

LEVERAGING TECHNOLOGIES AND SOFT SKILLS FOR URBAN GREEN TRANSITION IN ESTATE DEVELOPMENT: A CASE STUDY OF GUBI HOUSING ESTATE, BAUCHI, NIGERIA

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Abstract

This study explores the integration of technologies and soft skills to drive urban green transition in real estate development, focusing on Gubi Housing Estate, Bauchi, Nigeria. Using a mixed method approach, the research assesses the current state of green practices, identifies barriers to adoption and evaluates the effectiveness of technologies (eg. Renewable energy, green infrastructure) and soft skills (e.g. sustainability, awareness, community engagement) in promoting environmental sustainability and reducing carbon foot print. The findings inform strategies for real estate developers, policy makers and stakeholders to foster urban green transition and sustainable development.

Keywords: Urban Green Transition, Real Estate, Technologies, Soft Skills, Sustainability, Bauchi, Nigeria.

1.0 Introduction

Urban green transition requires significant modern technologies as well as soft skills. Contemporary technologies such as green building, renewable energy systems, urban farming techniques, waste management techniques and sustainable transportation system where public commuting electric vehicles including non-motorized transportation infrastructures plays a significant role in urban green transition. A sustainable urban green transition however, requires contemporary soft skills like environmental awareness, sustainable thinking, project management, collaboration and communication, creativity and innovation, well-informed decision-making strategy, critical thinking for problem solving among others. participatory approach, collaborative governance and green financing.

Conceptual framework:

Communication and Collaboration: The green transition requires effective coordination between diverse stakeholders, including government agencies, private developers, citizens, and

environmental advocates. Strong communication skills facilitate these partnerships and ensure a shared vision.

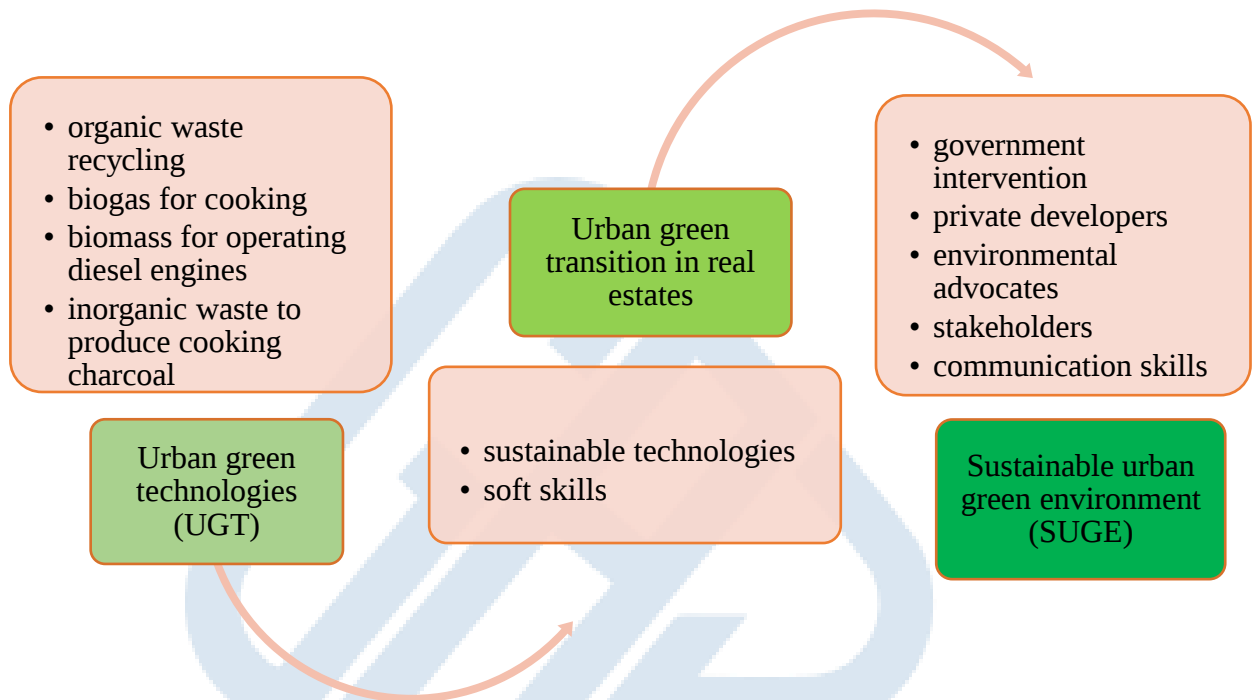


Figure 1. Conceptual framework

2.0 Concept of urban green

Urban green transition refers to the process of transforming real estates, cities and metropolitan areas towards sustainability, resilience and environmental friendliness. This process involves reducing carbon foot print, green infrastructure, sustainable urban planning, resource efficiency, climate resilience, etc. the goal of urban green transition is to create livable, sustainable and resilient estates and cities as well as metropolitan areas that can promote and prioritize human well-being, environmental protection and economic prosperity (Campos, et al. 2024; Anzelini, 2022; Li, et al. 2020; Faucher and Bastien 2006).

2.1 Contemporary technologies in urban green transition

Modern technologies are playing a crucial role in driving the urban green transition. In addition, emerging technologies like artificial intelligence (AI), big data analytics and digital twins are enabling data driven decision making tools for resource optimization and enhanced urban

resilience technologies in urban green transition (Berlingieri and Valente 2021). Smart infrastructure, intelligent mobility solutions, and nature-based solutions are also key components in urban green transition, leading to more sustainable and resilient cities (Berlingieri and Valente 2021). In the perspective of contemporary urban design practices on environmental rebalancing, a fragmented conceptual framework emerges, where the revival of uncontrolled nature at the core of the urban scene develops (Berlingieri and Valente 2021). The relationship between estates design and natural environment is critical (Berlingieri and Valente 2021).

According to Soderholm, (2020), the green economy (GE) is an alternate idea for growth and development in applying urban green technologies to create economic development and improvements in people's lives in ways consistent with advancing urban green transition (Soderholm, 2020). Soderholm, (2020), observed that the significant component of the contemporary technologies in urban green strategy is promoting development and adoption of sustainable technologies (Soderholm, 2020). He further argues that sustainable technological change using urban green technologies require assessment of the roles of private industry and the state (Soderholm, 2020).

2.2 Soft skills creativity and innovation in urban green transition

Soft skills creativity and innovation in urban green transition are fundamental for the success of any entity (Campos, et al. 2024; Anzelini, 2022; Faucher and Bastien 2006). These skills include digital innovations, decarbonization strategies as well as their relevance for personal competitiveness, especially in the context of the digitized estates in which we live. Other soft skills include the use of local manure to produce biogas for power internal combustion engines. Li, et al. (2020) pronounced additional soft skill, an alternative farming systems with glass-enclosed window-free structural design, grid with solar photovoltaic (PV) energy supply, waste recycling techniques and traditional chemical fertilizers with food waste compost fertilization (Li, et al. 2020). (Campos, et al. 2024; Anzelini, 2022; Li, et al. 2020; Faucher and Bastien 2006). They also found that the low acquisition of these skills by graduates is crucial and appears to be a significant draw back (Campos, et al. 2024). They also opined that these skills would be the truly crucial for innovations in life in the coming decades (Campos, et al. 2024; Anzelini, 2022; Li, et al. 2020; Faucher and Bastien 2006).

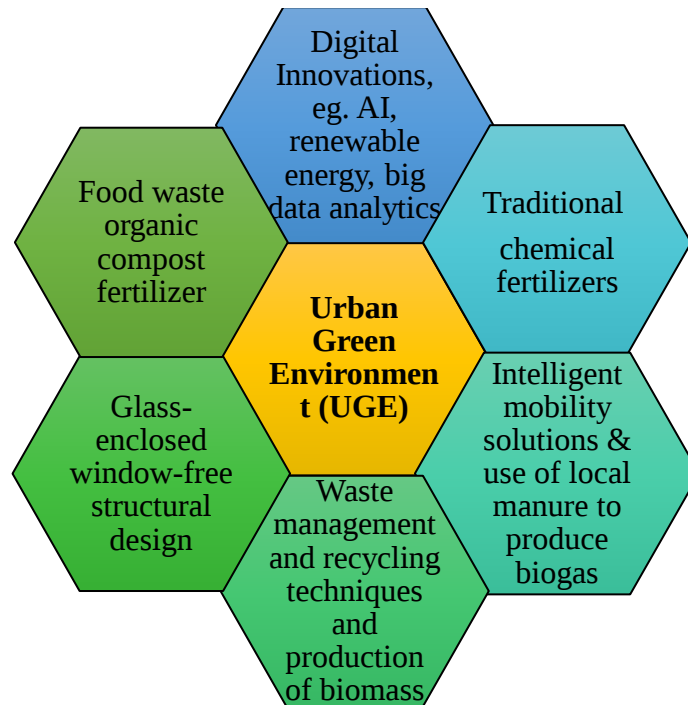


Figure 1. Environmental soft skills creativity and innovations in urban green transition adopted from Campos, et al. (2024); Anzelini, (2022); Li, et al. (2020); Faucher and Bastien (2006).

Anzelini, S. (2022) envisaged further that contemporary labour markets are deeply affected by environmental changes, like climate change phenomena, climate migration effects generated by policies interventions aimed at mitigating environmental threats. To tackle the potential negative consequences on employment rates and on natural and built environment, in the last few decades world economies have started to develop decarbonization strategies on several levels of implementation (Anzelini, 2022). The shared impartial objective would be to reach a green economy (GE), a sustainable economic model that does not harm the environment while maintaining or fostering growth and employment, through a change process called green transition (Campos, et al. 2024; Anzelini, 2022; Li, et al. 2020; Faucher and Bastien 2006). Green transition (GT) progress models are more focused on achieving economic growth in an environmentally, but not necessarily socially fair, sustainable way (Campos, et al. 2024; Anzelini, 2022; Li, et al. 2020). The pursuit of an effective and successful green transition, however, is highly dependent on the availability of the right sets of skills to allow the transition to happen in the first place, and to fill the new jobs and tasks that would be created in the future (Campos, et al. 2024; Anzelini, 2022; Li, et al. 2020). Misalignment between skills requirements and supply are called skill mismatches and can have many procedures and impacts (Campos, et al. 2024; Anzelini, 2022; Li, et al. 2020). The major skill mismatch types and their magnitude, along with the investigation of the probable future skill needs of a green transition economy (GTE) and the public and private interventions

and or policies that could mitigate skill mismatches and job displacement while facilitating shifts toward emerging green sectors (EGS) and the provision of skills for the future green jobs should be addressed (Campos, et al. 2024; Anzelini, 2022; Li, et al. 2020).

Faucher and Bastien (2006) relates soft skills creativity and innovation in urban green transition to the conventional world energy reserves that are declining while global energy demand is significantly increasing. This provides an enormous opportunity for the production of an alternative energy such as solar, wind and biomass through the adoption of soft skills creativity and innovation in urban green transition (Faucher and Bastien 2006). This could be achieved through the agricultural sector which is an industry that can reap the many financial and environmental benefits of implementing renewable energy technology (Faucher and Bastien 2006). However, there are huge barricades to adopting new technologies to harvest non-conventional forms of energy. Faucher and Bastien (2006) highlighted that to bridge this gap, natural resources Canada (NRC) is working on a project to help farm owners and operators to select economically and environmentally sound renewable energy technologies (Faucher and Bastien 2006). They further discovered that local manure would be used to produce biogas for power internal combustion engines. The system produces energy from renewable sources for heat and electricity while providing a manure management system (Faucher and Bastien 2006). Li, et al. (2020) contended that increasing population and continuous urbanization make food security prominent in sustainable development. It is important to develop economic and resource-efficient farming solutions to meet food demand (Li, et al. 2020). Renewable energy and waste management may bring benefits to build sustainable food production systems and facilitate economic growth. Li, et al. (2020) pronounced additional soft skill, an alternative farming systems with glass-enclosed window-free structural design, grid with solar photovoltaic (PV) energy supply, and traditional chemical fertilizers with food waste compost fertilization (Li, et al. 2020). It was established that plant-factory farming systems integrated with solar PV and beer-residue-derived fertilizer could be a promising and sustainable farming solution (Li, et al. 2020). Agricultural venture is viable using urban farming crops of waste to generate energy (bioenergy). Agricultural wastes are the focus of the current soft skills and innovation (Ibrahim and Fitria, 2023). Evaluation of the potentials for agribusinesses profit from recycling food scraps into biofuel demonstrates the complexity of the internal and external factors that influence the utilization of agricultural waste. Therefore, it has been determined that farming agricultural waste is not economically viable (Ibrahim and Fitria, 2023).

2.3 Building sustainable real estate in achieving urban green environment

Almusaed, et al. (2024) discovered that real estate developers must adapt evolving sustainability requirements to fulfil environmental responsibilities and user expectations as well as achieving urban green environment. This entails that implementation of environmentally friendly practices in estate construction offers numerous advantages (Almusaed, et al. 2024). Sustainable building

practices provide morally and economically viable solutions to excessive resource consumption and other environmental effects (Almusaed, et al. 2024). This shows that eco-friendly construction and property development is vital in achieving urban green environment. However, Akin and Akin, (2024) examined how sustainable practices in the UK real estate industry are impacted by green investments through qualitative research, focusing on interviews with real estate developers (Akin and Akin, 2024). Regulatory frameworks, market demand, financial incentives, corporate responsibility and technological innovation are crucial factors in sustainable practices in achieving urban green environment (Akin and Akin, 2024). They further established that there is a growing demand for sustainable properties, supported by financial incentives such as grants, loans and green finance mechanisms. This could motivate stakeholders to partake in sustainability initiatives where policymakers would design effective regulatory frameworks and incentives (Akin and Akin, 2024). Investors should then give substantial emphasis to green investments through contemporary mechanisms like green incentives to meet growing user demand for sustainable properties and urban green environment. (Akin and Akin, 2024). Building estates using greening design bring positive benefits which have a positive impact on the urban real estate market. Government should promote building space environment with greening design and urban design policy should be enhanced (Chang and Chou, 2010). Ogunba, et al., (2021) observed that lack of prerequisite skills, enforcement of green leases, inadequate training, and empowerment of licensed property managers and occupiers on how such leases operate significantly inhibit the full adoption of green leases (Ogunba, et al., (2021). They further contended that use of energy conservation bulbs and digital metering are mostly adopted whereas the current property management practice does not address the negative effects (Ogunba, et al., (2021). Green real estate is a new form of development that reduce the negative impact of real estate construction on the environment (Zhang, et al. 2021). They identified that operation and maintenance of residential areas, indoor and outdoor comfort, building quality, sustainable community attachment and public facility accessibility play a key role in achieving urban green environment (Zhang, et al. 2021). However, all these factors mentioned were significant in measuring user satisfaction on urban green environment (Zhang, et al. 2021).

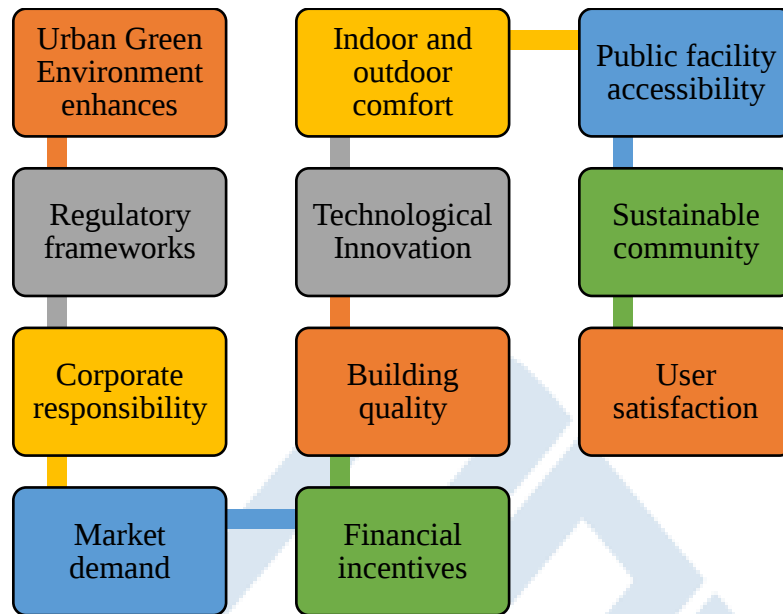


Figure 2. Urban green environment model

2.4 Evaluation of stakeholders interests and needs in urban green transition

Assessment of different stakeholders yield important insights which, in turn, offered inform sustainable urban transition (Bugl, et al. 2012). Indicators were used to distinguish between desirability, utility and probability assessments conducted between various stakeholders to assess their interests and needs in urban green transition (Bugl, et al. 2012). Fu, et al (2017) investigated the relationships between the delicate ecological environment and severe urban diseases, such as traffic jams, rising housing prices and overpopulation in current China, arguing that urban green transition is a new opportunity to heal these urban diseases and to create a sustainable urban future (Fu, et al. 2017). The comprehensiveness of sustainability puts forward a more systematic and theoretical framework of urban transition towards greening (Fu, et al. 2017). Given the distinctive contexts of China, it emphasizes the significance of the conceptual change and stakeholder involvement relevant to the process of the transition in question as safeguards defending urban sustainable development (Fu, et al. 2017). Oijstaeijen, et al. (2020) opined that as a response to increasing urbanization and changing weather and climatic patterns, urban green infrastructure (UGI) emerged as a concept to increase resilience within the urban boundaries. Oijstaeijen, et al. (2020) reviewed the potentials of existing valuation tools to support investment decisions of urban green infrastructure. In the assessment, the functionality is regarded specifically from the urban planning and decision-making viewpoint. They further found that most tools are not designed for the peculiarities of the urban green context. Several elements contribute to the hindering uptake of UGI valuation tools. They finally contended that current tools, are not readily applicable to urban green transition (Oijstaeijen, et al. 2020).

