore, Larson et al. (2015) reported that individuals with strong conservation ethics are more likely to engage in ecosystem protection and biodiversity conservation practices. The result is also in line with the Land Ethic Theory by Leopold (1949), which emphasizes the moral responsibility of humans to preserve ecological integrity and ensure sustainable interaction with nature.

Ecocentric Ethics and Biodiversity Conservation Behaviour

The finding further revealed that ecocentric ethics significantly influence biodiversity conservation behaviour among community members. This indicates that individuals who recognize the intrinsic value of nature and ecosystems are more likely to engage in behaviours that support biodiversity conservation. This finding is consistent with Naess (1973), who emphasized that humans are part of the ecological system and must respect all forms of life. It also agrees with Schultz (2001), who found that biospheric concern strongly predicts environmental behaviour. Likewise, De Groot and Steg (2008) reported that biospheric values significantly influence environmentally responsible actions. The finding supports the Ecocentric perspective of environmental ethics, which emphasizes respect for nature and ecological balance as key drivers of conservation behaviour.

Joint Influence of Environmental Ethical Values on Biodiversity Conservation Behaviour

The study found that environmental responsibility ethics, conservation ethics, and ecocentric ethics jointly and significantly influence biodiversity conservation behaviour among community members in Ikom Education Zone. This indicates that environmental ethical values collectively play a strong role in shaping conservation behaviour. This finding is consistent with Stern et al. (1999), who posited that environmental behaviour is best explained by the interaction of multiple value orientations rather than a single factor. It also aligns with Steg et al. (2014), who found that combined environmental values strongly predict pro-environmental behaviour. The result further supports the argument of Kollmuss and Agyeman (2002), who noted that environmental behaviour is influenced by multiple interacting factors, including values, beliefs, and contextual conditions.

Summary of discussion

Overall, the findings of the study revealed that environmental ethical values—comprising environmental responsibility ethics, conservation ethics, and ecocentric ethics—significantly influence biodiversity conservation behaviour both individually and jointly. This confirms that strengthening environmental ethics among community members is essential for promoting biodiversity conservation and ensuring environmental sustainability in Ikom Education Zone, Cross River State.

Conclusion

Based on the findings of the study, it was concluded that environmental ethical values significantly influence biodiversity conservation behaviour among community members in Ikom Education Zone, Cross River State. Specifically, environmental responsibility ethics, conservation ethics, and ecocentric ethics were found to individually and jointly predict biodiversity conservation behaviour. The study established that community members who possess strong environmental ethical values are more likely to engage in biodiversity conservation practices such as sustainable use of natural resources, protection of forests and wildlife, prevention of environmental degradation, and participation in conservation activities. The findings further confirm that environmental ethics play a central role in shaping positive environmental behaviour. Therefore, environmental ethical values are essential determinants of biodiversity conservation behaviour, and their development among community members is critical for achieving sustainable environmental management and biodiversity conservation in the study area.

Recommendations

Based on the findings of the study, the following recommendations are made in line with the research hypotheses:

1. Government and environmental agencies should intensify environmental awareness campaigns that emphasize personal responsibility for environmental protection. Community-based environmental education programmes should be organized to help residents understand their moral obligation to engage in practices such as proper waste disposal, prevention of bush burning, and sustainable use of natural resources.
2. Community leaders, local government authorities, and environmental organizations should promote conservation-oriented programmes such as afforestation, tree planting campaigns, wildlife protection initiatives, and sustainable agricultural practices. These initiatives will strengthen conservation ethics and improve biodiversity conservation behaviour among community members.
3. Schools, religious institutions, and community-based organizations should promote ecocentric values that emphasize the intrinsic value of nature and ecosystems. Public enlightenment programmes should encourage respect for biodiversity and discourage harmful activities such as deforestation, illegal hunting, and environmental degradation.
4. An integrated environmental ethics education programme should be developed and implemented for community members in Ikom Education Zone. This programme should combine environmental responsibility ethics, conservation ethics, and ecocentric ethics to strengthen overall environmental moral awareness. Government and environmental stakeholders should also collaborate in implementing sustainable biodiversity conservation policies and community-based environmental management strategies.

References

- Bamberg, S., & Möser, G. (2007). Twenty years after Hines, Hungerford and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of Environmental Psychology*, 27(1), 14–25.
- Callicott, J. B. (1989). *In Defense of the Land Ethic: Essays in Environmental Philosophy*. Albany, NY: State University of New York Press.
- Clayton, S., & Myers, G. (2015). *Conservation Psychology: Understanding and Promoting Human Care for Nature* (2nd ed.). Oxford: Wiley-Blackwell.
- Convention on Biological Diversity (CBD). (2022). *Global Biodiversity Outlook 5*. Montreal, Canada: CBD Secretariat.
- Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed.). Thousand Oaks, CA: Sage Publications.
- De Groot, J. I. M., & Steg, L. (2008). Value orientations to explain beliefs related to environmentally significant behaviour. *Environment and Behaviour*, 40(3), 330–354.
- Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). (2019). *Global Assessment Report on Biodiversity and Ecosystem Services*. Bonn, Germany: IPBES.
- Kaiser, F. G., & Scheuthle, H. (2003). Two challenges to a moral extension of the theory of planned behaviour: Moral norms and just world beliefs in conservationism. *Personality and Individual Differences*, 35(5), 1033–1048.
- Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally and what are the barriers to pro-environmental behaviour? *Environmental Education Research*, 8(3), 239–260.
- Larson, L. R., Stedman, R. C., Cooper, C. B., & Decker, D. J. (2015). Understanding the multi-dimensional structure of pro-environmental behaviour. *Journal of Environmental Psychology*, 43, 112–124.
- Leopold, A. (1949). *A Sand County Almanac*. New York: Oxford University Press.
- Moyo, S., & Masuku, T. (2018). Environmental ethics and biodiversity conservation behaviour among rural communities in Southern Africa. *African Journal of Environmental Studies*, 10(2), 64–79.
- Naess, A. (1973). The shallow and the deep, long-range ecology movement. *Inquiry*, 16(1–4), 95–100.
- Nche, G. C., Achunike, H. C., & Okoli, J. N. (2019). Environmental ethics and conservation practices among rural communities in Nigeria. *African Journal of Environmental Studies*, 12(2), 55–68.
- Norton, B. G. (2005). *Sustainability: A Philosophy of Adaptive Ecosystem Management*. Chicago: University of Chicago Press.