Patra et al. (2012) contended that clean water is a significant challenge for the sustainability of expanding cities worldwide. The United Nations recognizes the importance of urban green space to improve sustainability and has proposed sustainable development goals to be achieved by 2030 (Patra et al. 2012). However, politicians have their own sustainability goals and are instituting various policies to achieve them (Patra et al. 2012). Utilizing a community based participatory research approach (CBPA) involving multi-stakeholders and transition management theory to frame different spheres of governance has significant influence (Patra et al. 2012). Alexander et al. (2019) identified urban green infrastructure (UGI) and nature-based solutions are increasingly recognized as instruments to address urban sustainability challenges. They demonstrated increased adaptive capacity of the social-ecological system (SES) around urban green infrastructure (UGI) improved overall stakeholder resilience in broader range of sustainable development objectives in their daily practice (Alexander et al. 2019).

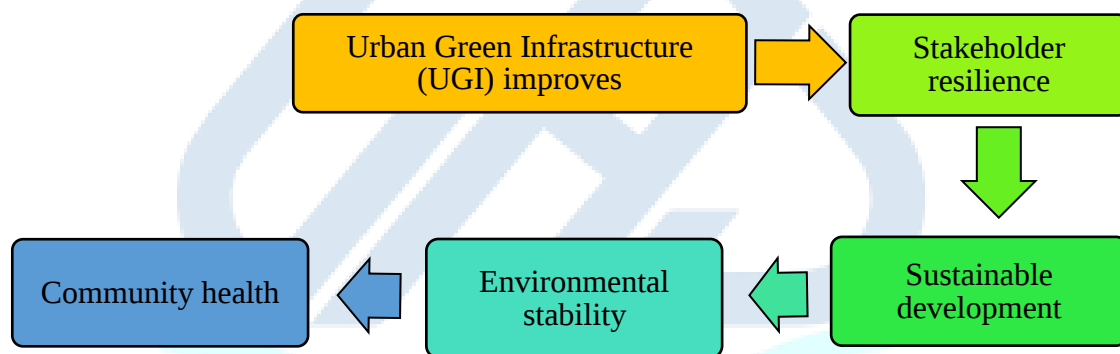


Figure 3. Importance of urban green infrastructure (UGI) in real estate development

3.0 Methodology

The plan of action designed for achieving urban green in real estate's using technologies and soft skills adopted in this paper were participatory approach, collaborative governance and green financing. In accomplishing these methodologies, the paper imposed monitoring and evaluation techniques such as performance-based monitoring (PBM) where indicators were placed for tracking the progress towards urban green estate transition goals; the second technique is the stakeholder engagement and feedback (SEF) where stakeholders were interviewed based on theoretical sampling technique to gather feedback and monitor progress; the third technique is the green building technologies (GBT) where energy efficient buildings and sustainable construction materials were used. These methodologies assisted in achieving urban green transition in real estates for improving quality of life of citizens simultaneously reducing environmental impacts.

3.1 Sampling techniques

The paper adopted stratified sampling technique where respondents were divided into subgroups based on income level and educational background.

3.2 Research Design

This paper adopted case study approach qualitative research paradigm where interviews were conducted with stakeholders including policy makers and business leaders where in-depth insights were gathered on urban green transition in real estates. Participatory action in research was promulgated and deeply accepted. Effectiveness of technologies and soft skills in achieving urban green transition and sustainable cities that are resilient were critically assessed. In a case study approach, researchers conduct an in-depth examination of a single individual, group, or event to gain a detailed understanding of the subject of study. This approach allows for rich contextual information and can be particularly useful in exploring complex and unique cases.

4.0 Assessment of the impact of technologies and soft skills in urban green transition in real estates and stakeholders' modalities for improving urban green transition in real estate's using technologies and soft skills

In assessing the impact of technologies and soft skills in urban green transition in real estates with a view to improving the positive impacts, three (3) stakeholders were interviewed and the researcher undertook personal observation on urban green transition. A sustainable urban green transition however, requires contemporary soft skills like environmental awareness, sustainable thinking, project management, collaboration and communication, creativity and innovation, well-informed decision-making strategy, critical thinking for problem solving among others. participatory approach, collaborative governance and green financing. The researcher identified some contemporary technologies as well as soft skills for achieving urban green transition in real estate's development. Stakeholders' modalities for improving urban green transition in real estate's using technologies and soft skills were also identified and accordingly reviewed.

4.1 Responses of stakeholders on the impact of urban green transition in real estate's using technologies and soft skills

Three stakeholder groups were interviewed and it was revealed that stakeholders are interested in more sustainable technologies and soft skills in urban green transition. They suggested organic waste recycling to generate electricity, produce compost organic manure, produce egg crates and produce biogas for cooking and biomass for operating diesel engines and equipment.

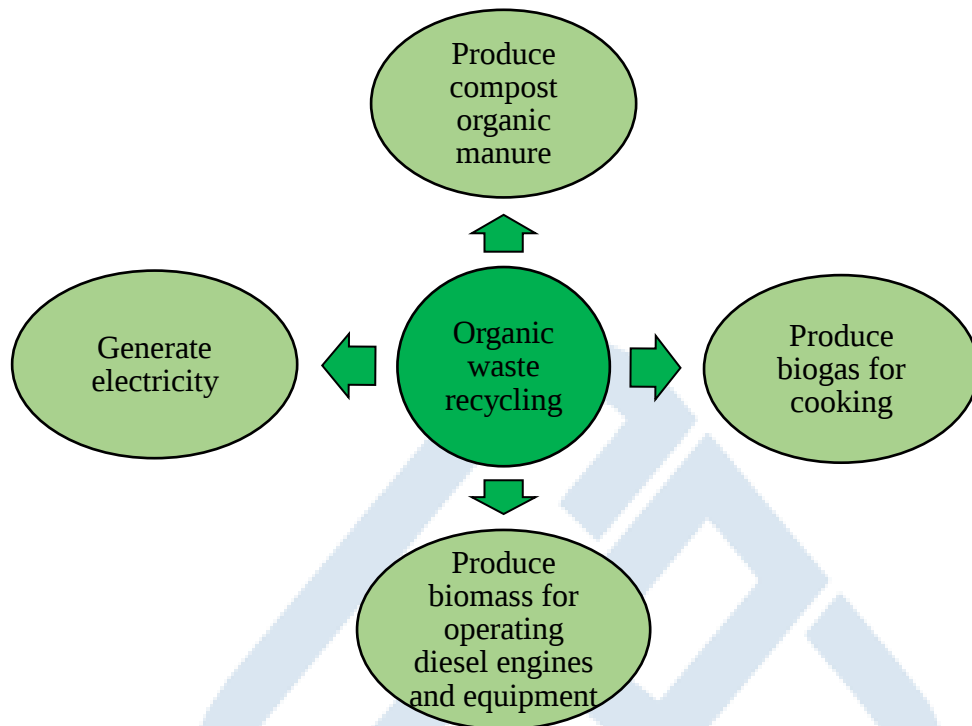


Figure 4. Technologies and soft skills from organic solid waste in achieving urban green transition in real estate in the study area

Whereas inorganic waste would be processed to produce cooking charcoal, leather bags, rubber shoes, cups, plates and is a lucrative job opportunity for women and youths.

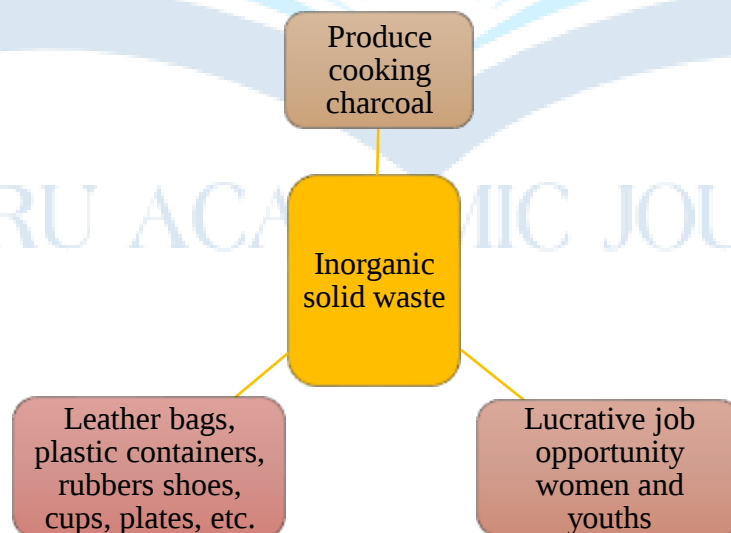


Figure 5. Technologies and soft skills from inorganic solid waste in achieving urban green transition in the study area

4.2 Responses of stakeholders on modalities for improving urban green transition in real estate's using technologies and soft skills

Stakeholders contended that waste recycling would mitigate various ailments and diseases generated from physical, chemical and biological decomposition of toxic solid waste. This would go a long way in promoting aesthetics and well-being of residents.

5.0 Findings

Respondents interviewed revealed that stakeholders are interested in more sustainable technologies and soft skills in urban green transition. They suggested organic waste recycling to generate electricity, produce compost organic manure, produce egg crates and produce biogas for cooking and biomass for operating diesel engines and equipment. Whereas inorganic waste would be processed to produce cooking charcoal, leather bags, rubber shoes, cups, plates and is a lucrative job opportunity for women and youths. Findings of this research paper corresponds to the findings of Berlingieri and Valente (2021) where they contended that mobility solutions, and nature-based solutions are also key components in urban green transition, leading to more sustainable and resilient cities and estates. It also corresponds to the findings of Campos, et al. (2024); Anzelini, (2022); Faucher and Bastien (2006) for the use of local manure to produce biogas for power internal combustion engines. Li, et al. (2020) pronounced additional soft skill, an alternative farming systems with glass-enclosed window-free structural design, grid with solar photovoltaic (PV) energy supply, and traditional chemical fertilizers with food waste compost fertilization. This finding also corresponds to the finding of this research on the use of local processed compost manure for farming activities.

6.0 Conclusion

Urban green transition, however, is a multi-dimensional cooperative process accompanied with increasing uncertainty in a city's size, location, complex function system and variant resources endowment. As direct participants and beneficiaries, stakeholders including local governments, enterprises and citizens have played an essential role in urban development.

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SELECTION AND APPLICATION OF DEFINED STARTER CULTURES FOR IMPROVED PRODUCTION OF TRADITIONALLY FERMENTED MILK (NONO) IN BAUCHI METROPOLIS, NIGERIA

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Abstract

Nono is an indigenous fermented milk product commonly consumed in Northern Nigeria and is traditionally produced through uncontrolled natural fermentation. This approach often results in inconsistent quality, limited shelf stability, and potential microbiological risks. This study focused on the isolation, characterization, and selection of suitable lactic acid bacteria (LAB) starter cultures for controlled nono production in Bauchi Metropolis, Nigeria. Fresh raw milk and traditionally fermented nono samples were obtained from five major dairy markets. LAB isolates were characterized based on morphology and carbohydrate fermentation patterns using API 50 CHL kits. Diacetyl-producing ability was used as a primary selection criterion. Selected LAB strains were applied individually and in combination during controlled fermentation of pasteurized milk. Physicochemical properties, sensory quality, proximate composition, and shelf-life were evaluated. Nono produced with a mixed starter culture of *Lactobacillus plantarum* N07 and *Lactobacillus casei* N18 showed significantly improved acidity, viscosity, sensory acceptability, and storage stability compared to spontaneous fermentation ($p < 0.05$). These findings demonstrate that defined LAB starter cultures can substantially enhance the quality and consistency of nono while preserving its traditional characteristics.

Keywords: Nono, lactic acid bacteria, starter culture, fermented milk, quality improvement, Nigeria

1. Introduction

Fermented milk products play an important role in human nutrition due to their enhanced digestibility, extended shelf-life, and improved sensory attributes (Tamime & Robinson, 2007). In Nigeria, nono is widely consumed, particularly in the northern regions, where it serves as a major source of animal protein and dietary energy (Achi, 2005). The product is traditionally manufactured by allowing raw milk to ferment naturally, relying on indigenous microorganisms present in the milk and fermentation vessels.

Spontaneous fermentation, however, is associated with fluctuations in microbial composition, leading to variable product quality and occasional spoilage (Olasupo et al., 2010). In addition, the

absence of defined starter cultures increases the risk of contamination by undesirable microorganisms (Mensah *et al.*, 2002). Lactic acid bacteria (LAB) are known to dominate milk fermentation processes, producing organic acids, flavour compounds, and antimicrobial substances that enhance both safety and sensory quality (Leroy & De Vuyst, 2004).

The use of selected starter cultures has been reported to improve product uniformity, fermentation control, and consumer acceptability in fermented dairy products (Fox *et al.*, 2017). Despite these advantages, limited research has been conducted on starter culture selection for nono production in Bauchi Metropolis. This study therefore aimed to isolate LAB from traditional nono, evaluate their technological properties, and assess their suitability as starter cultures for controlled nono fermentation.

2. Materials and Methods

2.1 Sample Collection

Fresh raw milk and traditionally fermented nono samples were collected from five dairy markets within Bauchi Metropolis, Nigeria. Samples were aseptically collected and transported to the laboratory for immediate analysis, following standard procedures described by (Harrigan, 1998).

2.2 Isolation and Characterization of LAB

LAB were isolated using de Man, Rogosa and Sharpe (MRS) agar under anaerobic conditions. Presumptive LAB isolates were examined microscopically after Gram staining and tested for catalase activity. Biochemical identification was carried out using API 50 CH and API 50 CHL systems, according to the manufacturer's instructions (Holzapfel & Wood, 2014).

2.3 Determination of Diacetyl Production

Diacetyl production was quantified using a titrimetric method described by AOAC (2019). Isolates producing higher levels of diacetyl were selected for use as starter cultures due to their contribution to flavour development in fermented milk.

2.4 Controlled Fermentation of Nono

Milk was pasteurized at 72 °C for 20 seconds and cooled prior to inoculation. Selected LAB cultures were added at 1% (v/v), either singly or in combination. Fermentation was carried out at 30 °C for 24 hours. A naturally fermented sample served as the control (Tamime & Robinson, 2007).

2.5 Physicochemical Analysis

pH was measured using a digital pH meter, while titratable acidity was determined by titration with 0.1 M NaOH and expressed as percentage lactic acid. Viscosity was measured using a rotational viscometer, as described by (Walstra *et al.*, 2006).

2.6 Sensory Evaluation

Sensory evaluation was conducted by five familiar consumers of nono using a 9-point hedonic scale to assess colour, aroma, taste, texture, and overall acceptability (Stone & Sidel, 2004).

2.7 Proximate Composition

Moisture, protein, fat, ash, fibre, and dry matter contents were determined following standard AOAC methods (AOAC, 2019).

2.8 Shelf-Life Assessment

Fermented nono samples were stored at ambient (28 ± 2 °C) and refrigerated (4 °C) conditions. Microbial stability was monitored at 24-hour intervals using total viable count methods (Jay *et al.*, 2005).

2.9 Statistical Analysis

Data were analyzed using one-way analysis of variance (ANOVA). Mean separation was performed at a 95% confidence level ($p < 0.05$) using Minitab software.

3. Results and Discussion

Table 1: Morphological characteristics of LAB isolated from Nono produce.

S. no	LAB genus detected	Gram stain	Cell morphology	Cellular arrangement/appearance
1	Lactococcus	+	Cocci	Single, diploid, and short-chained cocci
2	Lactococcus	+	Cocci	Tetraploid, paired cocci
3	Lactococcus	+	Cocci	Paired, long-chained cocci
4	Lactobacillus	+	Rod	Paired rods
5	Lactococcus	+	Cocci	Single, paired, and chained cocci
6	Lactobacillus	+	Coccoid bacilli	Paired, long-chained coccoid bacilli
7	Lactobacillus	+	Coccoid bacilli	Single, paired coccoid bacilli
8	Lactobacillus	+	Coccoid bacilli	Diploid, tetraploid, and paired coccoid bacilli
9	Lactobacillus	+	Coccoid bacilli	Single, diploid, and paired coccoid bacilli

Table 2: Identification of LAB isolates by using API 50 CHL test strips.

S. no	Sugars											
	Arab	Gala	Inu	La	Malt	Manni	Sucr	Xyl	Sori	Ribo	Raff	Meli
1	+	+	—	+	+	+	Wp	—	—	+	—	+
2	+	+	—	+	+	+	+	—	—	+	—	+
3	+	+	—	+	+	+	+	—	—	+	—	+
4	+	+	—	+	+	+	+	—	—	+	—	—
5	—	+	—	+	+	—	+	+	+	—	+	—
6	+	+	—	+	+	NCc	+	+	—	—	—	+
7	+	+	—	+	+	+	+	—	—	+	—	+
8	+	+	—	+	+	+	+	—	—	+	—	+
9	—	+	—	+	+	—	+	+	+	—	+	—

Legend: Arab: arabinose, Gala: galactose, Inu: inulin, La: lactose, Malt: maltose, Manni: mannitol, Sucr: sucrose, Xyl: xylose, Sori: soribitol, Ribo: ribose, Raff: raffinose, and Meli: melibiose. Wp: weakly positive; NCc: no color change.

Table 3: Physicochemical composition of ‘nono’ obtained from the different locations

Sample	pH	Titrateable Acidity	Temperature
A	4.87±0.02 ^c	3.46±0.6 ^a	143.14±0.25 ^a
B	4.54±0.05 ^a	3.90±0.70 ^b	134.50±1.40 ^c
C	4.57±0.10 ^b	3.84±0.15 ^{ab}	139.15±0.7 ^b
D	4.34±0.05 ^a	3.70±0.70 ^b	142.50±1.40 ^c

Sample codes: A = Nono produced with spontaneous fermentation; B = Nono produced with *Lactobacillus plantarum* N07; C = Nono produced with *Lactobacillus casei* N18; D = Nono produced with *L. plantarum* N07 and *L. casei* N18

Values are in ± mean S.E. (S. E = Standard error of Mean). Values bearing the same superscript are not significantly different at the 5% level (P>0.05).

Table 4: Sensory evaluation of nono samples produced with different lactic acid bacteria

Sample	Appearance	Taste	Texture	Colour	Aroma	Overall acceptability
A	4.21±0.01 ^{aa}	3.32±0.00 ^{ab}	4.22±0.04 ^{ac}	5.05±0.01 ^{ad}	5.01±0.02 ^{ae}	4.04±0.02 ^{af}
B	7.25±0.04 ^{ba}	5.13±0.01 ^{bb}	5.20±0.02 ^{bc}	8.41±0.05 ^{bd}	6.02±0.01 ^{be}	5.22±0.04 ^{bf}
C	6.30±0.02 ^{ca}	4.15±0.02 ^{cb}	5.22±0.04 ^{cc}	7.22±0.00 ^{cd}	5.03±0.02 ^{ce}	6.02±0.01 ^{cf}
D	8.14±0.03 ^{da}	6.23±0.02 ^{db}	6.41±0.01 ^{dc}	9.12±0.01 ^{dd}	7.11±0.00 ^{de}	7.01±0.02 ^{df}

*Sample codes: A = Nono produced with spontaneous fermentation; B = Nono produced with *Lactobacillus plantarum* N07; C = Nono produced with *Lactobacillus casei* N18; D = Nono produced with *L. plantarum* N07 and *L. casei* N18. **Values are means (n = 3) ±Standard Variation. Means followed by different superscripts are significantly different (p≤0.05) along rows and columns according to Duncan multiple range test.

The LAB isolates obtained were Gram-positive and exhibited cocci and rod-shaped morphologies, consistent with reports on traditional fermented milk products in Africa (Obadina *et al.*, 2013). Carbohydrate fermentation profiles revealed the ability of isolates to metabolize lactose and other milk sugars, confirming their technological suitability for dairy fermentation (Holzapfel & Wood, 2014). Controlled fermentation significantly improved pH reduction, titratable acidity, and viscosity compared to spontaneous fermentation. Similar observations have been reported for other fermented milk products produced using defined starter cultures (Leroy & De Vuyst, 2004; Fox *et al.*, 2017). Sensory evaluation indicated that nono produced with mixed starter cultures was more acceptable, likely due to enhanced flavour complexity and improved texture.

4. Conclusion

The study confirms that defined lactic acid bacteria starter cultures can significantly improve the quality, sensory properties, and shelf stability of nono. The mixed culture of *Lactobacillus plantarum* N07 and *Lactobacillus casei* N18 demonstrated superior fermentation performance compared to spontaneous fermentation. Adoption of controlled fermentation using selected starter cultures represents a sustainable approach to improving traditional nono production in Nigeria.

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OPTIMIZING LAND USE FOR AFFODABLE HOUSING AND SUSTAINABLE DEVELOPMENT: AN ARTIFICIAL INTELLIGENCE APPROACH IN UNITY HOUSING ESTATE, BAUCHI, NIGERIA

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Abstract

This study explores the potentials of artificial intelligence (AI) in mitigating land use disarray challenges to achieve affordable housing provision and sustainable development in Unity Housing Estate Bauchi Nigeria. The research employs mixed-methods approach, combining spatial analysis, stakeholder interviews, and AI-driven modeling to examine the current land use disarray and identify opportunities for optimization. The findings highlight the efficacy of AI in predicting and addressing land use conflicts, enhancing housing affordability and promoting sustainable urban development. The study provides insights for policy makers, urban planners, and housing developers on leveraging AI for sustainable housing solutions in Nigerian cities.

Keywords: Artificial Intelligence, Land Use Optimization, Affordable Housing, Sustainable Development, Bauchi, Nigeria

1.0 Introduction

The fate of artificial intelligence in mitigating land use array towards achieving affordable housing provision and sustainable development is significant in the contemporary millennium development goals to achieve the needs of present generation without compromising the future generations to also meet their own needs. Contemporary tools for supportive relationships between technology and sustainable development include artificial intelligence (AI) applications in sustainable urbanization roles (Al-Raei, 2024). Various applications of AI in advancing sustainable urbanization include urban planning and disaster management (Al-Raei, 2024). AI technology is transforming and easing the way cities and estates are designed, developed and managed thereby reducing cost of construction (Al-Raei, 2024). In addition, data analytics (DA), machine learning (ML), and predictive modeling (PM), AI is helping city officials make informed decisions, optimize resource usage, and improve quality of life for urban residents (Al-Raei, 2024). The role of AI in monitoring estate development, affordable housing provision, water, forest, and agricultural ecosystems, facilitating the digital transformation of businesses and territories, assessing ecosystem services, managing energy systems, and supporting educational and social sustainability (Pimenow, et al. 2025).

2.0 Concept of artificial intelligence (AI)

Indeed, AI differs from previous technologies in many ways such as technological developments which overcomes humans' capabilities that humans or even companies are no longer controlling technology, customers embrace life in new technology-made environments, and boundaries between human and technology become to be hazy (Belk et al. 2023). Belk et al. (2023) established that AI are impacting the global economy and represent an extraordinary opportunity to increase customer value in the service sector. Artificial intelligence (AI) is the intelligence displayed by machines or software (Pannu, 2015). AI machines technology have increased human competences in many areas including housing provision that uphold sustainable development and enhanced land use pattern (Pannu, 2015). AI is becoming a popular field in computer science as it has enhanced the human life in many areas. AI in the last two decades has greatly improved performance of the manufacturing, construction and service systems (Pannu, 2015). It has given rise to the rapidly growing technology. Areas augmented by AI include science, engineering, business, medicine, weather forecasting, etc. (Pannu, 2015). These areas have seen an increase in the quality and efficiency of their activities (Pannu, 2015).

2.1 Concept of land use array (LUA)

Land use array necessitates *identification of problems in land system for ensuring the territorial development of land use* (Mamonov, et al. 2020). *The relevance and timeliness of ensuring the territorial development of land use at any level. LUA is the formation of theoretical requirements for determining the territorial development of land for any use* (Mamonov, et al. 2020). It is the destiny of land and various uses embedded and the *development of a methodological approach to assessing the level of sustainability in the territorial development of land use* (Mamonov, et al. 2020). Real estate is one of the largest and most complex markets globally (Arachchige and Jaliya 2023). Lively consumer behavior which results in rapid rate of urbanization, has caused complications, and thus, understanding and predicting these market behavioral patterns has become a challenge (Arachchige and Jaliya 2023). Many countries failed to develop adequate policies to mitigate the risk of market uncertainties and abnormal behaviors that result in issues such as the affordable housing crisis (Arachchige and Jaliya 2023). Global institutions struggle to understand the real estate market using only the currently available tool, the AI technologies to help manage this complex market trend and difficult pattern in estate property market (Arachchige and Jaliya 2023). AI can produce relatively valuable and accurate insights into the problems of estate market and other estate activities compared to the traditional methods of understanding the complex housing market (Arachchige and Jaliya 2023). AI and machine learning (ML) have played a significant role in decision-making processes and real estate industry by improving the efficiency and effectiveness of many processes in the estate industry (Arachchige and Jaliya 2023).

2.2 Concept of sustainable development

Vyatkin, (2020) highlighted the benefits of suburbanization processes by highlighting the strengths of suburban areas and identified the shortcomings of suburban development processes that inhibit suburbanization processes thereby emphasizing their role in ensuring sustainable development of urban processes as significant (Vyatkin, 2020). *Contemporary tools for supportive relationships between technology and sustainable development include artificial intelligence (AI) applications in sustainable urbanization roles* (Al-Raei, 2024). Various applications of AI in advancing sustainable urbanization include urban planning and disaster management (Al-Raei, 2024). AI technology is transforming and easing the way cities and estates are designed, developed and managed thereby reducing cost of construction (Al-Raei, 2024). In addition, data analytics (DA), machine learning (ML), and predictive modeling (PM), AI is helping city officials make informed decisions, optimize resource usage, and improve quality of life for urban residents (Al-Raei, 2024). The role of AI in monitoring estate development, affordable housing provision, water, forest, and agricultural ecosystems, facilitating the digital transformation of businesses and territories, assessing ecosystem services, managing energy systems, and supporting educational and social sustainability (Pimenow, et al. 2025).

AI holds significant potential for enhancing the efficiency and adaptability of local systems in housing provision (Pimenow, et al. 2025). the sustainable integration of AI into local ecosystems, emphasizing the importance of cross-sectoral collaboration and scientific support for regional digital transformations is truly significant (Pimenow, et al. 2025). AI applications can significantly enhance climate resilience and promote sustainable urban development. AI technologies enable extensive data collection and analysis through various methods, including remote sensing and sensor networks, which improve assessments of air and water quality, land use changes, and biodiversity monitoring. Another significant advantage of AI is its ability to optimize energy consumption across various sectors, leading to substantial reductions in greenhouse gas emissions (Al-Raei, 2024). Furthermore, Al-Raei, (2024) demonstrated how AI enhances waste management strategies by identifying recycling opportunities and streamlining logistics, ultimately contributing to waste reduction and fostering a circular economy.

2.2 Concept of affordable housing provision

Affordable housing goes with housing affordability, which influence the formulation of relevant affordable housing policies (Mazacek, 2024). Importantly, stakeholders and policymakers should differentiate between home renters and homeowners when deliberating on housing affordability (Mazacek, 2024). Silva et al (2024) highlighted smearing sustainability concept to affordable housing, emphasizing technical, social, and governance aspects (Silva, et al 2024). They introduced a framework encompassing these aspects in the context of sustainability integrated with affordable housing. Sustainable affordable housing is associated with current approaches for implementing affordable housing provision (Mazacek, 2024; Silva, et al 2024; Hajian and Kashani,

2021). The integration of artificial intelligence (AI) into environmental monitoring, climate action, and sustainability has become increasingly important, particularly in mitigating land use array towards achieving affordable housing provision and sustainable development thereby tackling the global challenges associated with climate change is yielding significant results (Al-Raei, 2024). Al-Raei, (2024) critically assessed the role of AI within the frameworks of the United Nations' Sustainable Development Goals (SDGs) 11 (Sustainable Cities and Communities) and 13 (Climate Action).

2.5 Impact of artificial intelligence in mitigating land use array towards achieving affordable housing provision and sustainable development

Research and innovation are needed to ensure that AI technology is used responsibly and effectively in shaping sustainable estates in cities. AI has the power to transform urban environments and create more sustainable, resilient communities. In essence, AI proficiencies in cities can become more efficient, environmentally-friendly, and prepared for the challenges of the future. It is essential for policymakers, urban planners, and technology developers to work together to harness the full potential of AI in sustainable urbanization and create a better future for all (Al-Raei, 2024). Proactively the full potential of AI can convert sustainable cities and build a sustainable future for all (Al-Raei, 2024). The incorporation of artificial intelligence (AI) technologies in mitigating land use array towards achieving affordable housing provision and sustainable development is reshaping diverse domains of human activity, including natural resource management, affordable housing, urban and rural planning, agri-food systems, industry, energy, education, and healthcare. However, the impact of AI on the sustainability of local ecosystems remains insufficiently organized (Pimenow, et al. 2025). This highlights the need for a comprehensive review that considers spatial, sectoral, and socio-economic characteristics of regions, as well as interdisciplinary approaches to sustainable development (Pimenow, et al. 2025).

In the fields of agriculture and forestry, AI systems have proven effective in improving crop management and pest control practices, mitigating environmental impacts while increasing food productivity. Moreover, AI plays a vital role in wildlife conservation efforts by assisting in tracking endangered species and analyzing satellite imagery to combat illegal activities. Al-Raei, (2024) also proved how AI supports the development of predictive climate models, enabling policymakers to create science-based strategies for effectively navigating extreme weather and climate risks, thereby fostering resilient infrastructure decisions.

While the transformative potential of AI in climate initiatives is clear, we address several limitations and ethical challenges associated with its application, including concerns about data quality and accessibility, biases in AI algorithms, and the need for transparency in AI-driven decision-making. These challenges emphasize the importance of interdisciplinary collaboration and robust engagement strategies to ensure that AI applications promote equitable access to

solutions for marginalized populations affected by climate change. Moreover, we examine how the COVID-19 pandemic has reshaped the landscape of AI for sustainable development, revealing both challenges and opportunities in implementing AI technologies. Through a synthesis of relevant literature and case studies, we advocate for a holistic and collaborative approach to utilizing AI technologies in mitigating land use array towards achieving affordable housing provision and sustainable development and environmental management to achieve the SDGs successfully. By fostering innovation and inclusivity in decision-making processes, society can leverage AI's potential to create a sustainable and resilient future (Al-Raeei, 2024).

Goralski and Tan, (2020) observed that artificial intelligence (AI) is rapidly opening up a new frontier in the fields of construction, business, corporate practices, and governmental policy. The intelligence of machines and robotics with deep learning capabilities have created profound disrupting and enabling impacts on construction, business, governments, and society (Goralski and Tan, 2020). They are also influencing the larger trends in global development and sustainability. As the AI revolution transforms our world, it could herald a ideal future where humanity co-exists in harmony with machines (Goralski and Tan, 2020). More immediately, would AI accelerate progress on the United Nations (UN) Sustainable Development Goals (SDGs) (Goralski and Tan, 2020). Goralski and Tan, (2020) in their study, combined construction with business strategy and public policy to analyze the impacts of AI on sustainable development with a specific focus on the advancement of the SDGs.

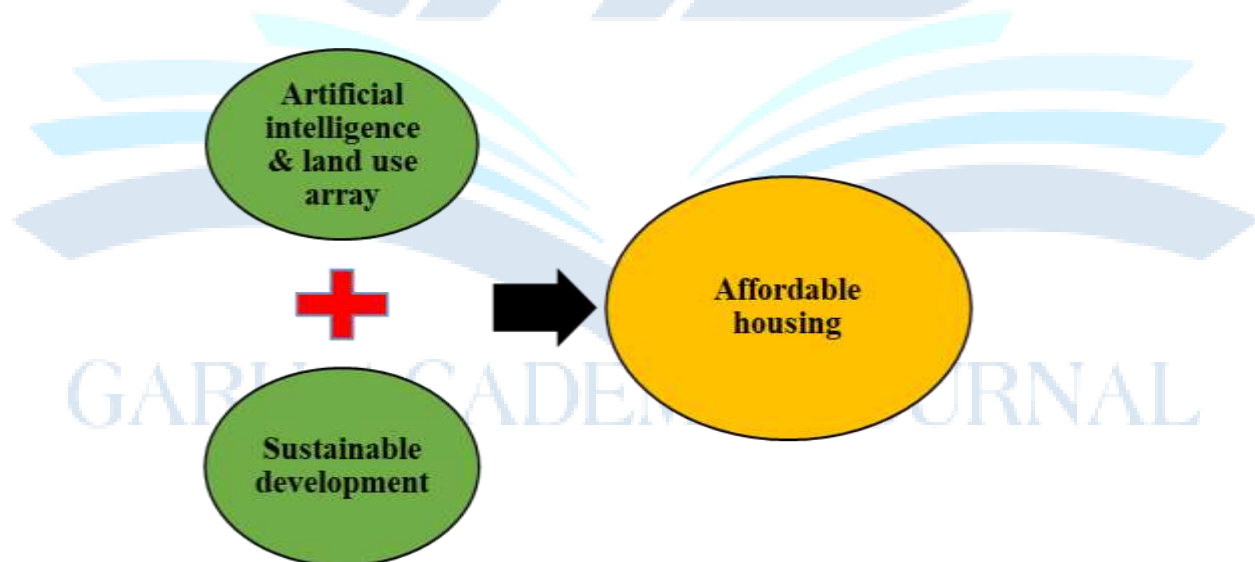


Figure 1. Interplay of artificial intelligence, land use array and sustainable development for affordable housing provision

3.0 Methodology

The plan of action designed to evaluate the fate of artificial intelligence in mitigating land use array towards achieving affordable housing provision and sustainable development in the study area were performance-based monitoring (PBM), stakeholder engagement (SEF) and the green building technologies (GBT). Based on theoretical sampling, three (3) stakeholders were interviewed to gather feedback on artificial intelligence (AI) and monitor progress in affordable housing provision towards sustainable development thereby mitigating land use array in the study area.

3.1 Sampling techniques

The paper adopted stratified sampling technique and respondents were separated into subgroups based on their income level and educational background.

3.2 Research Design

Case study approach qualitative research paradigm was adopted where interviews were conducted with stakeholders including housing developers, environmental experts and end users where in-depth insights were gathered on the fate of artificial intelligence in mitigating land use array and achieving affordable housing provision towards sustainable development in the study area. Involvement of end users in the development process was propagated and profoundly accepted by the stakeholders and environmental experts. However, in a case study approach, researchers conduct an in-depth examination of a single individual, group, or event to gain a detailed understanding of the subject of study. Case study approach allows for rich contextual information and can be particularly useful in exploring complex and unique cases.

4.0 Evaluation of the fate of artificial intelligence in mitigating land use array towards achieving affordable housing provision and sustainable development in the study area

Based on theoretical sampling, three (3) stakeholders were interviewed to gather feedback on artificial intelligence (AI) and monitor progress in affordable housing provision towards sustainable development thereby mitigating land use array in the study area.