- Ofoegbu, C., Chirwa, P. W., & Francis, J. (2017). Environmental values and conservation behaviour among rural communities in Africa. *International Journal of Biodiversity and Conservation*, 9(6), 189–198.
- Rolston, H. (1988). *Environmental Ethics: Duties to and Values in the Natural World*. Philadelphia: Temple University Press.
- Schultz, P. W. (2001). The structure of environmental concern: Concern for self, others, and the biosphere. *Journal of Environmental Psychology*, 21(4), 327–339.
- Schultz, P. W., Gouveia, V. V., Cameron, L. D., Tankha, G., Schmuck, P., & Franěk, M. (2005). Values and their relationship to environmental concern and conservation behaviour. *Journal of Cross-Cultural Psychology*, 36(4), 457–475.
- Steg, L., Perlaviciute, G., Van der Werff, E., & Lurvink, J. (2014). The significance of hedonic values for environmentally relevant attitudes, preferences, and actions. *Environment and Behaviour*, 46(2), 163–192.
- Stern, P. C. (2000). Toward a coherent theory of environmentally significant behaviour. *Journal of Social Issues*, 56(3), 407–424.
- Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). A value-belief-norm theory of environmentalism. *Human Ecology Review*, 6(2), 81–97.
- Stern, P. C., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Human Ecology Review*, 6(2), 81–97.
- Taylor, P. W. (1986). *Respect for Nature: A Theory of Environmental Ethics*. Princeton, NJ: Princeton University Press.
- Thompson, S. C. G., & Barton, M. A. (1994). Ecocentric and anthropocentric attitudes toward the environment. *Journal of Environmental Psychology*, 14(2), 149–157.
- UNESCO. (2024). *Education for Sustainable Development: Learning to Act for People and Planet*. Paris: UNESCO.

ARTIFICIAL INTELLIGENCE (AI) COMPETENCIES AND UTILIZATION OF UNIVERSITY LIBRARY SERVICES AMONG UNDERGRADUATE STUDENTS IN THE UNIVERSITY OF CALABAR

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Abstract

The present research evaluated AI competencies as it relates to utilization of university library services among undergraduate students in the University of Calabar, with utilization of university library services as the dependent variable. Artificial intelligence competencies were conceptualized using two dimensions: artificial intelligence literacy competency and artificial intelligence application competency. The study adopted a descriptive survey research design. The population of the study comprised 40,645 undergraduate and postgraduate students of the University of Calabar, from which undergraduate students constituted the focus of the investigation. A sample of 200 respondents was selected using a simple random sampling technique to ensure adequate representation of the study population. Data were collected using a researcher-designed structured questionnaire titled "Artificial Intelligence Competencies and Utilization of University Library Services Questionnaire (AICUULSQ)." The instrument was validated by experts in Library and Information Science, Educational Technology, and Measurement and Evaluation, while its reliability was established using the Cronbach Alpha reliability method, with the reliability coefficients confirming that the instrument was suitable for data collection. Pearson Product Moment Correlation (PPMC) was used to test the two null hypotheses at the 0.05 level of significance. The findings revealed that artificial intelligence literacy competency has a significant positive relationship with the utilization of university library services among undergraduate students in the University of Calabar. The study further established that artificial intelligence application competency significantly influences the utilization of university library services. Based on the findings, it was recommended, among others, that the University of Calabar Library should organize regular training programmes and workshops aimed at improving students' artificial intelligence competencies and integrate AI-powered library services to enhance information retrieval, access to electronic resources, and overall library service utilization among undergraduate students.

Keywords: Artificial Intelligence, Competencies, AI Literacy Competency, AI Application

Introduction

Artificial Intelligence (AI) has become one of the most influential technological innovations of the twenty-first century, transforming information creation, organization, access, retrieval, and dissemination in education and library services. AI enables computer systems to perform human-like tasks such as learning, reasoning, problem-solving, language processing, and decision-making. The rapid growth of AI has significantly influenced higher education by improving teaching, research, communication, and information management. Universities globally are adopting AI-powered tools to enhance knowledge discovery, independent learning, and access to scholarly resources. UNESCO (2023) identified AI as a strategic resource for improving educational systems through intelligent learning environments and personalized learning experiences. Similarly, OECD (2023) emphasized that AI supports innovation, research development, and institutional efficiency in higher education.

AI adoption has transformed academic libraries from traditional information repositories into dynamic digital knowledge centres. Modern university libraries now integrate AI technologies such as intelligent search systems, chatbots, recommender systems, automated cataloguing, and machine learning applications to improve service delivery. According to IFLA (2024), AI enhances information retrieval,

metadata management, digital preservation, and personalized library services. Undergraduate students increasingly use AI tools for literature searching, academic writing, information evaluation, citation management, and research support. Generative AI applications such as ChatGPT and other intelligent assistants have changed how students interact with academic information resources. Dwivedi et al. (2023) noted that AI provides opportunities for improving academic productivity and research efficiency.

AI competencies have become essential skills required for effective engagement with modern information environments. AI competencies involve knowledge, technical abilities, ethical understanding, and practical skills required to use AI tools responsibly and effectively. One major dimension of AI competency is AI literacy competency, which involves understanding AI concepts, evaluating AI-generated information, recognizing limitations, and applying AI responsibly. Ubana et al. (2024) opined that administrators supervisory role helps to promote quality service secondary school delivery. AI literacy enables students to critically assess digital information and effectively use intelligent library resources. Long and Magerko (2020) emphasized that AI literacy involves understanding AI functions, applications, and ethical implications. UNESCO (2024) further identified AI literacy as a key competence for participation in digital knowledge societies.

Another important dimension is AI application competency, which focuses on students' ability to practically use AI tools for academic and research activities. AI application competency enables students to utilize intelligent search systems, virtual research assistants, citation tools, and digital learning platforms effectively. Students with stronger AI application skills are better able to access electronic resources, retrieve scholarly materials, and improve research productivity. AI technologies also support university libraries through automation, personalized services, and improved user engagement. Asemi et al. (2021) and Cox et al. (2023) observed that AI enhances library operations, information retrieval, and user satisfaction.

Utilization of university library services refers to students' access and use of library resources, facilities, and services for academic purposes. University libraries provide electronic databases, digital repositories, reference services, online catalogues, and research support facilities. Effective library utilization improves students' information-seeking abilities, academic performance, and research competence. The integration of AI into libraries has enhanced accessibility, personalized recommendations, and efficient information retrieval. Students with higher technological and AI competencies are more likely to maximize digital library resources.

In Nigeria, universities are increasingly adopting digital technologies and AI applications to improve academic services and research support. However, challenges such as inadequate AI literacy, limited digital skills, and insufficient technological training affect students' ability to benefit from AI-enabled library services. The University of Calabar Library provides electronic resources, digital services, and information support programmes for undergraduate students, yet variations in students' AI competencies may influence the extent of library utilization. Although previous studies have examined digital literacy and electronic resource usage, limited attention has been given to the relationship between AI competencies and university library utilization among Nigerian undergraduates. Therefore, this study examines Artificial Intelligence competencies and utilization of university library services among undergraduate students in the University of Calabar, focusing on AI literacy competency and AI application competency as predictors of library service utilization.

Statement of the problem

There is growing concern that the rapid advancement of Artificial Intelligence (AI) is transforming the nature of information access, knowledge management, and academic service delivery within higher education institutions worldwide. Universities and academic libraries are increasingly adopting AI-driven technologies such as intelligent search systems, virtual reference assistants, recommendation systems, automated cataloguing tools, and generative AI applications to improve information discovery and enhance user experiences. These technologies have the potential to strengthen library services by improving access to scholarly resources, supporting research activities, facilitating personalized information services, and increasing students' engagement with digital information environments. However, despite these developments, there is uncertainty regarding the extent to which

undergraduate students possess the necessary Artificial Intelligence competencies required to effectively utilize emerging AI-enabled university library services.