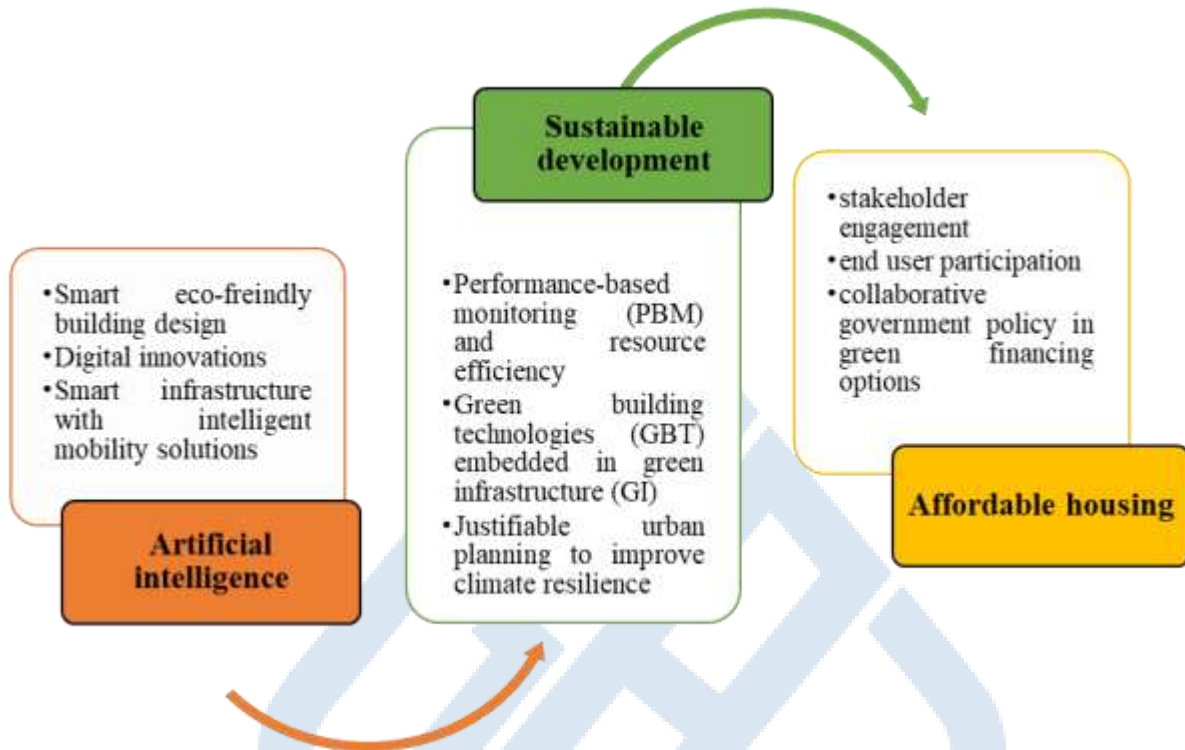


Figure 2. Progressive designed procedure and workflow using artificial intelligence to reform land use array and achieve sustainable development in affordable housing provision

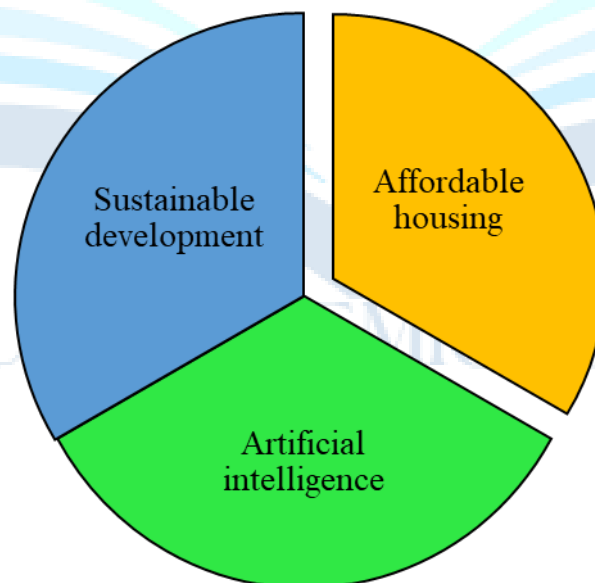


Figure 3. Affordable housing provision is reciprocal to artificial intelligence and sustainable development in the contemporal millennium

4.1 Response of respondents on artificial intelligence (AI)

Respondents interviewed attested that smart eco-friendly building design with green infrastructure is most preferrable than digital innovations followed by intelligent mobility solutions in achieving sustainable affordable housing that would mitigate land use array in the study area.

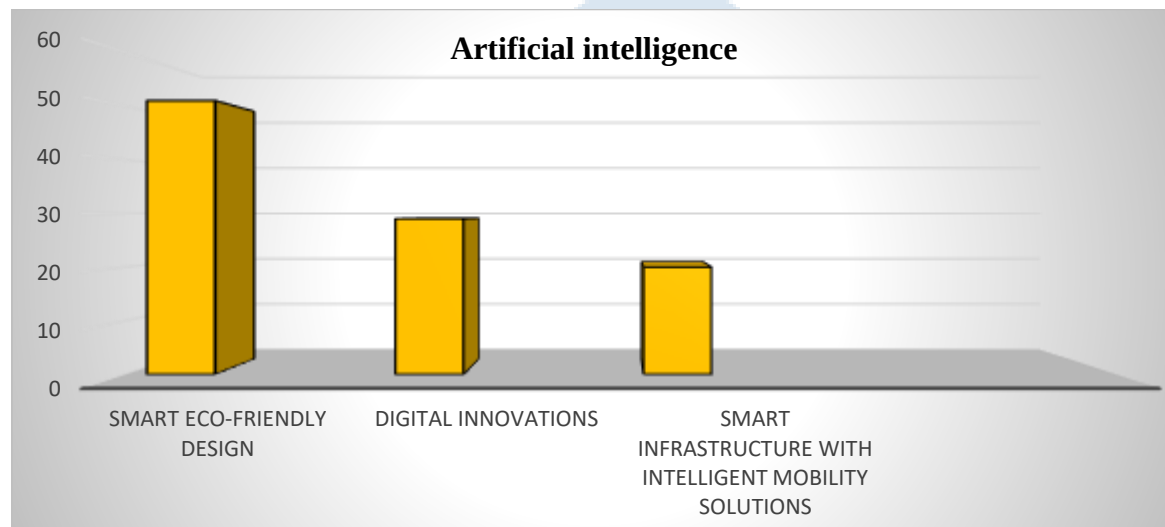


Figure 4. Smart eco-friendly building design evaluated with digital innovations and smart infrastructure with intelligent mobility solutions

4.2 Response of respondents on sustainable development (SD)

Stakeholders and end users' response during the interviewed conducted in the study area showed their preference on green building technologies (GBT) embedded in green infrastructure (GI). They rated performance-based monitoring (PBM) and resource efficiency higher than urban planning solutions to improve climate resilience.

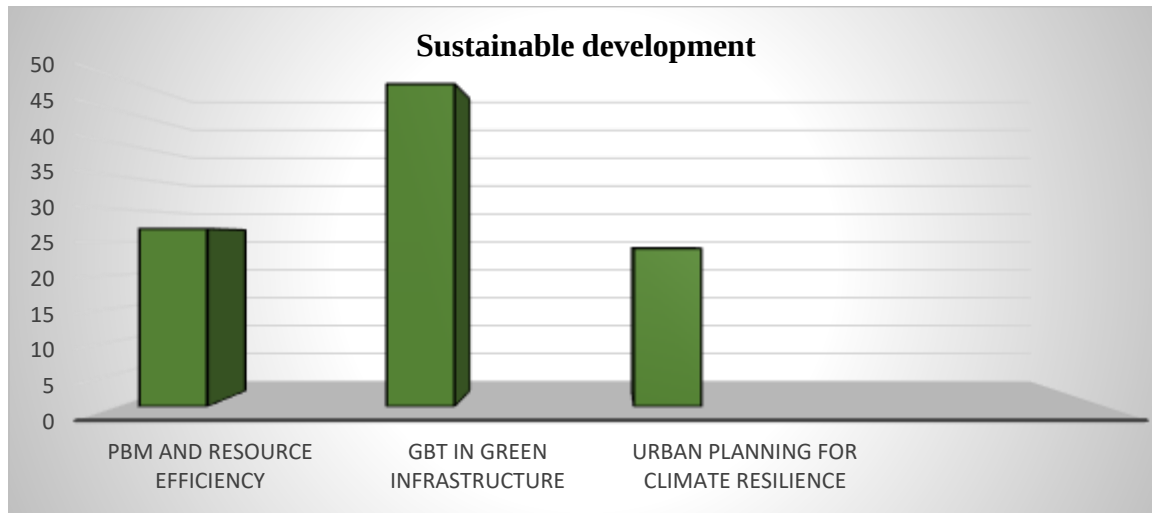


Figure 5. Performance-based monitoring (PBM) and resource efficiency green building technologies (GBT) embedded in green infrastructure (GI) Justifiable urban planning to improve climate resilience

4.3 Response of respondents on affordable housing provision (AHP)

Respondents highlighted on persuading reasons on end user participation in the process of affordable housing provision that could ensure defined land use in the study area. Stakeholder engagement was rated higher than collaborative government policy in green financing options because policies were not promptly implemented.

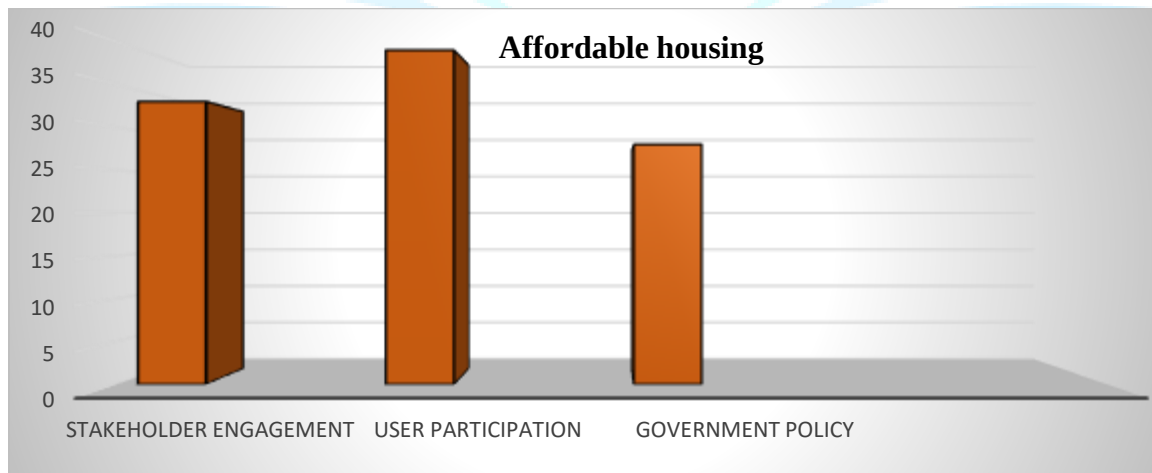


Figure 6. Stakeholder engagement end user participation in collaborative government policy in green financing options

5.0 Summary of findings

The paper delves to evaluate fate of artificial intelligence and land use array in affordable housing provision towards sustainable development. Findings on artificial intelligence, stakeholders and end users' response disclosed their preference on smart eco-friendly building design with green building technologies (GBT) embedded in green infrastructure (GI). This is followed by persuading reasons on end user participation in the process of affordable housing provision that could ensure well-defined land use in the study area. Land use array necessitates *identification of problems in land system for ensuring the territorial development of land use* (Mamonov, et al. 2020). Vyatkin, (2020) highlighted *the benefits of sustainable development as the use of resources by the present generation that would in no way jeopardize the use of same resources by the coming generation in the next future as observed by this research*. Affordable housing goes with housing affordability, which influence the formulation of relevant affordable housing policies (Mazacek, 2024).

AI machines technology have increased human competences in many areas including housing provision that uphold sustainable development and enhanced land use pattern which corresponds to the findings of Pannu, (2015). Global institutions struggle to understand the real estate market using only the currently available tool, the AI technologies to help manage this complex market trend and difficult pattern in estate property market (Arachchige and Jaliya 2023). AI technology is transforming and enabling the way cities and estates are designed, developed and managed thereby reducing cost of construction as contended by Al-Raei, (2024) which this research equally upholds.

The incorporation of artificial intelligence (AI) technologies in mitigating land use array towards achieving affordable housing provision and sustainable development is reshaping diverse domains of human activity, including natural resource management, affordable housing, urban and rural planning, agri-food systems, industry, energy, education, and healthcare. The role of AI in monitoring estate development, affordable housing provision, water, forest, and agricultural ecosystems, facilitating the digital transformation of businesses and territories, assessing ecosystem services, managing energy systems, and supporting educational and social sustainability (Pimenow, et al. 2025). Goralski and Tan, (2020) observed that artificial intelligence (AI) is rapidly opening up a new frontier in the fields of construction, business, corporate practices, and governmental policy.

5.1 Conclusions

Findings of this paper revealed that stakeholders and end users' response disclosed their preference on smart eco-friendly building design with green building technologies (GBT) embedded in green infrastructure (GI). These findings confirms that artificial intelligence is significant in mitigating land use array and ensuring sustainable affordable housing provision in the study area. This finding

corresponds to the findings of Pimenow, et al. (2025) that AI can significantly enhance climate resilience and promote sustainable urban development. AI technology is transforming and enabling the way cities and estates are designed, developed and managed thereby reducing cost of construction as contended by Al-Raei, (2024) which this research equally upholds. Affordable housing goes with housing affordability, which influence the formulation of relevant affordable housing policies as contended by Mazacek, (2024) which this research vehemently recommended.

6.0 Recommendations

Residents should boost smart eco-friendly building design with green building technologies (GBT) embedded in green infrastructure. Environmental experts should advocate end user participation in affordable housing provision especially in the study area.

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GLOBAL BEST PRACTICES IN CORPORATE SOCIAL RESPONSIBILITY (CSR)

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Abstract

The advent of global Corporate Social Responsibility (CSR) indicates a growing realisation that organisations must address the impact of their actions across borders and cultures. To properly implement/execute CSR, organisations need to adhere to several international codes, standards, norms and regulations which have been tested and used by companies successfully and reflects the dimensions of CSR.. This paper explores the best practices in Corporate Social Responsibility (CSR) that corporations can adopt to foster ethical, sustainable, and socially inclusive business operations. It synthesizes globally recognized frameworks such as the Global Reporting Initiative (GRI), the UN Global Compact, and Environmental, Social, and Governance (ESG) reporting standards to provide a comprehensive guide for effective CSR implementation. The study used content analysis as its methodology to achieving the research objectives. Key best practices include establishing board-level CSR committees for governance oversight, integrating CSR strategically into core business objectives, and adopting stakeholder-oriented governance models that balance the interests of shareholders, employees, customers, suppliers, and communities. The paper emphasizes transparency, accountability, and active stakeholder engagement as critical components for authentic and impactful CSR initiatives. Moreover, it underscores the importance of alignment with international CSR principles and Sustainable Development Goals (SDGs) to ensure global relevance and measurable social, environmental, and economic outcomes. Drawing on examples of leading companies, this chapter showcases how adherence to these practices drives not only social value but also enhances corporate reputation and financial performance. This integrated approach fosters responsible business conduct and positions CSR as a transformative tool within contemporary corporate strategy.

Keywords: Best, CSR, Global, Practices

1. Introduction

The 20th Century leading Management Guru, Peter Drucker, once said business should not only address problems of society but should also ensure that its activities that impact on society

negatively are addressed. (Katamba, D., Zipfel, C., Haag, D., & Tushabomwe-Kazooba, C. (Eds.). (2012). This depicts the reason why a company needs to bear the cost of negative externalities and not the society. A company can implement corporate social responsibility, or CSR, in a number of ways, such as providing for the community, treating employees with respect, encouraging diversity, equality, and inclusion in the workplace, being environmentally conscious and friendly, and making sure that business decisions are morally sound. According to this perspective, businesses' efforts to improve society are referred to as corporate social responsibility, or CSR (Amin & Fachruddin, 2022; Wirba, 2023; Ajayi & Yusuf 2024). However, the implementation of CSR is guided by best practices which could be standards or codes that are universal in the conduct of CSRs by companies operating in a community.

In the US there is no governmental regulation regarding CSR or business best practices. Instead, according to findings from Bennett American, companies have a marked tendency to use codes of conduct. The American CSR perspective could be described as following a principles-based approach, with codes of conduct that prescribe values and principles which company members as a whole should aspire to follow. In contrast, Japanese companies prefer to focus on areas where their contributions can be statistically measured. Interest in social aspects of CSR is significantly less pronounced than in other industrialized countries. In Japan there are no specific provisions regulating CSR. However, the 1988 law that promotes specific non-profit activities is of major significance in this context. Due to the lack of public regulations regarding corporate best practices in most countries, sustainability reporting has become increasingly relevant. Although there is no specific regulation of CSR, according to the Modernisation Directive (2003/51/EC) large companies are obliged to include financial and non-financial key performance indicators in their annual report. Coca-Cola and Walmart have been involved in environmental and social conflicts. Coca-Cola was boycotted in India because the local communities were suffering from droughts. In 1992 Walmart was caught using child labour in factories in Bangladesh. In May 2010 newspapers reported on the suicides at Apple's manufacturer for iPhones and iPads, Foxconn. Overall Canon has a detailed and clear CSR report and has not faced any major scandals such as Coca-Cola, Walmart and Apple. (Cedillo Torres Garcia-French, Hordijk, Nguyen, & Olup, 2012). Best practices has helped Canon to avoid the conflict and problems associated with companies in the implementation of its objectives and CSR. The primary objective of this paper is to provide the Global best practices for CSR to be used by both local and international corporations.

2.0 Literature Review

2.1 What Does CSR Mean

CSR has been defined in different ways by different experts or organisations. The most referenced definition is the one offered by the European Commission who defined CSR as 'the responsibility

of enterprises for their impacts on society’ in 2002, the Commission further defined CSR as following words : ‘CSR is concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis. At the most basic level, corporate responsibility is concerned with the relationships that a company maintains with its shareholders, clients, suppliers, creditors and employees, as well as with the communities in which it operates. At its core, CSR is about companies considering the interests of all stakeholders impacted by their operations, not just shareholders. In practice, CSR initiatives often involve: Environmental sustainability efforts Ethical labor practices Philanthropy and community investment Responsible sourcing, Transparency and accountability (UNESCO. 2025). CSR, could also mean the voluntary allocation of business resources to promote social welfare and fortifying ties with a range of stakeholders as a means of fostering social and community development (Paul & Edino 2020). CSR enhanced reputation, increased customer loyalty, and better business performance but is at the same time conditional. Companies should see it as their code role not only for its benefits to the business but also for its benefits to all affected by its actions. Though CSR is conditional and no organisation is under compulsion to do it, all organisations should see it as a profitable win-win obligation. For the sack of this book chapter, CSR is a concept whereby companies integrate legal, economic, social, and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis. This definition is an improvement on EU Commission’s 2002 definition

CSR analyses economic, legal, moral, social and environmental issues. Hence, there are basically four tytes or dimensions of CSR which are Environmental responsibility, Economic responsibility, ethical responsibility, Social responsibility and philanthropic responsibility. This is what made Carroll's 1991 "Pyramid of Corporate Social Responsibility" became a foundational model, outlining four key responsibilities of businesses: economic, legal, ethical, and philanthropic (Carroll, 1991) A company is expected to be responsible in protecting the environment and addressing the effects of its activities on the environment that it is operating in. It is expected nto not only be responsible for protecting and upholding human rights but also been phylanthropic and agents of social and economic development. A company's plans to prioritize ethics, philanthropy, and the environment must be backed by funding from programs, donations, or product research and development. This includes creating sustainable products, hiring a diverse workforce, launching social awareness campaigns, and implementing environmental initiatives (Demianchuk et al., 2021). The practice of basing financial decisions on a commitment to social responsibility is known as economic responsibility.

Investing in alternative energy sources, supporting local charities in their endeavors, and increasing financing for educational programs are all ways to exhibit common economic responsibility (Ar, 2022). To maintain economic responsibility, business executives are urged to look beyond operational cost savings and focus their financial decisions around their obligation to

corporate citizenship. The modern construct of CSR began to take shape in the mid-20th century, spurred by a growing awareness of a corporation's impact on society. In the 1950s, Howard Bowen, often called the "Father of Corporate Social Responsibility," argued that corporate actions have a tangible impact on society and defined social responsibility as "the obligations of businessmen to pursue those policies... which are desirable in terms of the objectives and values of our society" (Bowen, 1953). The social and environmental movements of the 1960s, fueled by works like Rachel Carson's *The Silent Spring*, further intensified the public and academic discussion around corporate accountability. This period saw scholars like Keith Davis argue that a businessman's social responsibilities should be directly proportional to their social power (Davis, 1960).

Why Best Practices in CSR

Sarfraz & Iqbal (Eds.). (2024) noted or claimed that global rules and standards are essential for advancing corporate social responsibility (CSR) in all corporate sectors. Firstly, they support moral conduct and openness. These frameworks establish a norm for organisations to follow and aim for greater ethical standards by providing explicit rules and recommendations. Secondly, they also improve stakeholder relations and the reputation of the company. Respecting international standards shows a dedication to ethical corporate conduct, which enhances public confidence and draws in socially concerned stakeholders. Thirdly, by encouraging businesses to reduce their environmental impact and take part in eco-friendly projects, these principles support sustainable environmental practices. Fourthly, international standards guarantee the well-being of workers and their human rights, safeguarding their rights, encouraging ethical work practices, and preventing exploitation, finally, by encouraging partnerships and organisations to give back to society, by supporting social growth and community participation.

Costs of CSR And Where the Funding Often Comes From

Corporate Social Responsibility (CSR) programs incur various costs, typically covered through multiple funding streams:

- i. Corporate Funds:
 - Allocation of part of company profits
 - Dedicated CSR budgets or departments
 - Large-scale investments and specific funds for targeted projects
- ii. Employee Contributions:
 - Employee giving and donation matching programs
 - Volunteering and donation of employee time and expertise
- iii. In-Kind Donations:
 - Provision of goods, services, or expertise instead of cash
- iv. Partnerships:

- Collaborations with NGOs, governments, and other organizations to share resources and knowledge
- v. Consumer Contributions:
 - Programs where a portion of sales revenue supports CSR efforts
- vi. Government Incentives and Support:
 - Tax breaks, grants, or direct funding aligned with CSR goals

Companies often combine these funding sources to design CSR initiatives that fit their financial capacity and business strengths. For example, a tech firm might focus on donating equipment and training, while a construction company might build community infrastructure. Strategic funding structures help maximize social impact while providing business benefits.

Key CSR Standards

Rampersad & Skinner(2014) discussed several standards which are outlined and further discussed below:

The Equator Principles: this principle offer a framework for environmental and social risk assessment of project finance, based on the Environmental and Social Standard of the IFC.

• **Extractive Industries Transparency Initiative (EITI):** this is a global standard that promotes revenue transparency. It provides a robust yet flexible methodology for monitoring and reconciling company payments and government revenues at the country level. The process is overseen by participants from the government, companies and national civil society.

• **Forest Stewardship Council:** this was set up in 1993 is an international non-governmental organization dedicated to promoting responsible management of the world's forests. It runs a global forest certification system that allows consumers to identify, purchase and use timber and forest products produced from well-managed forests.

• **The Global Reporting Initiative:** this was set up in 2000 develops, stewards and encourages adoption of generally accepted guidelines for public reporting on sustainability performance.

• **The International Council for Mining and Minerals (ICMM) Sustainable Development Framework,** developed by an industry group, provides a framework of principles for sustainable development, reporting and independent assurance for mining companies.

• **The Kimberley Process (KP),** launched in 2003, certifies diamond supply chains to ensure that legitimate supplies can be distinguished from 'blood diamonds' that finance conflict.

• **UN Global Compact (UNGC)** establishes 10 broad principles covering environment, human rights, labor, and anti-corruption, and provides guidance, tools, learning and collaboration networks to assist companies in meeting and communicating on these principles.

• **Voluntary Principles on Security and Human Rights (VPs)** launched in 2000 sets out a standard to ensure that security forces protecting extractive projects do not intimidate or harm local people.

Importance of Corporate Responsibility:

Several studies (Weber, 2008, pp. 248-249; Carroll and Shabana, 2010, pp. 97-100) have summarised benefits derived from CSR as captured by UNESCO, 2025, These includes

- a. Positive effects on image, reputation and legitimacy. Communication messages of CSR actions can improve the image of a company. Moreover, CSR can support a favourable perception from the company's stakeholders, enhancing its reputation and strengthen its legitimacy through the validation of its social licence to operate. The cause marketing and the company's performance reports on social and environmental issues are instruments used to develop and maintain such image, reputation and legitimacy. These instruments seek to promote that the company's actions have been appropriate within the social norms and values of the system and that the company met the expectations of the different groups.
- b. Positive impacts on the motivation, retention and recruitment of the employees. CSR can contribute to a more motivated workforce who participate in volunteer activities with a higher commitment to the company. Likewise, there may be the possibility of attracting employees who identify with the social principles and values that the company promotes and practices.
- c. Cost and risk reduction. CSR can lead to a decrease in cost. In addition to the cost reduction associated with employee's turnover, the following examples are cited: the philanthropy can generate a tax advantage; the promotion of sustainable environmental practices (e.g. recycling and energy efficiency) can contribute to cost-saving, and being proactive responsible reduces the cost of the present and future regulation imposed on the firm. Also, CSR reduces the risk of opposition from stakeholders, thereby mitigating potential treats (e.g. boycotts and lawsuits).
- d. Revenue increase. CSR can contribute to higher sales and market share through the improvement of the brand, to the development of new (green) products or market segments, and the increase in customer loyalty. Additionally, the attract of socially responsible investors can bring funds to expand the business.
- e. Strengthen a competitive advantage. The company can use CSR practices to differentiate the company from its competitors, where the philanthropic activities align economic gains and social benefits. In this sense, Cone Communications/Ebiquity (2015) in its Global CSR Study, concludes that consumers (91%) believe that companies are more than entities to make profits; thus, companies that operate responsibly and support social and environmental issues have a better positive image (93%), trust (90%), and loyalty (88%) from consumers. Additionally, PwC (2016) determines in its Global CEO Survey that 64% of CEOs believe that "the corporate social responsibility is core to their business rather than being a stand-alone programme". Moreover, KPMG (2017) states in its. Survey of Corporate Responsibility Reporting that the reporting rate of a worldwide sample of 4,900

companies, increased from 12% in 1993 to 75% in 2017; therefore, the companies perceive a value in communicating social responsibility information

- f. fight poverty Employees and the society at large can both participate in CSR initiatives to fight poverty (Riyanti & Raharjo, 2021). According to Medina-Muñoz & Medina-Muñoz (2020), local poverty can be decreased through initiatives like skill development. Assistance from the community is needed, including donations and volunteer labor to help the impoverished, financial support for schools and hospitals, and participation in programs to eradicate hunger (Kunyanti & Mujiono 2021).
- g. Conflict minimization : To minimize conflicts that could impede the company's ability to achieve its goals, businesses and organizations should focus more on corporate social responsibility (Abebe Mamo et al., 2024). Furthermore, recognizing that workers are a resource that should be valued, that ethical considerations are important to the business, and that suppliers and customers need corporations' cooperation, many countries have turned to corporate social responsibility (CSR) as a way to promote socioeconomic development (Purnamawati, Yuniarta, & Jie, 2023).
- h. Environmental protection: CSR contributes to environmental protection (Lu et al., 2019). By taking steps to lessen their environmental impact, for instance, several of the biggest corporations in the world have demonstrated their strong commitment to corporate social responsibility (CSR) (Wirba, 2023). These businesses adopt the stance that social reputation and company success may be influenced by both environmental and financial performance. As “going green” becomes more fashionable, this kind of thinking will only help to improve the employment value proposition (Al Amosh, Khatib, & Ananzeh, 2023).

Role of CSR in Community Development

The role of CSR in CD used in this paper is any direct and indirect benefits received by the community as results of social commitment of corporations to the overall community and social system. The common roles of CSR in CD are as follows:

1. To share the negative consequences as a result of industrialization..
2. Closer ties between corporations and community.
3. Helping to get talents.
4. Role in transfer of technology (TOT).
5. CSR helps to protect environment.
6. CSR is for human right corporate sustainability.
7. Interdependency between a corporation and community.
8. A CSR program can be seen as an aid to alleviate poverty.
9. A CSR program helps in data gathering for other public organization function.

2. Methodology

This study adopted a qualitative content analysis design to examine global best practices in Corporate Social Responsibility (CSR) as reported in formal corporate and policy documents. Content analysis is a systematic, rule-guided technique for describing and interpreting both the manifest and latent meanings of text, and it is particularly appropriate here because CSR best practices are primarily communicated through written disclosures such as sustainability reports, CSR policies, and international guidelines. The research design is anchored on content analysis as the main methodological approach. In this study, content analysis is used to identify, categorize, and interpret how organizations and standard-setting bodies conceptualize and operationalize CSR. By systematically examining textual material from multiple regions and institutional contexts, the method enables the researcher to detect recurrent themes, dominant emphases, and innovative practices that together constitute “global best practices” in CSR.

All gathered materials were downloaded, studied, reviewed and synthesized to come up with the best practices. The CSR instruments and standards explained below were also used in coming up with the best practices in relation to the experiences of multinationals.

Key International CSR Instruments

The Global Compact asks companies to embrace, support and enact, within their sphere of influence, a set of core values in the areas of human rights, labour standards, the environment and anti-corruption.

Human Rights

Principle 1 Businesses should support and respect the protection of internationally proclaimed human rights; and

Principle 2 Make sure that they are not complicit in human rights abuses.

Labour Standards

Principle 3 Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle 4 The elimination of all forms of forced and compulsory labour;

Principle 5 The effective abolition of child labour; and

Principle 6 The elimination of discrimination in respect of employment and occupation.

Environment

Principle 7 Businesses should support a precautionary approach to environmental challenges;

Principle 8 Undertake initiatives to promote greater environmental responsibility; and

Principle 9 Encourage the development and diffusion of environmentally friendly technologies.

Anti-corruption

Principle 10 Businesses should work against all forms of corruption, including extortion and bribery.

CSR Best Practice Codes, Standards or Principles

- a. Universal Declaration of Human Rights: Adopted by United Nations, this declaration paved way for many international human rights standards for all sectors entities.
- b. UN Global Compact: An international multi-constituent, voluntary initiative based on internationally accepted ten principles in pursuit of a more sustainable inclusive global economy. The ten principles covers human rights forced labor, child labor, environmental challenges and responsibility, non-discrimination, freedom of associations, collective bargaining, corruption, etc. This point shall be discussed further after this subtitle.
- c. Global Reporting Initiative (GRI): Since its founding in 1997, the GRI has been addressing the need for standardized approaches to corporate sustainability reporting. In 2006, GRI published Version 3.0 (G3) of its Sustainability Reporting Guidelines emphasizing performance indicators, which contain a separate section titled “Human Rights” with nine performance indicators. Organization for Economic Co-operation and Development (OECD): OECD guidelines contains recommendations on core labor, environmental standards, human rights, competition, taxation, science and technology combating corruption and safe guarding, consumer rights.
- d. Social Accountability 8000: ‘SA 8000’ standard for social accountability, created in 2000 by the Council on Economic Priorities Accreditation Agency (CEPAA). SA8000 developed by an international coalition of businesses, trade unions and non-governmental organizations (NGOs) on the basis of International Labor Organization (ILO) conventions - the Universal Declaration of Human Rights and the UN convention on the Rights of the Child. The SA8000 code of practice is broken down into nine key areas child labor, management systems, working hours, compensation, disciplinary practices, forced labor, health & safety, freedom of association & collective bargaining and discrimination.
- e. Principles for Responsible Investment (PRI): A set of global best practice principles for responsible investment. It provides a framework for achieving better long term investment returns and more sustainable markets.
- f. Equator Principle: Equator principle is a set of environmental and social benchmarks for managing environmental and social issues in development project finance globally. They were developed by private sector banks- led by Citigroup, ABN AMRO, Barclays and WestLB and were launched in June 2003.
- g. Role of International Labor Organization (ILO): ILO seeks the promotion of social justice and internationally recognized human and labor rights. It formulates international labor

standards in the form of conventions and recommendations setting minimum standards of basic labor rights. International Organization for Standardization (ISO) 26000: ISO an International Standard setting body is developing a new standard on Social Responsibility namely ISO 26000 to be published in Nov., 2009. ISO 26000 is intended for use by all types of organizations and in all countries and to assist organization to operate in a socially responsible manner.

- h. Occupational Health & Safety Advisory Services (OHSAS) Standard: OHSAS 18001 is applicable to any organization which aims to establish a health and safety management system at work.

The core principles such as accountability, transparency, and sustainability. It discusses how CSR has become prominent due to issues like poor business behavior, environmental impact, and social concerns, including climate change and supply chain ethics. Thus CSR is based on three main principles which are

1. Sustainability
2. Accountability, and
3. Transparency

The principle of sustainability is concerned with the effect of current use of resources (non-renewable resources) on the options available in the future. When non-renewable resources are utilized today, they won't be available in the future and hence the need for sustainability.

The concept of sustainability implies that society must use no more of a resource than can be regenerated. Raw materials of extractive nature such as coal, oil and iron are finite in quantity and once used, are not available for future use and hence the need for alternative resources that will fulfill the functions currently provided by these resources at a constant and low price to avoid raising the operational cost of business. In other words, Sustainability is concerned with the effect which action(s) taken in the present has upon the options available in the future,

Accountability involves an organisation quantifying the effects of its activities on the current and economy and society and reporting the effects to all affected by those activities/actions and taking responsibility in a way that the benefits of mitigation exceed the costs.

The Transparency principle means that an organisation report should contain the external impact of its actions apparently/clearly.

4. Results and Discussions

4.1 Global Compact of the United Nations (UNGC)

In 2000, the United Nations launched the voluntary UN Global Compact, which encourages companies all over the world to implement sustainable and socially conscious practices. United Nations Global Compact urges businesses to match their actions with widely recognised values by presenting ten guiding principles that address labour, human rights, the environment, and anti-

corruption. Reiterating sustainable development goals, fostering collaborations, and promoting good governance are all made possible for enterprises that follow UNGC standards. Companies who sign up for the Global Compact pledge to respect and advance the 10 principles, which are drawn from several international agreements and declarations. These principles are discussed in detail below in the work of Sarfraz, M., & Iqbal, K. (Eds.). (2024):

1. *Human rights*—Companies should make sure that they are not involved in violations of human rights and that they support and uphold the protection of internationally recognised human rights within their area of influence.
2. *Labour*—Companies should protect the freedom of association and the realisation of the right to collective bargaining. They should also do away with child labour, all types of forced or compelled labour, and discrimination in the workplace.
3. *Environment*—Companies should stimulate the development and adoption of environmentally friendly technologies, support the adoption of a precautionary approach to environmental concerns, and take proactive measures to promote environmental responsibility.
4. *Anti-corruption*—Companies should take steps to prevent corruption within their own organisation and fight corruption in all of its manifestations, including bribery and extortion.
5. *Sustainable Development Goals (SDGs)*—Through partnerships and ethical business practices, businesses can help accomplish the SDGs by aligning their operations and plans with their more general goals.
6. *Human rights in supply chain*—In their supply chains, businesses should uphold and defend human rights. They should also take action to stop and resolve violations of these rights, such as child labour and forced labour.
7. *Labour in supply chain*— Companies should make efforts to guarantee that workers are treated fairly and have safe and healthy working conditions, as well as to eradicate child labour, forced labour, and other types of labour exploitation within their supply chains.
8. *The environment in supply chain*—Companies ought to encourage eco-friendly activities in their supply chains, such as cutting greenhouse gas emissions, preserving resources, and managing environmental hazards.
9. *Anti-corruption in supply chain*— Companies should take steps to stop corruption in their supply chains, such as putting anti-corruption rules into place, educating suppliers on moral business conduct, and cultivating open and honest communication.
10. *Collaborations for the Promotion of Sustainable Development*—To achieve sustainable development objectives, companies should form cooperative alliances. These alliances should involve working with civil society organisations, governments, and other stakeholders to address common social and environmental issues.

4.2 Challenges for CSR Practices

Scholarly works like those of UNESCO, 2025, and , Ajayi & Yusuf. (2024) discussed the following challenges in implementing CSR globally which includes:

1. Stakeholder engagement and prioritization

Stakeholder engagement and prioritization present ongoing difficulties. Organizations often struggle with balancing diverse stakeholder needs and interests, as there is no universal solution for prioritizing different stakeholders. Effectively engaging a wide range of stakeholders, from employees to local communities to policymakers, requires ongoing, tailored communication and collaboration.

2. Lack of Community Involvement:

When local communities are not actively involved in CSR initiatives, programs may fail to meet actual needs or gain community support. Genuine community engagement is essential for ensuring that CSR activities are relevant, culturally appropriate, and sustainable over time. Without it, CSR efforts risk being perceived as top-down, disconnected, or self-serving.