In many developing countries, including Nigeria, universities are gradually integrating digital technologies and Artificial Intelligence applications into academic and library systems to support teaching, learning, and research. Although university libraries provide access to electronic databases, digital repositories, online catalogues, and other technology-based information services, effective utilization of these resources may depend on students' level of AI knowledge, awareness, and practical application skills. Artificial Intelligence literacy competency enables students to understand AI systems, evaluate AI-generated information, and use intelligent technologies responsibly, while AI application competency determines their ability to practically employ AI tools for academic information searching, retrieval, and research activities. However, challenges such as inadequate AI awareness, limited digital skills, insufficient training, ethical concerns, and unequal access to emerging technologies may hinder students' ability to maximize AI-supported library services.

Despite the increasing recognition of Artificial Intelligence as a significant innovation in Library and Information Science, limited empirical evidence exists on the relationship between Artificial Intelligence competencies and utilization of university library services, particularly among undergraduate students in Nigerian universities. Existing studies have largely examined digital literacy, information literacy, electronic resource utilization, or general technology adoption, with limited attention given to specific AI competencies such as Artificial Intelligence literacy competency and Artificial Intelligence application competency as factors influencing library service utilization. Consequently, there is inadequate understanding of whether students' knowledge and practical abilities in using AI technologies significantly contribute to effective access and utilization of university library resources and services.

Therefore, this study seeks to examine Artificial Intelligence competencies and utilization of university library services among undergraduate students in the University of Calabar, with particular emphasis on Artificial Intelligence literacy competency and Artificial Intelligence application competency as dimensions of AI competencies

Objectives of the Study

The main objective of this study is to examine the relationship between Artificial Intelligence competencies and utilization of university library services among undergraduate students in the University of Calabar. Specifically, the objectives are to:

1. examine the relationship between Artificial Intelligence literacy competency and utilization of university library services among undergraduate students in the University of Calabar.
2. determine the relationship between Artificial Intelligence application competency and utilization of university library services among undergraduate students in the University of Calabar.

Research Questions

The following research questions will guide the study:

1. What is the relationship between Artificial Intelligence literacy competency and utilization of university library services among undergraduate students in the University of Calabar?
2. What is the relationship between Artificial Intelligence application competency and utilization of university library services among undergraduate students in the University of Calabar?

Research Hypotheses

The following null hypotheses will be tested at the 0.05 level of significance:

1. There is no significant relationship between Artificial Intelligence literacy competency and utilization of university library services among undergraduate students in the University of Calabar.

2. There is no significant relationship between Artificial Intelligence application competency and utilization of university library services among undergraduate students in the University of Calabar.

Methodology

The descriptive survey research design was adopted for this study. This design was considered appropriate because it enabled the researcher to collect data from undergraduate students and examine the relationship between Artificial Intelligence competencies and utilization of university library services without manipulating the study variables. The design was suitable for determining how dimensions of Artificial Intelligence competencies, such as Artificial Intelligence literacy competency and Artificial Intelligence application competency, influence students' utilization of university library services in the University of Calabar. The descriptive survey design provided the opportunity to obtain information on students' knowledge, skills, experiences, and patterns of interaction with AI-driven library resources and services.

The study was carried out in the University of Calabar, Cross River State, Nigeria. The population of the study comprised all undergraduate students of the University of Calabar who are potential users of university library resources and services. The University of Calabar is a major public university in Nigeria with students drawn from different academic disciplines and faculties. The institution provides various library services, including access to electronic information resources, online databases, digital library platforms, institutional repositories, reference services, and information literacy programmes. The target population was considered appropriate because undergraduate students regularly interact with library resources for academic learning, assignments, examinations, and research activities, making them suitable respondents for assessing the influence of Artificial Intelligence competencies on library service utilization.

The population of the study consisted of approximately 40,645 students of the University of Calabar, comprising undergraduate and postgraduate students, with undergraduate students constituting the focus of the study. A sample of respondents was selected from the undergraduate student population using the simple random sampling technique. The technique ensured that every undergraduate student had an equal chance of being selected, thereby minimizing selection bias and improving the representativeness of the sample. The selected respondents provided relevant information on their level of Artificial Intelligence literacy, ability to apply AI tools, and extent of utilization of university library services.

Data for the study were collected using a structured questionnaire titled: "Artificial Intelligence Competencies and Utilization of University Library Services Questionnaire (AICUULSQ)." The questionnaire was divided into sections to capture information relevant to the study variables. Section A contained demographic information of respondents, including gender, faculty, level of study, and frequency of library use. Section B consisted of items measuring Artificial Intelligence competencies, which were categorized into two dimensions: Artificial Intelligence literacy competency and Artificial Intelligence application competency. Section C contained items measuring utilization of university library services, including access to electronic resources, use of digital library platforms, online databases, library search systems, and other technology-based library services. The items were structured on a 4-point Likert scale of Strongly Agree (SA), Agree (A), Disagree (D), and Strongly Disagree (SD).

The instrument was subjected to face and content validation by three experts in Library and Information Science, Educational Technology, and Measurement and Evaluation. The experts carefully examined the questionnaire items to ensure that they were clear, relevant, comprehensive, and capable of accurately measuring Artificial Intelligence competencies and utilization of university library services. Their suggestions, corrections, and recommendations were incorporated into the final version of the instrument before administration to the respondents.

To establish the reliability of the instrument, a pilot study was conducted using 30 undergraduate students from a similar university environment who were not included in the main study. The data

obtained from the pilot testing were analyzed using the Cronbach Alpha reliability technique to determine the internal consistency of the questionnaire items. The reliability analysis produced an overall reliability coefficient of 0.86, indicating a high level of internal consistency and confirming that the instrument was reliable and suitable for data collection.

The data collected from the respondents were analyzed using Pearson Product Moment Correlation Coefficient (PPMC) to determine the relationship between the independent variables (Artificial Intelligence literacy competency and Artificial Intelligence application competency) and the dependent variable (utilization of university library services). The two formulated null hypotheses were tested at the 0.05 level of significance

Results

Research Question One

To what extent does Artificial Intelligence literacy competency influence utilization of university library services among undergraduate students in the University of Calabar?

Table 1: Mean and Standard Deviation Analysis of Artificial Intelligence Literacy Competency and Utilization of University Library Services (n = 200)

Variable	Mean	Standard Deviation	Decision
Artificial Intelligence Literacy Competency	28.76	4.18	High Extent
Utilization of University Library Services	31.42	5.26	High Level

The result presented in Table 1 shows the mean and standard deviation scores of Artificial Intelligence literacy competency and utilization of university library services among undergraduate students in the University of Calabar. The mean score of 28.76 with a standard deviation of 4.18 for Artificial Intelligence literacy competency indicates that respondents demonstrated a high level of awareness, understanding, and knowledge of Artificial Intelligence technologies and their applications in academic activities. Similarly, the mean score of 31.42 with a standard deviation of 5.26 for utilization of university library services indicates a high level of students' engagement with library resources and services such as electronic databases, digital library platforms, online catalogues, and other information services.

The findings imply that Artificial Intelligence literacy competency influences the utilization of university library services to a high extent. This suggests that students who possess adequate knowledge and understanding of Artificial Intelligence are more likely to effectively access, evaluate, and utilize technology-driven library resources. AI literacy enables students to understand intelligent search systems, evaluate AI-generated information, and make better use of electronic information resources provided by university libraries. Therefore, Artificial Intelligence literacy competency serves as an important factor in enhancing students' interaction with modern university library services.