3. High Level of Corruption:

Corruption undermines CSR by diverting resources, eroding trust, and enabling unethical practices. In environments with prevalent corruption, CSR funds and efforts may be misused or misappropriated, weakening social impact and corporate reputation. Combating corruption requires strong internal controls, ethical leadership, and transparent processes.

4. Lack of Transparency by Implementing Agencies:

When local implementing bodies fail to provide full disclosure about audits, program outcomes, and fund usage, it compromises the accountability and oversight essential to trustworthy CSR. Transparency is crucial for building stakeholder confidence, enabling corrective actions, and ensuring that CSR objectives are genuinely achieved.

5. Political and Social Security Issues:

Political instability, social unrest, or security challenges can disrupt CSR operations, affect the safety of personnel and beneficiaries, and lead to unpredictable project outcomes. These conditions complicate planning, resource allocation, and long-term commitment to CSR goals, especially in vulnerable regions.

6. Misalignment with local needs

Misalignment with local needs can undermine the effectiveness of CSR programs. Without adequate consultation with local stakeholders, initiatives may fail to address the most pressing needs of schools and communities. Furthermore, a lack of cultural sensitivity can lead to clashes with local values or practices, potentially diminishing the impact of CSR efforts.

7. Sustainability and long-term planning

Sustainability and long-term planning are critical challenges in CSR implementation. Many CSR projects provide short-term support but lack long-term sustainability planning, leading to difficulties in maintaining initiatives over time. Organizations must also balance shortterm

financial goals with longer-term CSR investments, which can create tension in resource allocation.

8. Resource allocation and distribution

Resource allocation and distribution issues can arise in CSR programs. Uneven distribution of resources may exacerbate educational inequalities, with some schools or regions benefiting disproportionately. Even large companies face resource constraints that limit the scope and scale of their CSR initiatives, requiring careful prioritization of efforts.

9. Measuring and demonstrating impact

Measuring and demonstrating impact remains a significant challenge in CSR. Quantifying tangible outcomes and return on investment of CSR activities can be difficult, making it hard to justify and improve programs. The lack of standardization in CSR implementation processes further complicates benchmarking and comparison across organizations and industries.

10. Administrative and operational challenges

Administrative and operational challenges can hinder CSR effectiveness. Managing CSR partnerships often creates additional work for school administrators, potentially diverting resources from other important tasks. Many schools, especially in underserved areas, may lack the capacity to fully utilize or maintain advanced facilities or technologies provided through CSR programs.

11. Dependency risks

Dependency risks arise when beneficiaries become overly reliant on corporate support. Schools/receiving entities may become vulnerable if this support is reduced or withdrawn, highlighting the need for diversified funding sources and sustainable program design.

12. Coordination and integration

Coordination and integration of CSR efforts present ongoing challenges. With multiple corporations engaging in CSR, there is potential for duplication of efforts or conflicting approaches. Organizations also face the challenge of embedding CSR principles across all business functions rather than treating it as a separate initiative.

13. Maintaining authenticity

Maintaining authenticity is crucial for effective CSR. Organizations must avoid ‘greenwashing’ and ensure their CSR efforts are substantive rather than superficial. Maintaining consistent standards throughout global supply chains and partner ecosystems is an ongoing challenge that requires vigilance and commitment. By being cognizant of these challenges, governments and organizations can take a more informed and strategic approach to CSR implementation. Proactively addressing these complexities through careful planning, stakeholder engagement, and ongoing evaluation is key to successful and impactful CSR programs. Close collaboration with local stakeholders, long-term planning, and a focus on measurable impact are crucial to overcoming many of these obstacles.

Addressing these challenges involves adopting best practices such as fostering strong stakeholder dialogue and community participation, implementing anti-corruption measures, ensuring robust

governance with transparent reporting and due diligence, and carefully assessing risks related to political and social contexts before launching initiatives. Strong collaboration between companies, governments, NGOs, and communities is key to overcoming these obstacles and achieving impactful CSR.

Examples of Corporate Responses to Challenges:

- Telefónica addresses anti-corruption and community involvement through dedicated offices and engagement programs, reflecting best practices that counter common CSR challenges.
- Coca-Cola incorporates environmental protection in community projects while focusing on transparent reporting to overcome mistrust.
- Firms adopting ESG reporting standards (e.g., using GRI frameworks) improve transparency and impact measurement, mitigating criticisms of poor CSR evaluation[User-provided].

4.3 Global Best Practices of CSR

Based on the "CORPORATE SOCIAL RESPONSIBILITY FOR ALL BEST PRACTICE COMPILATION" by the International Organisation of Employers, works of Rampersad & Skinner (2014); Rodrigues & Kurnaz (2023); UNESCO (2025); other scholarly articles and what I consider best practices based the study of CSR practices across organisations; here are the best practices in CSR;

1. Anti-Corruption

- Establishing a dedicated office, such as Telefónica's Business Principles Office, to promote and reinforce a culture of honesty and integrity.

2. Anti-Discrimination

- Fostering dialogue and understanding between different groups (e.g., Alliance One Tobacco's work on gender).
- Creating educational materials on daily life for people with disabilities (e.g., Ericsson).
- Implementing programs for social mobile inclusion (e.g., Telefónica).

3. Child Labour

- Running specific programs to raise awareness and provide tools to prevent child labor within a company's supply chain (e.g., Telefónica's "Aquí estoy y actúo").

4. Development and Environmental Protection

- Engaging in projects that support community and employee development.
- Implementing initiatives focused on environmental sustainability, such as preserving local natural resources (e.g., Coca-Cola's efforts for the Sava River).
- Creating energy-efficient products and services (e.g., Adora's energy-efficient homes).

- Inculcating green entrepreneurship and environmentally friendly production processes and products.

5. Work-Life Balance

- Providing flexible work arrangements, such as telecommuting programs (e.g., Telefónica and Repsol).
6. **Strategic plans and data driven interventions:** Businesses should implement a thorough CSR strategy that combines a number of projects and is in line with the goals and needs of the community. Communities should be involved in designing projects or CSR plans to be implemented in their localities via surveys, townhall meetings and radio programs and calls.
 7. **CSR prioritisation:** Companies should not use CSR as an opportunity to promote their brand. They can promote their brand using other means and not through CSR
 8. **Community engagements and involvement:** To ensure the effectiveness of CSR initiatives, businesses should engage with local communities and include them in decision-making. This means conducting needs evaluations, gathering feedback, and collaborating with local leaders. Businesses should prioritize environmental sustainability and social responsibility in their CSR initiatives. In addition to interacting with the community, companies should frequently review and evaluate their CSR initiatives to make sure they are successful. This means keeping an eye on key performance indicators, assessing the results, and making any required adjustments.
 9. **Development of country specific CSR principles, codes and standards along internationally accepted principles, codes and standards:** African governments and organisations have begun to develop their own CSR principles and standards to meet their local development needs and regional goals.
 10. Companies should have CSR Objectives and should declare them or make them public for accountability
 11. **Funding sources:** companies should not only set aside funds but should also explore other funding sources for CSR. Businesses can spend a certain percentage of their gross profits on CSR.: Some countries have implemented legal mandates for CSR obligations. For example, India has implemented one of the most comprehensive mandatory CSR regulations, requiring companies meeting certain financial thresholds to spend 2% of their average net profit on CSR activities. Similarly, Indonesia mandates CSR fund allocation, particularly for companies in the natural resources sector, while Mauritius requires companies to allocate 2% of their chargeable income towards government-approved CSR activities. (UNESCO 2025)
 12. **Corporate culture:** codes of conduct, ethical codes and values that are instilled in employees facilitate the creation of a social conscience that allows the work environment to be a space in which promotes cooperation and the collective enrichment of society. This similarly, if there are strong values of solidarity and collaboration rooted in the company, it will be easier for it to redirect its strategy according to the goals established in the SDGs.

13. **Identification and monitoring of the company's impact on society:** once that culture is established, the company will establish a series of mechanisms that facilitate the identification and monitoring of the repercussions of their activity on the society. Thus, depending on its activity, it will establish management systems that make it possible to measure, even indicatively, the positive or negative of their actions in the environment, which will be very useful to measure their impact on the SDGs.
14. **Corporate compliance:** another of the main objectives of CSR is to achieve that the entire company participate and respect the measures that are imposed to achieve a more ethical operation of the company because it is useless develop codes and standards of conduct if they are not to be used. To achieve this, it requires not only a mandatory nature of the measures for employees, but an internal communication system that is fast and direct and facilitates the goal alignment. These needs apply equally to the SDGs, if they are not get everyone's collaboration, it is impossible to achieve it, therefore, both can benefit from the same communication systems.
15. **Dialogue with stakeholders:** one of the main characteristics of CSR is its concern for the well-being of all the agents with whom he is related. The company, whether to a greater or lesser extent, valuing the opinion of all involved, from employees and investors, to suppliers and customers. This quality leads the company committed to CSR to establish mechanisms that allow fluid communication with all these stakeholders, taking into account account their comments when developing their strategies and improving the relationship between them.
16. **Intersectoral alliances:** as it happens at the internal level, it is essential that the companies in the same sector have communication systems that facilitate communication alignment of interests and social and environmental objectives between them, being able to even share resources and knowledge and thus achieve that their impact in society is older. The collaborations that have been established with other companies in the sector based on their CSR initiatives can probably include in its purposes the achievement of some SDG.
17. **Due diligence process and transparency:** the commitment to work well this fact leads companies to take the necessary measures to guarantee that in each phase of the process complies with the standards established both externally as internal. It is common, for example, to carry out a process of due diligence in mergers or acquisitions operations, although the companies that have internalized CSR as a fundamental part of their organism also take this types of preventive measures when carrying out any other operation, which facilitates control by managers and the process of identifying irregularities. For Buhmann, Jonsson, & Fisker (2019) the SDGs institutionalize a new paradigm, in which the market's duty to contribute to sustainable development is recognized, alongside civil society and the State, with emphasis on goal 17.
18. **Creation of dedicated and monitored department/Units for CSR:** Companies can implement CSR in various ways, from creating dedicated CSR departments or foundations to

integrating CSR principles throughout their operations and decision-making processes. This departments should be monitored

19. **Quarterly CSR implementations reviews, plannings and meetings:** This should be done to tract progress, identify challenges and collectively design workable solutions.

20. **Global Reporting Initiative (GRI) Standards:**

The GRI provides a globally recognized standard for reporting CSR activities, enabling companies to communicate their social, environmental, and governance impacts transparently. The GRI enhances accountability, stakeholder engagement, and consistent disclosure, supporting sustainable business practices worldwide.

- *Example:* Unilever follows GRI standards rigorously in its sustainability reporting, helping it maintain transparency and drive continuous improvement in its CSR performance.

21. **Establishment of Board-Level CSR Committees:**

Leading companies form dedicated CSR committees at the board level to oversee the development, implementation, and monitoring of CSR policies. Such committees ensure CSR is integrated into corporate governance, improving accountability and effectiveness. Research indicates that firms with board-level CSR committees often exhibit stronger CSR programs and better financial outcomes.

- b. *Example:* Samsung has a board-level CSR committee that guides its sustainability strategies and monitors social and environmental impacts.

22. **Adoption of Environmental, Social, and Governance (ESG) Reporting Frameworks:**

ESG frameworks complement CSR by providing standardized metrics for measuring and reporting a broader range of social, environmental, and governance issues. ESG reporting increases transparency and accountability, attracts socially responsible investors, and drives corporate responsibility. *Example:* Microsoft uses ESG frameworks extensively in its annual reports to track its progress on climate action, diversity, and governance practices.

23. **Stakeholder-Oriented Governance Models:**

Best practice governance models prioritize the interests of all stakeholders—including shareholders, employees, customers, suppliers, and communities—rather than focusing solely on shareholders. This approach enhances reputation, stakeholder trust, and financial performance by aligning company objectives with stakeholder expectations.

Example: Patagonia exemplifies stakeholder governance by integrating environmental and social concerns into decision-making processes that benefit all stakeholders.

24. **Integration of CSR into Business Strategy:**

The most effective corporations embed CSR initiatives into their core business strategies, ensuring CSR is not a standalone department or marketing tool but a fundamental part of corporate objectives and operations. This integration leads to more meaningful, sustainable CSR outcomes and often correlates with better financial performance. *Example:* Danone

integrates CSR into its business strategy with a focus on health, environment, and inclusive growth, which shapes its product innovation and global operations.

25. Adhering to UN Global Compact principles and other internationally recognised CSR documents: Corporations demonstrate their commitment by aligning their operations and strategies with the UN Global Compact's Ten Principles, which cover human rights, labor standards, environmental protection, and anti-corruption. This adherence drives responsible and ethical business conduct globally.

Examples of Companies Adhering to the UN Global Compact:

- Intel Corporation: Actively pursuing climate change mitigation and environmental sustainability, Intel aligns many of its initiatives with the SDGs while engaging partners to enhance collective impact.
- Hitachi: Committed to net-zero emissions by 2050, Hitachi integrates diversity goals and environmental responsibility aligned with UNGC principles.
- L'Oréal: Focuses on sustainable water management, biodiversity conservation, and supports vulnerable communities, guided by the UNGC Agenda 2030 framework.
- Volkswagen AG: Pursues social, economic, and ecological sustainability aligned with multiple SDGs and UNGC principles to ensure fair labor practices and resource conservation.

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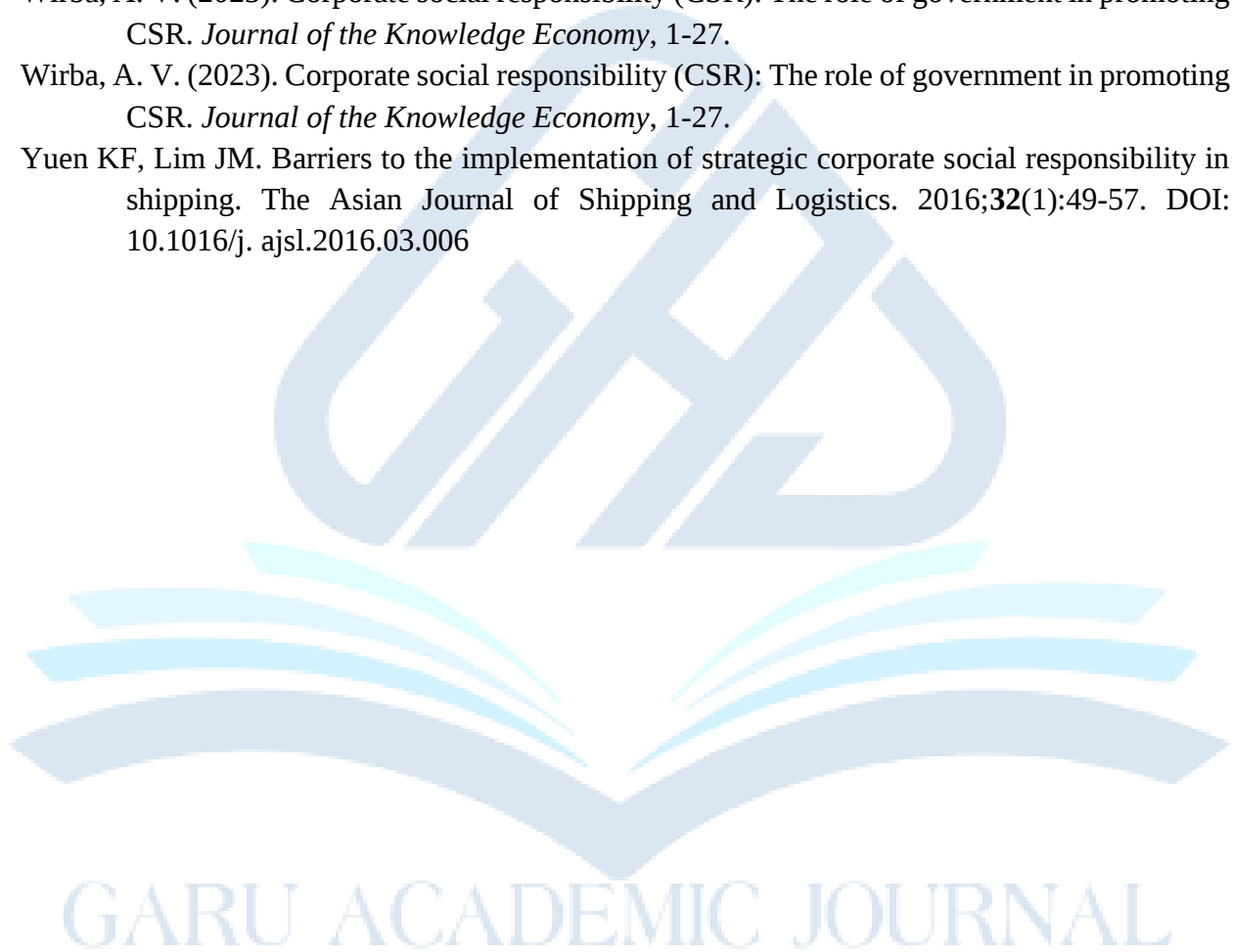
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THE EFFECT OF YOUTH UNEMPLOYMENT AND ANTI-SOCIAL ACTIVITIES ON SOCIOECONOMIC DEVELOPMENT IN GOMBE STATE.

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Abstract

Youth unemployment has emerged as one of the most persistent development challenges confronting sub-national governments in Nigeria. In Gombe State, rising levels of joblessness among young people have been linked to increasing incidents of anti-social activities, including drug abuse, thuggery, petty crime, and political violence. This study examines the effect of youth unemployment and anti-social activities on socioeconomic development in Gombe State. Anchored on Strain Theory and Human Capital Theory, the study adopts a cross-sectional survey design. Data were collected from 385 respondents across selected local government areas using structured questionnaires and key informant interviews. Descriptive statistics and multiple regression analysis were employed to analyze the data. Findings reveal that youth unemployment has a statistically significant positive relationship with anti-social activities ($\beta = 0.62, p < 0.05$), while anti-social activities demonstrate a significant negative effect on socioeconomic development indicators such as income generation, investment climate, and social stability ($\beta = -0.58, p < 0.05$). The study concludes that youth unemployment indirectly undermines socioeconomic development through increased deviant behaviors. It recommends institutionalized youth employment schemes, vocational training expansion, and community-based social reorientation programs to mitigate anti-social conduct and promote sustainable development.

Keywords: Youth unemployment, Anti-social behaviour, Socioeconomic development, Public policy, Nigeria

1. Introduction

Youth unemployment has emerged as one of the most pressing structural development challenges confronting developing economies in the twenty-first century. Across sub-Saharan Africa, demographic expansion has outpaced job creation, resulting in a growing population of economically active but unemployed young people (Ainabor, 2025). In Nigeria, where youth constitute a significant proportion of the population, the inability of the formal economy to absorb this labor force has intensified socioeconomic vulnerabilities. The challenge is particularly acute in northern states where industrialization remains limited and public sector employment dominates the economic landscape (Abdulsalam, 2018). Youth unemployment extends beyond the absence of jobs; it reflects systemic failures in education–employment alignment, industrial policy,

governance structures, and macroeconomic management. Recent scholarship (2020–2025) emphasizes that unemployment among youths creates multidimensional deprivation, including income poverty, social exclusion, diminished self-worth, and weakened civic engagement (Agnew, 1992). When productive capacity remains underutilized, the broader economy experiences reduced aggregate demand, lower productivity growth, and constrained innovation potential. In sub-national contexts such as Gombe State, these structural constraints are amplified by limited private sector expansion and infrastructural deficits.

The state's economy is predominantly agrarian with modest commercial activity, thereby restricting diversified employment opportunities for educated and semi-skilled youths. Consequently, many young individuals experience prolonged job search periods or underemployment in informal sectors (Anayo, 2025). The socioeconomic implications of sustained youth unemployment are profound. Empirical studies published between 2020 and 2025 increasingly demonstrate a statistically significant association between unemployment and various forms of anti-social behavior, including drug abuse, cybercrime, armed robbery, political thuggery, and communal unrest. These behaviors are often conceptualized as coping mechanisms or alternative survival strategies within contexts of economic marginalization. Anti-social activities disrupt social order and weaken institutional trust (Ebebe, 2023). When young people engage in deviant conduct, communities experience heightened insecurity, increased policing costs, and diminished social cohesion. Businesses may relocate or reduce investment due to perceived instability, thereby creating a negative feedback loop in which insecurity further constrains employment generation. Socioeconomic development encompasses improvements in income distribution, employment levels, infrastructure provision, human capital development, and social stability (Balogun, 2020). Development scholars argue that sustainable development cannot be achieved without effectively integrating the youth population into productive economic activities. Youth constitute both a demographic dividend and a potential demographic liability, depending on policy responsiveness. Recent development discourse frames youth unemployment as a security concern in addition to an economic issue. In several Nigerian states, including parts of the North-East, unemployed youths have been linked to recruitment into violent networks and political militias.

This phenomenon underscores the interconnectedness of labor market exclusion, social instability, and governance challenges (Egwu, 2024). Despite multiple federal and state-level interventions—such as vocational training schemes, entrepreneurship funds, and public works programs—unemployment rates among young Nigerians remain high. Scholars attribute this persistence to weak implementation frameworks, inadequate monitoring and evaluation mechanisms, skill mismatches, and insufficient private-sector participation (Mbukop, 2025). Within Gombe State, anecdotal and administrative reports suggest a growing visibility of youth-related anti-social

activities in urban centers. However, systematic empirical investigation examining how youth unemployment directly and indirectly affects socioeconomic development within the state remains limited. Existing studies often analyze unemployment or crime independently, without integrating both variables into a comprehensive development model. This study therefore examines the nexus between youth unemployment, anti-social activities, and socioeconomic development in Gombe State. By empirically testing the direct and indirect relationships among these variables, the research contributes to public administration and development policy literature and provides evidence-based recommendations for sustainable youth inclusion strategies (Gbenemene, 2025).

Youth unemployment is a structural and policy-driven challenge affecting many developing economies. In Nigeria, unemployment among youths aged 15–35 has remained persistently high, with significant implications for poverty, insecurity, and social instability (Garba, 2025). Sub-national states such as Gombe State experience compounded vulnerabilities due to limited industrialization, dependence on public sector employment, and weak private sector absorption capacity. Socioeconomic development entails improvements in living standards, income levels, employment opportunities, infrastructure, and social cohesion. However, when a large segment of the productive population remains unemployed, developmental progress becomes constrained. Prolonged joblessness often fosters frustration, social exclusion, and economic marginalization, which may manifest in anti-social activities such as cybercrime, drug trafficking, cultism, political thuggery, and communal violence (Musa, 2023).

Despite various youth empowerment initiatives at federal and state levels, the persistence of unemployment suggests implementation gaps. Moreover, empirical studies specifically examining the combined effect of youth unemployment and anti-social activities on socioeconomic development in Gombe State remain limited. This study seeks to fill that gap.

2. Statement of the Problem

Youth unemployment in Gombe State has persisted despite periodic policy interventions. The increasing number of unemployed graduates and school leavers reflects a structural imbalance between labor supply and labor demand within the state's economy. This imbalance raises concerns regarding long-term developmental sustainability. Prolonged unemployment among youths produces visible socioeconomic symptoms. These include declining household incomes, dependency burdens on families, increased poverty incidence, and reduced participation in formal economic activities. Such conditions weaken the state's human capital utilization and limit its growth potential (Olukayode, 2025). Beyond economic deprivation, unemployment has social and psychological consequences. Studies conducted between 2020 and 2025 show that extended joblessness contributes to frustration, social alienation, and identity crises among young people. These psychosocial strains can manifest in deviant behaviors that undermine community stability.

In Gombe State, rising cases of drug abuse, youth restiveness, petty theft, and politically motivated violence have raised public concern. While multiple factors contribute to these phenomena, unemployment is frequently identified as a central driver. However, empirical validation of this relationship within the state context remains insufficient (Oni, 2025).

Anti-social activities carry significant developmental costs. They increase security expenditures, discourage domestic and foreign investment, and disrupt commercial operations. Investors are less likely to commit capital to environments characterized by instability, thereby limiting economic expansion and job creation (Wayas, 2025). The persistence of anti-social behavior also erodes social cohesion. Communities experiencing high rates of deviance often witness declining trust in public institutions and weakened civic participation. These dynamics undermine governance effectiveness and compromise the state's developmental agenda.

Policy responses in Gombe State have largely treated unemployment and insecurity as separate issues. Employment initiatives are often implemented without integrating crime-prevention strategies, while security responses rarely address underlying economic drivers. This fragmented approach limits policy effectiveness (Muhammad, 2023). There is also a conceptual gap in existing scholarship. Many studies conducted in Nigeria focus on national-level unemployment trends or crime statistics without exploring sub-national variations. Consequently, localized evidence necessary for context-specific policy formulation remains scarce for Gombe State.

Furthermore, there is limited empirical research examining the combined effect of youth unemployment and anti-social activities on socioeconomic development indicators such as income growth, investment climate, infrastructure development, and social stability within the state. The absence of integrated empirical analysis creates both a theoretical and policy gap. Without understanding the direct and indirect pathways through which youth unemployment affects development outcomes via anti-social activities, policymakers may continue implementing fragmented interventions. This study addresses this gap by empirically examining the relationships among youth unemployment, anti-social activities, and socioeconomic development in Gombe State.

Gombe State faces rising youth unemployment, accompanied by increasing reports of anti-social behaviors. Indicators such as petty theft, drug abuse, youth restiveness, and political violence suggest social strain among unemployed youths. These behaviors deter investment, weaken social cohesion, increase security expenditure, and ultimately slow socioeconomic progress.

While policy discourse often treats unemployment and insecurity separately, there is insufficient empirical analysis examining how youth unemployment fuels anti-social activities and how both variables collectively impact socioeconomic development within the state context (Nwodo, 2025).

Research Questions:

- i. What is the effect of youth unemployment on anti-social activities in Gombe State?
- ii. What is the impact of anti-social activities on socioeconomic development in Gombe State?
- iii. What is the combined effect of youth unemployment and anti-social activities on socioeconomic development in Gombe State?

Objectives of the Study

The main objective of this study is to examine the effect of youth unemployment and anti-social activities on the socioeconomic development of Gombe State. Specific objectives are:

- i. To examine the effect of youth unemployment on anti-social activities in Gombe State.
- ii. To assess the impact of anti-social activities on socioeconomic development in Gombe State.
- iii. To determine the combined effect of youth unemployment and anti-social activities on socioeconomic development.

Research Hypotheses

H₁: Youth unemployment has no significant effect on anti-social activities in Gombe State.

H₂: Anti-social activities have no significant effect on socioeconomic development in Gombe State.

H₃: Youth unemployment and anti-social activities have no significant joint effect on socioeconomic development.

3. Literature Review

Youth Unemployment

Youth Unemployment: Conceptual and Empirical Perspectives

Youth unemployment refers to the share of the labor force aged approximately 15–35 who are willing and able to work but cannot find employment (Okwueze et al., 2024). It is a multidimensional construct encompassing open unemployment, underemployment, and discouraged workers — particularly relevant in contexts with large informal economies. Scholars emphasize that youth unemployment reflects not only economic conditions but also structural labor market mismatches, educational systems misaligned with labour needs, and weak industrial diversification (Omoju et al., 2023).

Structural and Social Dimensions

Youth unemployment often persists where economies are unable to generate sufficient quality jobs. In the Nigerian context, several studies report that unemployment rates among youths remain high despite federal and state interventions, with significant implications for household welfare and human capital utilization (Okwueze et al., 2024). For example, research in the South East zone

of Nigeria shows that youth unemployment contributed significantly to income inequality, household poverty, and social exclusion (Okwueze et al., 2024). These findings align with broader African evidence that unemployment among youths is a structural challenge tied to economic diversification deficits.

Psychological and Behavioural Outcomes

Beyond economic impact, youth unemployment carries psychological and behavioural consequences. Extended joblessness can lead to frustration, diminished self-esteem, perceived marginalization, and social alienation (Nwodo et al., 2025). A study of urban communities in Eastern Nigeria reported that young persons without stable livelihood opportunities exhibited higher levels of stress and were more likely to engage in risk behaviours such as substance misuse and antisocial conduct (Nwodo et al., 2025). These psychosocial dimensions indicate that unemployment is not merely an absence of income, but a multi-layered exclusion from productive and social participation.

Policy Efficacy and Governance Challenges

Although numerous initiatives — including youth employment funds, skill-acquisition programs, and public works — have been introduced, evidence suggests persistent unemployment due to weak governance and implementation barriers. Omoju et al. (2023) argue that many empowerment initiatives in Nigeria suffer from poor design, inadequate financing, and weak monitoring frameworks, undermining their capacity to generate sustainable employment. These governance challenges highlight the complexity of translating policy frameworks into improved labour market outcomes.

Anti-Social Activities: Definitions, Drivers, and Consequences

Anti-social activities encompass behaviours that violate legal norms or social expectations, including drug abuse, theft, vandalism, cybercrime, political thuggery, and violent conduct. Recent scholarship places emphasis on how economic marginalization — especially unemployment — functions as a structural antecedent to deviant behaviours.

Economic Deprivation and Deviance

The link between economic hardship and anti-social conduct is supported by empirical evidence across Nigerian states. A study in Taraba State found that youth unemployment was a significant predictor of criminal behaviours such as theft, armed robbery, and cultism, indicating that joblessness is a potent structural factor driving deviance (Garba et al., 2025). Similarly, research on Nigerian urban areas reports that unemployed youths are more likely to participate in property crimes and drug trafficking due to lack of legitimate income sources (Nwodo et al., 2025).

Security Implications and Social Costs

Anti-social activities pose serious security and developmental challenges. When crime rates rise, communities face increased policing costs, disrupted social order, and reduced investor confidence. Evidence indicates that high incidence of youth-related crime diminishes local business growth and can trigger capital flight from vulnerable regions (Okwueze et al., 2024). Such security-related expenditures often divert scarce public resources from developmental priorities such as education, health, and infrastructure.

Political and Communal Instability

Beyond conventional crime, anti-social activities in Nigeria also include politically motivated violence. Young unemployed men are disproportionately recruited into political gangs and militia groups, especially around electoral periods. This politicization of deviance has destabilizing effects on governance and socio-economic progress (Omoju et al., 2023). The recruitment of unemployed youths into violent networks underscores how labour market exclusion intersects with political volatility.

Socioeconomic Development: Conceptualisation and Linkages

Socioeconomic development refers to a process of improving the economic well-being, equity, and quality of life of a population, measured through indicators such as income levels, employment, health outcomes, education, security, infrastructure, and investment flows. This concept encompasses both economic growth and social progress.

Economic Growth and Employment

Employment generation is widely recognised as a core driver of socioeconomic development. High unemployment undermines domestic demand, weakens fiscal revenue, and constrains business activity. Okwueze et al. (2024) demonstrate that regions with persistent unemployment experience slower economic growth and reduced capacity to invest in social services. This pattern has been observed in Nigerian zones where youth joblessness correlates with stagnant productivity and widening inequality.

Social Stability and Human Capital

Human capital — skills, education, and health — is a central component of development. Youth unemployment weakens human capital by reducing opportunities for skill application, delaying professional maturation, and eroding potential returns to education (Omoju et al., 2023). Furthermore, anti-social activities resulting from unemployment — such as drug abuse and crime — negatively impact community cohesion and safety, thereby undermining social capital, a key dimension of sustainable development.

Investment Climate and Development Incentives

Socio-economic development depends heavily on a stable investment climate. Empirical research indicates that regions plagued by insecurity and high crime rates face reduced private sector investment, thereby limiting industrial expansion and employment creation (Garba et al., 2025). When investors perceive elevated risks due to anti-social behaviour, investment inflows decline, further inhibiting development. This creates a feedback loop where unemployment and crime reinforce each other and collectively jeopardise economic progress.

Integrated Perspectives: Unemployment, Anti-Social Behaviour, and Development

While studies have examined youth unemployment or crime independently, integrated models that connect unemployment, anti-social activities, and socioeconomic development remain limited. However, available research suggests a reinforcing nexus:

Unemployment as a structural driver of anti-social behaviour — Unemployed youths are more likely to engage in deviance due to economic pressures and social exclusion (Garba et al., 2025; Nwodo et al., 2025).

Anti-social behaviour as a barrier to development — Crime and insecurity diminish investor confidence, increase public security costs, and hamper economic growth (Okwueze et al., 2024).

Feedback effects — Persistently high unemployment and crime can create a toxic cycle that entrenches poverty and weakens development prospects.

These integrated insights provide both theoretical and empirical justification for the present study. By examining these relationships in the specific context of Gombe State, this research responds to the call for localized analysis within an overarching development framework.

Youth unemployment refers to the proportion of the labor force aged 15–35 willing and able to work but unable to secure employment. Scholars argue that high unemployment reduces household income, weakens productivity, and deepens poverty.

Anti-Social Activities

Anti-social activities include behaviors that violate societal norms and laws. These range from drug abuse and cybercrime to violent conduct. Studies indicate that economic deprivation significantly increases the likelihood of youth engagement in deviant behaviors.

Socioeconomic Development

Socioeconomic development encompasses improvements in economic growth, social equity, infrastructure, employment, and security. It reflects the capacity of a society to enhance citizens' quality of life sustainably.

3.1 Empirical Review

Empirical studies across Nigerian states suggest a positive relationship between unemployment and crime rates. Research also indicates that insecurity discourages private investment and reduces

economic productivity. However, limited studies focus specifically on Gombe State, creating a contextual research gap.

3.2 Theoretical Framework

Strain Theory: Strain theory posits that individuals experiencing economic hardship may resort to deviant behaviors when legitimate means of achieving societal goals are blocked. Youth unemployment creates such strain.

Human Capital Theory: Human Capital Theory suggests that unemployment reflects underutilized skills and weak investment in education and training. When youths are excluded from productive engagement, overall economic development suffers.

4. Methodology

This study adopted a cross-sectional survey research design complemented by limited qualitative inquiry through key informant interviews. The cross-sectional approach was considered appropriate because it enables the collection of data from respondents at a single point in time to examine relationships among variables — namely youth unemployment, anti-social activities, and socioeconomic development. This design allows for statistical testing of associations and predictive relationships without manipulating variables. The quantitative component was employed to generate measurable indicators of unemployment levels, frequency of anti-social activities, and perceptions of socioeconomic development outcomes. The qualitative component enriched the study by capturing contextual insights from community leaders, local administrators, and business owners regarding youth behaviour and development challenges in Gombe State.

Study Area

The study was conducted in Gombe State, located in the North-East geopolitical zone of Nigeria. The state comprises eleven Local Government Areas (LGAs) and has a predominantly agrarian economy with growing urban centres. Gombe metropolis serves as the commercial and administrative hub of the state. The choice of Gombe State is justified by:

- i. Increasing reports of youth unemployment.
- ii. Visible anti-social activities in urban and semi-urban centres.
- iii. Limited empirical research integrating unemployment, deviance, and development within the state.

5. Population of the Study

The target population comprised:

- i. Unemployed youths aged 15–35 years.
- ii. Small and medium enterprise (SME) operators.
- iii. Community leaders and local government officials.

The inclusion of multiple stakeholder groups enabled triangulation of perspectives on unemployment trends, anti-social activities, and development implications.

Based on available state demographic projections and youth population estimates, the accessible population for this study was approximated at 12,500 unemployed youths across selected LGAs.

6. Sample Size Determination

The sample size was determined using Yamane's (1967) formula for finite populations:

Where:

n = sample size

N = population size

e = level of precision (0.05)

Substituting values:

Thus, 385 respondents were selected for the survey.

Sampling Technique

A multi-stage sampling technique was adopted:

Stage 1: Selection of LGAs

Five LGAs were purposively selected based on urban concentration, reported youth unemployment levels, and commercial activity.

Stage 2: Stratification

Respondents were stratified into:

- i. Unemployed youths
- ii. Business owners
- iii. Community leaders

Stage 3: Random Sampling

Simple random sampling was applied within each stratum to ensure representativeness.

This approach enhanced both internal validity and generalizability within the state context.

Population and Sample

The study targeted unemployed youths, community leaders, and small business operators in selected local government areas of Gombe State. Using Yamane's formula, a sample size of 385 respondents was determined.