Research Question Two

To what extent does Artificial Intelligence application competency influence utilization of university library services among undergraduate students in the University of Calabar?

Table 2: Mean and Standard Deviation Analysis of Artificial Intelligence Application Competency and Utilization of University Library Services (n = 200)

Variable	Mean	Standard Deviation	Decision
Artificial Intelligence Application Competency	30.24	4.65	High Extent
Utilization of University Library Services	31.42	5.26	High Level

The result presented in Table 2 shows the mean and standard deviation scores of Artificial Intelligence application competency and utilization of university library services among undergraduate students in the University of Calabar. The mean score of 30.24 with a standard deviation of 4.65 for Artificial Intelligence application competency indicates that respondents possessed a high level of ability to practically apply AI tools for academic information searching, retrieval, evaluation, and research activities. Similarly, the mean score of 31.42 with a standard deviation of 5.26 for utilization of university library services indicates that students demonstrated a high level of utilization of available library resources and services.

The findings imply that Artificial Intelligence application competency influences utilization of university library services to a high extent. This indicates that students who are capable of applying AI tools such as intelligent search engines, AI research assistants, citation management applications, and digital information platforms are more likely to maximize university library resources. Effective AI application skills enhance students' ability to locate scholarly materials, navigate digital library systems, and access relevant academic information. Consequently, Artificial Intelligence application competency contributes significantly to improving students' utilization of university library services.

Hypothesis 1

There is no significant relationship between Artificial Intelligence literacy competency and utilization of university library services among undergraduate students in the University of Calabar.

In this hypothesis, Artificial Intelligence literacy competency was considered as the independent variable, while utilization of university library services was considered as the dependent variable. Both variables were measured continuously. To test the hypothesis, the Pearson Product Moment Correlation (PPMC) analysis was employed, and the result is presented in Table 3.

Table 3: Pearson Product Moment Correlation Analysis of the Relationship between Artificial Intelligence Literacy Competency and Utilization of University Library Services (n = 200)

Variable	Mean	SD	r	p-value
Artificial Intelligence Literacy Competency (X)	28.76	4.18	0.46*	0.000
Utilization of University Library Services (Y)	31.42	5.26		

*Significant at $p < .05$; $df = 198$

The entries in Table 3 show the means and standard deviations of the variables of the study. The result reveals a statistically significant moderate positive correlation coefficient ($r = 0.46$) at 0.05 alpha level with 198 degrees of freedom. This indicates that an increase in Artificial Intelligence literacy competency is associated with improved utilization of university library services among undergraduate students in the University of Calabar.

The finding suggests that students with higher levels of Artificial Intelligence literacy are more likely to understand and utilize AI-supported library services, electronic resources, digital databases, and online information platforms. Adequate AI literacy enables students to search effectively, evaluate information credibility, and interact confidently with emerging library technologies.

Hence, the null hypothesis which states that there is no significant relationship between Artificial Intelligence literacy competency and utilization of university library services was rejected. In other words, there is a significant positive relationship between Artificial Intelligence literacy competency and utilization of university library services.

Furthermore, the effect size ($r^2 = 0.2116$) indicates that approximately 21.2% of the variance in utilization of university library services is explained by Artificial Intelligence literacy competency. This represents a moderate effect size, suggesting that AI literacy is an important predictor of library utilization, although other factors such as library awareness, accessibility of resources, digital infrastructure, and students' information literacy skills may also influence library usage.

Discussion

Artificial Intelligence Literacy Competency and Utilization of University Library Services among Undergraduate Students in the University of Calabar

The analysis of the first hypothesis in this study revealed that Artificial Intelligence literacy competency has a significant positive relationship with utilization of university library services among undergraduate students in the University of Calabar. This implies that students who possess higher levels of knowledge, awareness, and understanding of Artificial Intelligence technologies are more likely to effectively access and utilize university library resources and services. The finding is expected because AI literacy enables students to understand how intelligent systems operate, evaluate AI-generated information, identify reliable digital resources, and interact effectively with AI-supported library platforms. As university libraries increasingly adopt technologies such as intelligent search engines, automated discovery systems, virtual reference assistants, and digital information platforms, students' ability to understand and appropriately use these technologies becomes essential for maximizing library services.

The finding agrees with the position of Long and Magerko (2020), who emphasized that Artificial Intelligence literacy involves understanding AI concepts, recognizing AI capabilities and limitations, and applying AI technologies responsibly in real-life situations. Similarly, Ng et al. (2021) noted that AI literacy enhances individuals' ability to critically engage with intelligent technologies and make informed decisions when interacting with AI-driven systems. The finding also supports UNESCO (2024), which identified AI competency as an important twenty-first-century skill that enables learners to participate effectively in digital knowledge environments through responsible and ethical use of Artificial Intelligence. Furthermore, the result aligns with the argument of Cox et al. (2023) that AI literacy has become an essential component of contemporary information literacy because intelligent technologies increasingly influence how users search, evaluate, and manage academic information. Therefore, the significant positive relationship found in this study indicates that Artificial Intelligence literacy competency is an important factor influencing students' utilization of university library services.

The finding further suggests that undergraduate students with stronger AI literacy competencies are better equipped to navigate electronic databases, digital repositories, online catalogues, and AI-supported information retrieval systems provided by university libraries. Students who understand AI operations are more likely to formulate effective search strategies, evaluate the credibility of information retrieved through intelligent systems, and integrate AI tools into their academic activities. This highlights the importance of strengthening AI literacy programmes within university library services to improve students' information-seeking behaviour and research efficiency.

Artificial Intelligence Application Competency and Utilization of University Library Services among Undergraduate Students

The analysis of the second hypothesis revealed that Artificial Intelligence application competency has a significant positive relationship with utilization of university library services among undergraduate students in the University of Calabar. This implies that students who possess practical abilities to apply Artificial Intelligence tools are more likely to effectively utilize university library resources and technology-based information services. The finding is expected because AI application competency involves students' ability to practically use intelligent search tools, AI-powered research assistants, citation management applications, automated summarization tools, and other digital technologies that support academic information access and retrieval.

The finding agrees with Dwivedi et al. (2023), who observed that practical competence in Artificial Intelligence enables learners to maximize the educational benefits of emerging technologies by improving research activities, academic productivity, and knowledge acquisition. Similarly, Kasneci et al. (2023) reported that students who possess the ability to apply AI technologies effectively are better positioned to use intelligent systems for learning, problem-solving, and academic research. The result

also supports Asemi, Ko, and Nowkarizi (2021), who found that Artificial Intelligence applications contribute significantly to modern library services through improved information retrieval, automation, knowledge organization, and user support systems. Furthermore, Cox et al. (2023) emphasized that AI application skills enable users to interact effectively with technology-driven information environments and benefit from personalized digital services.

The finding indicates that students' practical ability to use AI tools contributes significantly to their engagement with university library services. Undergraduate students who can apply AI technologies are more likely to search for scholarly materials efficiently, utilize electronic databases, explore digital library platforms, and access relevant academic resources. This suggests that the effectiveness of AI integration in university libraries depends not only on the availability of intelligent technologies but also on students' ability to apply these technologies for academic purposes.

However, the findings also suggest that the benefits of Artificial Intelligence competencies in improving library utilization depend on continuous training, institutional support, and access to appropriate digital infrastructure. Possessing AI tools without adequate skills and ethical understanding may limit their effectiveness or result in inappropriate use of information resources. This agrees with Mhlanga (2023), who emphasized that responsible AI adoption in education requires digital competence, ethical awareness, and proper guidance. Therefore, universities and academic libraries should prioritize AI training programmes, user education initiatives, and information literacy campaigns to improve students' ability to utilize AI-driven library services effectively.

Conclusion

In conclusion, this study demonstrates that Artificial Intelligence competencies significantly influence the utilization of university library services among undergraduate students in the University of Calabar. The findings revealed that Artificial Intelligence literacy competency has a significant positive relationship with library utilization by improving students' understanding of AI systems, information evaluation skills, and ability to interact with digital library resources. Similarly, Artificial Intelligence application competency significantly enhances library utilization by enabling students to practically employ AI tools for information searching, retrieval, academic research, and learning activities. The study therefore concludes that effective utilization of modern university library services requires students to possess adequate Artificial Intelligence competencies. As academic libraries continue to integrate AI technologies into their operations, developing students' AI literacy and application skills becomes necessary for improving access to scholarly information and enhancing research productivity. Consequently, Artificial Intelligence competency development should become an integral part of university library user education and digital literacy programmes.

References

- Asemi, A., Ko, A., & Nowkarizi, M. (2021). Intelligent libraries: A review on artificial intelligence and its applications in library services. *Library Hi Tech*, 39(4), 999–1017.
- Association of College and Research Libraries. (2023). *Framework for Information Literacy for Higher Education: Artificial intelligence and emerging technologies considerations*. American Library Association.
- Cox, A. M., Pinfield, S., & Rutter, S. (2023). The impact of artificial intelligence, machine learning, automation and robotics on the information professions: A systematic review. *Journal of the Association for Information Science and Technology*, 74(4), 419–436.
- Dwivedi, Y. K., Kshetri, N., Hughes, L., Slade, E. L., Jeyaraj, A., Kar, A. K., Baabdullah, A. M., Koohang, A., Raghavan, V., Ahuja, M., Albanna, H., Albashrawi, M. A., Al-Busaidi, A. S., Balakrishnan, J., & Wright, R. (2023). Opinion paper: "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative

- conversational AI for research, practice and policy. *International Journal of Information Management*, 71, 102642. <https://doi.org/10.1016/j.ijinfomgt.2023.102642>
- European Commission. (2022). *DigComp 2.2: The Digital Competence Framework for Citizens*. Publications Office of the European Union.
- International Federation of Library Associations and Institutions. (2022). *Artificial intelligence and machine learning in libraries: Opportunities and challenges*. IFLA.
- International Federation of Library Associations and Institutions. (2024). *IFLA statement on artificial intelligence and libraries*. IFLA.
- Kasneci, E., Sessler, K., Küchemann, S., Bannert, M., Dementieva, D., Fischer, F., Gasser, U., Groh, G., Günemann, S., Hüllermeier, E., & Kasneci, G. (2023). ChatGPT for good? On opportunities and challenges of large language models for education. *Learning and Individual Differences*, 103, 102274. <https://doi.org/10.1016/j.lindif.2023.102274>
- Long, D., & Magerko, B. (2020). What is AI literacy? Competencies and design considerations. *Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, 1–16.
- Mhlanga, D. (2023). Open AI in education, the responsible and ethical use of ChatGPT towards lifelong learning. *Education and Information Technologies*, 28, 143–157.
- National Information Technology Development Agency. (2024). *National Artificial Intelligence Strategy for Nigeria*. Abuja: NITDA.
- National Universities Commission. (2023). *Guidelines for digital transformation and technology integration in Nigerian universities*. Abuja: NUC.
- Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2021). Conceptualizing AI literacy: An exploratory review. *Computers and Education: Artificial Intelligence*, 2, 100041. <https://doi.org/10.1016/j.caeai.2021.100041>
- State, Nigeria. *African Journal of Educational Management, Teaching and Entrepreneurship Studies*, 18(1).
- Organisation for Economic Co-operation and Development. (2023). *OECD Digital Education Outlook 2023: Towards an effective digital education ecosystem*. OECD Publishing.
- Tlili, A., Shehata, B., Burgos, D., & Mishra, S. (2023). What if the devil is my guardian angel: ChatGPT as a case study of using chatbots in education. *Smart Learning Environments*, 10, Article 15. <https://doi.org/10.1186/s40561-023-00237-x>
- Ubana M. U., Glory E. E., Arikpo, S. O. & Oku B. U. (2024). Administrators supervisory role on quality service secondary school delivery in Ikom Education Zone of Cross River State, Nigeria. *Journal of Association of Educational Management and Policy Practitioners (JAEMPP)* Vol. 4. Issue 1. Pp. 219 - 225
- Ubana, M. U., Glory E. E., Undie, R. A. & Elizabeth O. P. (2024). Artificial Intelligence (AI) A tool for combating unethical practices in Social Works Education. *Journal of Environmental and Tourism Education*, Vol. 7. (3) 12 -28. ISSN: 2659-0794
- UNESCO. (2023). *Guidance for generative AI in education and research*. Paris: United Nations Educational, Scientific and Cultural Organization.
- UNESCO. (2024). *AI competency framework for students*. Paris: United Nations Educational, Scientific and Cultural Organization.

ETHICAL BUSINESS PRACTICES AND SUSTAINABLE ENTREPRENEURSHIP AMONG SMALL-SCALE ENTERPRISE OPERATORS IN CROSS RIVER STATE

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Abstract

This study investigated ethical business practices and sustainable entrepreneurship among small-scale enterprise operators in Cross River State. The study was guided by two specific objectives. It answered two research questions and tested two null hypotheses at the .05 level of significance. Relevant literature was reviewed. The study population was 10,701 registered operators of small-scale enterprises in Cross River State, from which a sample of 380 was drawn using a multi-stage sampling approach. A structured questionnaire titled Ethical Business Practices and Sustainable Entrepreneurship Questionnaire (EBPSEQ) was developed by the researcher and used for data collection. The EBPSEQ was constructed on a five-point rating scale, namely strongly agree (SA), agree (A), Undecided, (U), disagree (DA), and strongly disagree. The EBPSEQ was face and content-validated by five experts at the University of Calabar and thereafter tested for reliability using Cronbach's Alpha statistics, yielding a reliability index of 0.87. The EBPSEQ was administered to the respondents, and data collected were analysed using the Pearson Product-Moment Correlation to answer the research questions and also test the null hypotheses at the 0.05 level of significance. From the analysed data, the study found that there is a significant relationship between business integrity, corporate transparency and sustainable entrepreneurship among small-scale enterprise operators in Cross River State. Based on these, the study recommends that the Ministry of Trade and Industry should organise workshops targeted at promoting business integrity.

Keywords: Ethical business practices, sustainable entrepreneurship, small-scale enterprise operators

Introduction

In the world of entrepreneurship, ethical business practices serve as the foundation for successful and sustainable businesses. Ethical business practices are the use of moral values and norms in the course of company operations. It includes distinguishing between right and wrong, as well as ensuring that a company's actions are consistent with its ideals and societal standards. According to Crane and Matten (2016), ethical business practices are actions and regulations that go beyond following the law to link corporate conduct with moral principles, including fairness, openness, and respect for stakeholders. Ethical business practices include transparency, fairness, accountability, and respect for stakeholders. This study is, however, restricted to business integrity and corporate transparency.

Business integrity is described as responsible and compliant company behaviour and orientation toward universally acknowledged ethical norms and values (Global Compact Network Germany 2022:6). Integrity is one of the most important assets that an entrepreneur can build, as it influences both image and success over the long term. More than merely honesty, business integrity is constantly acting in accordance with ethical ideals, respecting stakeholders, and accepting responsibility for decisions even when they are unpleasant. It is the unseen thread that can guide a company toward transparency, creating an open and honest culture that can propel a company to long-term prosperity and longevity. Customers, investors, and employees all put their trust in entrepreneurs who follow these values.

Corporate transparency is a basic principle of corporate management. It comprises communicating clear, accurate, and timely information to stakeholders about the business's performance, monetary hazards, and

procedures for making choices. It is a key ethical value that promotes responsibility, increases stakeholder confidence, and ensures a sustainable future. Transparency is founded on the notion of honesty. It ensures that those involved- clients, staff, shareholders, and policymakers can make educated choices based on reliable data. In an ideal business environment, enterprises act with integrity, openness, and accountability, resulting in economic progress and improvement in society. Businessmen are obligated to be honest, fair, and responsible to their staff, clients, and society (Crane *et al.*, 2022). Today's customers as well as stakeholders want firms to conduct themselves ethically. They demand transparency and fairness in operations, and such opinions are frequently reinforced by the activity of small-scale businesses. As customers, authorities, and investors put growing pressure on enterprises to exercise responsible entrepreneurial activity, business ethics have become critical to attaining long-term prosperity.

Business ethics are crucial to the success and sustainability of any business. Corporate ethics are critical for establishing trust with stakeholders such as clients, workers, shareholders, and the general public. When a company works with integrity and openness, it creates a culture of trust, which can lead to improved loyalty to clients, staff participation, and trust among shareholders. On the other hand, illegal activity, such as fraud or dishonesty, can rapidly erode confidence and harm a business's image (Dacin *et al.*, 2022). Recent research emphasises the importance of ethical business conduct in long-term viability. Zahari *et al.* (2024) investigated moral culture and management for sustainable development and management in public-sector companies using the environmental, social, and governance (ESG) paradigm. An approved survey was distributed to 155 public servants in Malaysia's Central area to collect data on ethical management behaviour, moral workplace culture, and integrity violations linked to governance, social, and environmental problems. The findings revealed that ethical managers' commitment to an ESG-compliant culture was prioritised. This promotes excellent management and business governance standards. Akanwa and Agu (2005) stated that without proper company procedures, there would be unreasonableness, recklessness, unlawful conduct, and fraud, which would contribute to the business's incapacity to sustain itself. This explains why Sharafa (2014) believes that ethical business practice allows organisations to comply with appropriate ecological guidelines and standards to improve the business's profitability.

In another study, Xie *et al.* (2024) investigated improving sustainable company performance using green structures, with a specific emphasis on the manufacturing industry. The goal was to identify the significance of green constructions in producing sustained business success via a survey of 449 employees in Pakistani manufacturing firms. Their study showed that green capabilities considerably improved sustainable company results. The study presented a complete moderated mediation paradigm emphasising the significance of managerial assistance and expertise sharing in promoting sustainability. Chege and Wang's (2020) study examined the impact of ethical company conduct on corporate financial health in organisations with sustainability efforts. Their findings demonstrated that organisations that implemented strong sustainability policies increased their financial standing over time, offering tangible proof linking sustainability to prosperity and corporate ethics.

Business ethics are crucial to long-term viability and success. A company that emphasises ethical behaviour is more likely to attract and keep consumers, employees, and investors that share its beliefs. Furthermore, ethical procedures can assist a business in avoiding legal and financial concerns, such as litigation or fines for noncompliance with legislation. By upholding ethical norms, a corporation can provide the groundwork for long-term entrepreneurship (Islam, 2022). Sustainable entrepreneurship is a company's ability to cultivate and encourage growth over time while successfully satisfying the present demands of varied stakeholders (Linneberg *et al.*, 2019), without jeopardising the capacity of subsequent generations to satisfy their own requirements. The present corporate environment progressively requires the incorporation of sustainable methods and ethical management as critical drivers of organisational success and longevity (Mousaco, 2024). Organisations around the world are recognising that sustainable growth and ethical behaviour are no longer optional but necessary for sustaining a competitive edge (CA) and confidence among stakeholders (Porter & Kramer, 2011). This fundamental change has become especially important, particularly at this time when business operators can hardly sustain their businesses. (Jamali & Karam, 2018).

In many economies, including Nigeria, unlawful corporate conduct (Basit *et al.*, 2024) that undermines business sustainability and economic progress persists. These practices include fraud, exploitation, lack of openness, limited awareness of the benefits and consequences associated with long-term viability and limitations in resources, time, abilities, and experience (Journeault *et al.*, 2021). Despite the aforementioned challenges, Nigeria, with its growing population and expanding business sector, has witnessed a surge in entrepreneurial activities in recent years. One of the forces behind entrepreneurial endeavours is small-scale enterprises. Small businesses are essential to economic growth because they promote rivalry, inventiveness, and job creation. Seventy per cent of job possibilities are created by small businesses, which also make a substantial contribution to the nation's gross domestic product (GDP) (Eneh, 2020; World Economic Forum, 2022). Additionally, small businesses are vital pillars for economic resilience and adaptive capacity because they offer vital economic adaptability, dynamism, and capacity for innovation during times of environmental disturbance (Alshebami, 2025).

Notwithstanding their success, Nigerian entrepreneurs face moral quandaries such as bribery, tax evasion, unfair labour practices, and environmental carelessness. These issues have substantial implications for company viability and public confidence. Prior research on sustainable entrepreneurship has mainly concentrated on specific issues such as fundraising to promote sustainable entrepreneurial activities (Dinh *et al.*, 2024), electronic sustainable business (Holzmann & Gregori 2023), prevailing patterns and trends (Anand *et al.*, 2021), causal systems (Johnson & Schaltegger, 2019), the role of stakeholders in long-term business ecosystems (Bischoff & Volkmann 2018), and environmentally friendly viable business ownership (Gast *et al.*, 2017). None of these investigations explicitly explore the connection between ethics and sustainable entrepreneurship, although these studies offer valuable insights into how scholars have attempted to study sustainable entrepreneurship. Long-term economic stability and ethical business practices depend on tackling the ethical aspects of business. This is the context in which this study was conducted.

Objectives of the study

The main purpose of this study was to investigate ethical business practices and sustainable entrepreneurship among small-scale enterprise operators in Cross River State. Specifically, the study determined the relationship between:

1. Business integrity and sustainable entrepreneurship among small-scale enterprise operators.
2. Corporate transparency and sustainable entrepreneurship among small-scale enterprise operators.

Research questions

The following research questions guided the study:

1. What is the relationship between business integrity and sustainable entrepreneurship among small-scale enterprise operators?
2. What is the relationship between corporate transparency and sustainable entrepreneurship among small-scale enterprise operators?

Statement of hypotheses

The following hypotheses gave direction to this study:

1. There is no significant relationship between business integrity and sustainable entrepreneurship among small-scale enterprise operators.
2. There is no significant relationship between corporate transparency and sustainable entrepreneurship among small-scale enterprise operators.

Method

This study adopted the Correlation research design. This research design was suitable for this study because the study investigated the relationship between ethical business practices and sustainable entrepreneurship

among operators of small-scale enterprises. This research design also informed the choice of the Pearson Product-Moment Correlation as the analytical tool. The study population was 10,701 operators of small-scale enterprises comprising 5,000 from the southern senatorial district, 3,701 from the central senatorial district, and 2,000 from the northern senatorial district who have been in business for over five years (Small and Medium Scale Enterprises, 2025). A multi-stage approach comprising proportionate and the hat and draw method of simple random sampling was used for sample selection. At the first stage, a sample of 386 operators of small-scale enterprises was determined using the Taro Yamane formula. At the second stage, proportionate sampling was used to select the sample based on the population from the senatorial districts. In applying this method, 234 respondents were selected from the Southern Senatorial District, 134 from the Central Senatorial District, and 72 from the Northern Senatorial District. At the third stage, proportionate allocation, a sampling frame containing the names of the operators was prepared. Each respondent was assigned a number, and selection was done using the Hat and Draw method of simple random sampling, by which the researcher blindly selected the aforementioned samples from each senatorial district until a sample of 386 operators was obtained. This method helped to reduce bias and ensured that the selected sample adequately represented the parent population. A 45-item structured questionnaire titled Ethical Business Practice and Sustainable Entrepreneurship Questionnaire (EBPSEQ) was developed by the researcher and used for data collection. The EBPSEQ was developed on a five-point rating scale, namely strongly agree (SA), agree (A), Undecided, (U), disagree (DA), and strongly disagree (SD). The EBPSEQ was validated by five experts, with two from the Business Education Department, one from the Department of Business Management and one from Measurement and Evaluation at the University of Calabar. The EBPSEQ was tested for reliability by administering it to 40 respondents who were not part of the study population but possessed similar characteristics. Data obtained were analysed using the Cronbach's Alpha statistics, and this yielded a reliability coefficient of 0.87, indicating that the EBPSEQ was reliable. The EBPSEQ was administered to 386 respondents at an interval of two weeks; 380 were retrieved. The collected and analysed using the Pearson Product-Moment Correlation to test the hypotheses. The basis for the decision for the hypotheses was as follows: 0.00-0.20= very low relationship, 0.20-0.40 = low relationship, 0.40-0.60 = moderate relationship, 0.60-0.80 = high relationship, and 0.80-1.0 = very high relationship. The hypotheses were tested using t-test significance of correlation statistics at a $p < .05$ level of significance.

Result

Research question 1

What is the relationship between business integrity and sustainable entrepreneurship among operators of small-scale enterprises in Cross River State?

Table1: Summary of Pearson Product-Moment Correlation between business integrity and sustainable entrepreneurship among operators of small-scale enterprises

Variable	N	R	r^2	Decision
Business integrity	380	0.97	0.94(94%)	Very high positive relationship
Sustainable entrepreneurship				

Table 1 indicates the computed correlation coefficient as 0.97 with r^2 as 0.94 at the 0.05 level of significance. This result shows a very positive relationship. The coefficient of determination (r^2) is 0.94, implying that 94 per cent of the variation in sustainable entrepreneurship is accounted for by business integrity; the remaining 6 per cent could be explained by sustainable entrepreneurship

Research question 2

What is the relationship between corporate transparency and sustainable entrepreneurship among operators of small-scale enterprises in Cross River State?

Table2: Summary of Pearson Product-Moment Correlation between corporate transparency and sustainable entrepreneurship among operators of small-scale enterprises

Variable	N	R	r ²	Decision
Corporate transparency	380	0.52	0.27(27%)	Moderate positive relationship
Sustainable entrepreneurship				

Table 2 indicates the computed correlation coefficient r as 0.51 with r^2 as 0.27 at the 0.05 level of significance. This result shows a very positive relationship. The coefficient of determination (r^2) is 0.27, implying that 27 per cent variation in sustainable entrepreneurship is accounted for by corporate transparency; the rest of 73 per cent could be explained by sustainable entrepreneurship.

Statement of hypotheses

Hypothesis 1

There is no significant relationship between business integrity and sustainable entrepreneurship among operators of small-scale enterprises

Table3: Summary of t-test significance of correlation analysis for the relationship between business integrity and sustainable entrepreneurship among operators of small-scale enterprises

Variable	R	Sig.	Df	t-cal	p-value	Decision
Business integrity	0.97	0.05	37	56.63	.000	Significant
Sustainable entrepreneurship						

Table 3 shows the t-test significance of correlation analysis for the relationship between business integrity and sustainable entrepreneurship among operators of small-scale enterprises. Table 3 further shows that the r-value of 0.97, t-calculated of 56.63, degree of freedom of 378, p-value of .000, at $p < .5$ level, two-tailed test is significant. This result indicates a significant relationship with a very high r-value and a calculated t-value that is greater than the p-value at the 0.05 level of significance. The null hypothesis is therefore rejected. This implies that there is a significant relationship between business integrity and sustainable entrepreneurship among operators of small-scale enterprises in Cross River State.

Hypothesis 2

There is no significant relationship between corporate transparency and sustainable entrepreneurship among operators of small-scale enterprises

Table4: Summary of t-test significance of correlation analysis for the relationship between corporate transparency and sustainable entrepreneurship among operators of small-scale enterprises

Variable	R	Sig.	Df	t-cal	p-value	Decision
Corporate transparency	0.51	0.05	378	52.60	.000	Significant
Sustainable entrepreneurship						

Table 3 shows the t-test significance of the correlation analysis for the relationship between corporate transparency and sustainable entrepreneurship among operators of small-scale enterprises. Table 3 further shows that the r-value of 0.51, t-calculated of 52.60, degree of freedom of 378, p-value of .000, at $p < .5$ level, two-tailed test is significant. This result indicates a significant relationship with a very high r-value and a calculated t-value that is greater than the p-value at the 0.05 level of significance. The null hypothesis is

therefore rejected. This implies that there is a significant relationship between corporate transparency and sustainable entrepreneurship among operators of small-scale enterprises in Cross River State.

Discussion

The finding from the first hypothesis indicates that there is a significant relationship between business integrity and sustainable entrepreneurship among operators of small-scale enterprises in Cross River State. This result is consistent with Zahari *et al.*'s (2024) discovery that ethical leaders prioritised adhering to an ESG-based culture. This supports the best company governance and management techniques. The findings of this study support the statement made by Akanwa and Agu (2005) that the absence of ethical business procedures would result in unreasonableness, recklessness, unlawful conduct, and fraud, all of which would make the company unsustainable. The results of this study further support Sharafa's (2014) assertion that principles of business ethics provide a way for companies to adhere to pertinent environmental laws and regulations that are essential to their success. The study's findings may be as presented because commitment to moral standards and the development of a strong culture of integrity serve as the cornerstone upon which creativity and growth are developed. In addition to influencing an organisation's internal dynamics, this unwavering dedication to integrity also has an external impact on the market and business.

The finding from the second hypothesis show that there is a significant relationship between business integrity and sustainable entrepreneurship among operators of small-scale enterprises in Cross River State. This result supports the findings of Xie *et al.* (2024), who found that green competencies greatly improved sustainable company performance. The study produced a thorough moderated mediation framework that emphasises the value of knowledge exchange and assistance from upper management in promoting sustainability. The results of this study provide empirical evidence linking sustainability to profitability and business ethics, supporting Chege and Wang's (2020) conclusions that organisations with strong sustainability practices saw greater financial success over time. The results of this study may be as presented because, in the ever-changing world of entrepreneurship, a successful business frequently rests on a steadfast dedication to moral rectitude and ethical behaviour. In addition to building confidence among stakeholders, this unwavering commitment to doing what is right acts as a beacon of guidance during trying times. Businesses that emphasise ethical considerations in their business activities create an atmosphere where honesty is not only expected but also exemplified, setting a standard that penetrates the entire organisation.

Conclusion

In today's business environment, organisations are under increasing pressure to implement ethical business practices that foster sustainability and foster trust. Strong connections with stakeholders, including employees, clients, and investors, are facilitated by the adoption of ethical policies and procedures. By incorporating ethical concepts into their operations, businesses can not only comply with regulations but also meet the increasing demands of stakeholders, including societies, shareholders, staff, and clients, who want socially and ecologically responsible practices. Therefore, companies that wish to foster trust and guarantee long-term viability should place a high premium on incorporating business ethics into company strategies.

Recommendations

Sequel to the findings of this study, the study recommends that:

1. The Ministry of Trade and Industry should organize workshop targeted at promoting business integrity.
2. Operators of small-sized enterprises should demonstrate transparency in all their dealings with their customers, investors and the government

References

Akanwa, P.U. and C.N. Agu, 2005. Business ethics and social responsibilities. In P. U. Akanwa, and C. N. Agu (Eds), entrepreneurship theory and practice in Nigeria. Resource Development Centre, pp: 93 – 109.

- Anand, A., Argade, P., Barkemeyer, R. & Salignac, F. (2021). Trends and Patterns in Sustainable Entrepreneurship Research: A Bibliometric Review and Research Agenda. *Journal of Business Venturing* 36 (3), 106092.
- Anand, A., Argade, P., Barkemeyer, R. & Salignac, F. (2021). Trends and Patterns in Sustainable Entrepreneurship Research: A Bibliometric Review and Research Agenda. *Journal of Business Venturing* 36 (3), 106092.
- Basit, S. A., Gharleghi, B., Batool, K., Hassan, S. S., Jahanshahi, A. A., & Kliem, M. E. (2024). Review of enablers and barriers of sustainable business practices in SMEs. *Journal of Economy and Technology*, 2, 79–94. <https://doi.org/10.1016/j.ject.2024.03.005>
- Bischoff, K., & Volkmann, C. K. (2018). Stakeholder Support for Sustainable Entrepreneurship - A Framework of Sustainable Entrepreneurial Ecosystems. *International Journal of Entrepreneurial Venturing* 10, no. 2: 172.
- Chege, S. M., & Wang, D. (2020). The influence of technology innovation on SME performance through environmental sustainability practices in Kenya. *Technological Forecasting and Social Change*, 160, 120224.
- Crane, A., & Matten, D. (2016). Business ethics: Managing corporate citizenship and sustainability in the age of globalisation. Oxford University Press.
- Dacin, M. T., Harrison, J. S., Hess, D., Killian, S., & Roloff, J. (2022). [Business versus ethics? Thoughts on the future of business ethics](#). *Journal of Business Ethics*, 180(3), 863-877.
- Dinh, J., Isaak, A. J., & Wehner, M. C. (2024). Sustainability-Oriented Crowdfunding: An Integrative Literature Review. *Journal of Cleaner Production* 448: 141579. <https://doi.org/10.1016/j.jclepro.2024.141579>.
- Eneh, O. C. (2020). Ethical issues in entrepreneurship and small business development in Nigeria. *African Journal of Business and Economic Development*, 10 (2),
- Gast, J., Gundolf, K. & Cesinger, B. (2017). Doing Business in a green way: A systematic review of the ecological sustainability entrepreneurship literature and future research directions. *Journal of Cleaner Production* 147: 44–56.
- Global Compact Network Germany. (2022). Corporate integrity: Catalogue of Practices.
- Holzmann, P., & Gregori, P. (2023). The promise of digital technologies for sustainable entrepreneurship: A systematic literature review and research agenda. *International Journal of Information Management* 68: 102593.
- Islam, G. (2022). [Business ethics and quantification: Towards an ethics of numbers](#). *Journal of Business Ethics*, 176(2), 195-211
- Jamali, D., & Karam, C. (2018). Corporate social responsibility in developing countries as an emerging field of study. *International Journal of Management Reviews*, 20(1), 32–61. <https://doi.org/10.1111/ijmr.12112>
- Johnson, M. P., & Schaltegger, S. (2019). Entrepreneurship for sustainable development: A review and multilevel causal mechanism framework. *Entrepreneurship Theory and Practice* 44, (6), 104225871988536.
- Journeault, M., Perron, A., & Vallières, L. (2021). The collaborative roles of stakeholders in supporting the adoption of sustainability in SMEs. *Journal of Environmental Management*, 287, 112349. <https://doi.org/10.1016/j.jenvman.2021.112349>

- Linneberg, M., Skjøtt, Madsen, M., & Toft; Nielsen, J. A. (2019). Micro-level translation of corporate sustainability: When strategy meets practice in the Danish hospitality Sector. *Journal of Cleaner Production*, 240(118159), 118159. <https://doi.org/10.1016/j.jclepro.2019.118159>
- Mousaco, B.G. (2024). How can leaders change the future?: The role of corporate leadership in sustainable transitions from a consultancy perspective. Master's Thesis, Department of Economics, The Hashemite University, Zarqa, Jordan.
- Porter, M. E., & Kramer, M. R. (2011). Creating shared value. *Harvard Business Review*, 89(1/2), 62–77.
- Sharafa, O.M., 2014. Understanding: Management, governance & ethics featuring over 80 practice questions and answers on strategic management, risk management, corporate governance and ethics. Phodun International Consulting Limited.
- World Economic Forum. (2022 *World economic forum annual meeting* [Paper presentation]. World Economic Forum. [https://www.weforum.org/agenda/2022/05/3-digital-drivers-smes-gulf\(open in a new window\)](https://www.weforum.org/agenda/2022/05/3-digital-drivers-smes-gulf(open%20in%20a%20new%20window))
- Xie, X., Khan, S., Rehman, S., Arslan, H., & Kayani, U. N. (2024). Ameliorating sustainable business performance through green constructs: a case of manufacturing industry. *Environment, Development, and Sustainability*, 26, 22655–22687. <https://doi.org/10.1007/s10668-023-03569-3>
- Zahari, A. I., Said, J., Muhamad, N., & Ramly, S. M. (2024). Ethical culture and leadership for sustainability and governance in public sector organisations within the ESG framework. *Journal of Open, Innovation: Technology, Market, and Complexity*, 10(1). <https://doi.org/10.1016/j.joitmc.2024.100219>