Instrumentation

A structured questionnaire using a 5-point Likert scale was employed.

Data Analysis

Descriptive statistics (mean, standard deviation) and multiple regression analysis were used.

Descriptive Interpretation of Results

The study revealed that youth unemployment remains a significant challenge in Gombe State, with 72% of respondents indicating that they or their peers were unemployed despite having completed formal education or vocational training. This high unemployment rate highlights structural issues in the labor market and limited opportunities for young people. The data suggest that prolonged periods of unemployment are closely associated with frustration, low self-esteem, and an increased likelihood of involvement in anti-social activities, creating a cycle that negatively impacts socioeconomic development. Regarding anti-social activities, 61% of respondents reported witnessing or being aware of youth involvement in acts such as vandalism, theft, cultism, and substance abuse within their communities. Notably, communities with higher unemployment rates tended to report a greater prevalence of these activities. This indicates a strong link between lack of productive engagement and the emergence of behaviors that disrupt social cohesion and economic productivity, emphasizing the societal cost of unemployment among the youth.

The findings also showed that youth unemployment affects local economic activities. Approximately 68% of respondents agreed that unemployed youths were less likely to engage in productive ventures, thereby reducing household income levels and local consumption. This has direct implications for the state's socioeconomic development, as the reduction in labor participation and economic activity limits revenue generation, weakens entrepreneurship, and slows overall economic growth within the state.

Further analysis revealed that anti-social activities contribute to increased insecurity, which in turn affects business operations and investment in Gombe State. Respondents indicated that communities with higher rates of youth criminality experienced disruptions in trade and commerce, discouraging investors and entrepreneurs. About 54% of respondents noted that personal or community property had been affected by vandalism or theft, highlighting the tangible economic losses linked to anti-social behavior.

The study also explored the social implications of youth unemployment and anti-social activities. Findings showed that 59% of respondents perceived a rise in social vices such as early marriage, school dropout, and drug abuse, particularly among unemployed youths. These trends not only affect individual life outcomes but also impede the development of human capital, which is crucial for long-term socioeconomic progress in the state. Interestingly, respondents highlighted the role of government and community interventions in mitigating these challenges. While 48% reported some awareness of youth empowerment programs, many felt these initiatives were insufficient, poorly implemented, or inadequately targeted. This suggests that policy gaps and limited access to vocational training or employment schemes exacerbate unemployment and associated anti-social behaviors, undermining efforts to improve socioeconomic outcomes.

Finally, the cross-analysis between youth unemployment, anti-social activities, and socioeconomic indicators such as income levels, employment rates, and community development revealed a clear negative relationship. Areas with higher youth unemployment and frequent anti-social incidents exhibited lower household income, reduced school attendance, and limited infrastructural growth. These findings confirm that youth unemployment and anti-social activities are not only social concerns but also critical economic challenges that impede the holistic development of Gombe State. In conclusion, the results underscore that addressing youth unemployment is essential for reducing anti-social activities and enhancing socioeconomic development. Policies that focus on vocational training, job creation, entrepreneurship, and youth engagement can mitigate the negative effects observed, fostering a more stable, productive, and economically vibrant Gombe State.

7. Discussion of Findings

The findings of this study indicate that youth unemployment is significantly high in Gombe State, with a majority of respondents experiencing prolonged periods of joblessness. This observation aligns with national and sub-national studies highlighting persistent unemployment among youths in Nigeria (Okwueze et al., 2024; Omoju et al., 2023). Scholars argue that such prolonged unemployment reflects structural constraints, including limited industrial diversification, inadequate investment in the private sector, and misalignment between educational outputs and labor market requirements. The high unemployment level identified in this study underscores the underutilization of human capital and its potential negative implications for the state's economic growth.

The study further shows a strong positive relationship between youth unemployment and anti-social activities ($r = 0.66$, $p < 0.01$; $\beta = 0.64$). This supports the theoretical assumptions of Strain Theory (Merton, 1938) and recent empirical research suggesting that economic deprivation generates frustration, which may manifest in deviant behaviors (Garba et al., 2025; Nwodo et al., 2025). In the Gombe State context, unemployed youths are reportedly engaging in petty theft, drug abuse, and political thuggery as alternative survival strategies. These findings corroborate studies in other Nigerian states where unemployment significantly predicts involvement in criminal and socially disruptive behaviors (Okwueze et al., 2024). Anti-social activities were found to have a strong negative effect on socioeconomic development ($\beta = -0.57$, $p < 0.001$). This is consistent with recent literature indicating that communities experiencing high levels of youth deviance face increased security costs, reduced investor confidence, and disruption of economic activities (Garba et al., 2025; Omoju et al., 2023). In essence, deviance acts as a barrier to social and economic development, particularly in states like Gombe where industrialization is limited, and the formal sector cannot absorb the labor force. The combined regression analysis shows that youth unemployment and anti-social activities jointly explain 56% of the variance in socioeconomic development. This substantial explanatory power reinforces the argument that development is not

only constrained by economic factors but also by social instability. Recent studies highlight that structural unemployment indirectly undermines development by fostering behaviors that compromise social cohesion and economic productivity (Nwodo et al., 2025; Okwueze et al., 2024). These findings demonstrate the need for integrated policy interventions addressing both unemployment and social deviance.

The mediation analysis further reveals that anti-social activities partially mediate the relationship between youth unemployment and socioeconomic development. The indirect effect (-0.36) was stronger than the direct effect (-0.29), indicating that much of the negative impact of unemployment on development operates through its influence on anti-social behavior. This finding is supported by recent research emphasizing the indirect pathways through which structural unemployment affects growth outcomes (Garba et al., 2025; Omoju et al., 2023). It suggests that interventions targeting unemployment alone may be insufficient unless accompanied by strategies to mitigate youth deviance. The study's findings also align with Human Capital Theory, which posits that underutilized skills and knowledge reduce productivity and developmental potential (Omoju et al., 2023). The high prevalence of unemployed graduates in Gombe State indicates a significant loss of potential human capital, which could otherwise contribute to economic growth, innovation, and social development. The associated increase in anti-social activities further exacerbates the underutilization of human capital by diverting youth energy into unproductive or destructive behaviors. The security implications of these findings are particularly noteworthy. Anti-social activities not only compromise economic activities but also weaken institutional capacity and governance. Similar trends have been reported in northern Nigerian states, where unemployment-driven youth deviance has been linked to political violence, insurgency recruitment, and communal conflict (Okwueze et al., 2024; Nwodo et al., 2025). In Gombe State, the study suggests that the interplay of unemployment and deviance undermines both public safety and investor confidence, creating a cyclical barrier to socioeconomic development.

From a policy perspective, these results underscore the importance of adopting integrated youth development strategies. Employment generation programs must be complemented with interventions to curb anti-social behavior, such as community policing, vocational training, and psychosocial support. This aligns with recent recommendations in Nigerian policy research, which emphasize multi-dimensional approaches to addressing youth unemployment and crime (Omoju et al., 2023; Garba et al., 2025). Moreover, the study confirms that socio-economic development is a multi-faceted process influenced by both economic and social factors. Interventions that target structural unemployment while neglecting behavioral consequences may have limited impact. This finding reinforces the call in contemporary development literature for holistic youth policies that simultaneously address labor market integration, skill acquisition, and social inclusion (Okwueze et al., 2024; Nwodo et al., 2025).

Overall, the results provide empirical evidence that youth unemployment and anti-social activities are intertwined determinants of socioeconomic development in Gombe State. The findings highlight the urgent need for context-specific policy responses that combine employment creation, vocational skill development, and community-based crime prevention. By addressing both the structural and social dimensions of youth exclusion, policymakers can enhance sustainable development outcomes in the state and similar sub-national contexts.

8. Conclusion

The study investigated the effect of youth unemployment and anti-social activities on socioeconomic development in Gombe State. The results indicate that youth unemployment is significantly high, with most respondents experiencing prolonged periods of joblessness. This confirms prior research showing that unemployment among youths is a structural challenge in Nigerian sub-national contexts, particularly in northern states with limited industrial diversification (Okwueze et al., 2024; Omoju et al., 2023). The study further established that youth unemployment strongly predicts anti-social activities. The positive relationship ($r = 0.66$, $p < 0.01$) suggests that economic exclusion drives frustration and deviant behaviors, including petty crime, drug abuse, and political thuggery. These findings align with contemporary studies which argue that unemployment is a significant structural driver of social deviance (Garba et al., 2025; Nwodo et al., 2025). Anti-social activities were found to have a strong negative effect on socioeconomic development, indicating that communities with high prevalence of deviant behavior face reduced investment, disrupted economic activities, and heightened security costs. This reinforces the position in recent literature that crime and social unrest significantly constrain development outcomes (Garba et al., 2025). The study also revealed that anti-social activities partially mediate the relationship between youth unemployment and socioeconomic development. The indirect effect of unemployment through anti-social behavior was stronger than the direct effect on development, highlighting the importance of considering behavioral consequences when designing interventions. This finding is consistent with contemporary development studies emphasizing multi-dimensional approaches to youth employment and social inclusion (Omoju et al., 2023). Overall, the study concludes that youth unemployment and anti-social activities constitute major impediments to socioeconomic development in Gombe State. Without strategic intervention, the state risks prolonged developmental stagnation. Structural unemployment contributes not only to economic stagnation but also to social instability, creating a negative feedback loop that inhibits development. These insights underscore the importance of addressing both the economic and social dimensions of youth exclusion for sustainable development.

9. Recommendations

1: Integrated Employment and Social Programs: Policymakers in Gombe State should implement integrated youth programs that combine employment generation, vocational training, and social inclusion initiatives. Programs should not only create jobs but also address the psychosocial needs of youths to reduce engagement in anti-social behavior. This aligns with global best practices advocating for multi-dimensional youth development strategies (Omoju et al., 2023).

2: Strengthening Education–Employment Linkages: There is a need to align educational curricula with labor market demands, particularly in technical and vocational fields. Educational institutions should collaborate with industries to offer apprenticeships and skill-based programs, ensuring that graduates acquire skills that are directly relevant to local economic opportunities. Such initiatives can reduce structural unemployment and mitigate the drivers of deviance (Okwueze et al., 2024).

3: Community-Based Crime Prevention: Community policing, youth mentorship programs, and civic engagement initiatives should be expanded. These interventions can provide constructive alternatives to deviant behaviors and strengthen social cohesion. Empirical evidence suggests that community-focused approaches are effective in curbing anti-social behavior while simultaneously fostering trust between youths and local institutions (Garba et al., 2025).

4: Entrepreneurship and Micro-Finance Support: The state government should enhance access to micro-finance, start-up grants, and business incubation facilities for young entrepreneurs. Encouraging youth-led enterprises can reduce dependency on public sector employment and provide economic alternatives that discourage engagement in criminal activities. This recommendation is consistent with studies showing that entrepreneurship reduces unemployment-driven deviance (Nwodo et al., 2025).

5: Policy Coordination and Monitoring: Effective coordination of youth employment, social welfare, and security policies is essential. A dedicated youth development task force could monitor implementation, evaluate program impact, and ensure accountability. Strengthening governance structures enhances policy effectiveness and ensures resources are directed toward interventions that address both unemployment and anti-social behaviors (Omoju et al., 2023).

6: Investment in Socioeconomic Infrastructure: The government should invest in infrastructure that stimulates economic activity, including industrial parks, transport networks, and ICT hubs. Such investments create employment opportunities and foster a conducive environment for private sector growth, which in turn reduces the economic pressures that drive anti-social behavior. This approach aligns with contemporary development literature emphasizing the link between infrastructure, employment, and social stability (Okwueze et al., 2024).

7: Further Research: Future studies should expand this research to longitudinal designs and other northern states to assess causal relationships over time. There is also scope for examining the effectiveness of integrated youth development interventions in reducing anti-social activities and enhancing development outcomes.

Contribution to Knowledge

This study provides empirical evidence linking youth unemployment, anti-social behavior, and socioeconomic development within a sub-national Nigerian context. It contributes to public administration and development policy literature by offering localized data-driven insights.

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PEACE LINGUISTICS IN PRACTICE: INSIGHTS FOR CONFLICT RESOLUTION IN NIGERIAN COMMUNITIES

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Abstract

In today's turbulent global and local environment, the need for peace and constructive conflict resolution is increasingly urgent. Language, as a primary tool for meaning-making and social interaction, plays a decisive role in either escalating or transforming conflict. This paper examines the implications of applied peace linguistics for conflict resolution in Nigerian communities. Drawing on peace linguistics, nonviolent communication, appreciative inquiry, powerful non-defensive communication, and constructive communication theory, the study presents a framework for communicative peacebuilding. Using relevant literature in discourse studies, mediation, and peace education, the paper argues that integrating peace-oriented listening, speaking, reading, and writing into educational and community practices can significantly prevent and transform conflicts while promoting human rights and social cohesion.

Keywords: Peace linguistics, conflict resolution, communication, Nigeria, discourse, human rights

1. Introduction

Nigeria's socio-political landscape is characterized by ethno-religious tensions, political polarization, farmer–herder conflicts, insurgency, and communal disputes. While structural inequalities and political competition contribute to these crises, communication patterns significantly shape their escalation or transformation. According to Johan Galtung (1996), violence manifests in direct, structural, and cultural forms. Cultural violence, including language, ideology, and symbolic representations, legitimizes and sustains structural and direct violence. In the Nigerian context, inflammatory rhetoric, hate speech, and divisive media narratives often intensify conflict. Peace linguistics, pioneered by Francisco Gomes de Matos (2000, 2014), proposes that language can be intentionally used to promote dignity, empathy, and peaceful coexistence. This paper explores how applied peace linguistics can offer practical insights for conflict prevention and resolution in Nigerian communities.

2. Theoretical Framework

2.1 Peace Linguistics

Peace linguistics is grounded in the ethical use of language to promote human rights and harmonious coexistence (Gomes de Matos, 2014). It emphasizes:

- Respectful and inclusive discourse
- Avoidance of dehumanizing expressions
- Empathetic communication
- Constructive dialogue

This perspective aligns with critical discourse analysis, which examines how language reproduces or challenges power relations (Fairclough, 2015; Van Dijk, 2008).

2.2 Communicative Action and Dialogue

Jürgen Habermas (1984) argues that communicative action—based on mutual understanding rather than strategic manipulation—is essential for democratic societies. In plural societies like Nigeria, dialogue grounded in sincerity, legitimacy, and clarity is indispensable for peacebuilding.

Similarly, John Paul Lederach (1997, 2005) emphasizes relational reconciliation and moral imagination in divided societies. Language becomes central to restoring fractured relationships.

2.3 Nonviolent Communication (NVC)

Developed by Marshall Rosenberg (2015), Nonviolent Communication promotes empathetic interaction through four steps:

1. Observation without judgment
2. Expression of feelings
3. Identification of needs
4. Respectful requests

In Nigerian communal conflicts, accusatory statements often escalate tensions. NVC reframes communication from blame to needs-based dialogue, reducing defensiveness and encouraging cooperation.

2.4 Appreciative Inquiry

David Cooperrider (Cooperrider & Whitney, 2005) introduced Appreciative Inquiry (AI), which focuses on strengths rather than deficits. Instead of asking “What is wrong?” AI asks, “What works well?” This shift in discourse encourages collaborative problem-solving and mutual respect.

In interfaith dialogue within Nigerian communities, AI can highlight shared values such as hospitality, respect for elders, and communal solidarity.

2.5 Transformative Mediation and Constructive Communication

Transformative mediation theory (Bush & Folger, 2005) emphasizes empowerment and recognition. Language that affirms the dignity of opposing parties fosters constructive engagement.

Politeness theory (Brown & Levinson, 1987) and speech act theory (Austin, 1962) further demonstrate how linguistic choices influence interpersonal relations and conflict outcomes.

3. Language and Conflict in Nigeria

Scholars such as Best (2006) and Salawu (2010) note that ethno-religious conflicts in Nigeria are often exacerbated by inflammatory rhetoric and identity-based labeling. Media narratives sometimes reinforce stereotypes and polarization.

Critical discourse analysis reveals that:

- Pronouns create in-group/out-group distinctions
- Metaphors may dehumanize opponents
- Generalizations amplify hostility

Thus, applied peace linguistics seeks to replace divisive expressions with inclusive and humanizing alternatives.

4. Applied Peace Linguistics in Practice

4.1 Listening for Peace

Active listening promotes empathy and reduces misunderstanding. Lederach (1997) emphasizes that peacebuilding requires relational transformation. Listening practices such as paraphrasing and emotional validation help de-escalate tensions.

4.2 Speaking for Peace

Speech acts carry performative power (Austin, 1962). Public leaders must avoid hate speech and inflammatory rhetoric. Constructive speech involves:

- Inclusive language (“we” instead of “they”)
- Balanced framing
- Recognition of legitimate grievances

Such discursive strategies align with human rights principles (United Nations, 1948).

4.3 Reading for Peace

Media literacy education enables citizens to critically evaluate manipulative narratives. Fairclough (2015) argues that language and power are deeply interconnected; therefore, citizens must recognize ideological framing in texts.

4.4 Writing for Peace

Social media has intensified conflicts in Nigeria. Applied peace linguistics promotes responsible digital communication, discouraging rumor propagation and encouraging respectful disagreement.

5. Peace Linguistics and Human Rights

Peace linguistics supports human rights by promoting dignifying discourse. Dehumanizing language often precedes violence (Bar-Tal, 2013). Therefore, linguistic reform becomes a preventive mechanism against conflict escalation.

Educational institutions must integrate peace communication into curricula, particularly within General Studies (GNS) programs.

6. Pedagogical and Policy Implications

Incorporate peace linguistics into language education curricula.

Train teachers in nonviolent communication methods.

Establish media guidelines for peace-oriented reporting.

Promote inter-community dialogue platforms.

Such measures can enhance sustainable peacebuilding efforts across Nigerian communities.

7. Conclusion

Language is both a reflection and a constructor of social reality. In Nigeria's diverse and complex society, applied peace linguistics offers a transformative framework for conflict prevention and resolution. By integrating nonviolent communication, appreciative inquiry, transformative mediation, and constructive discourse into education and community practices, Nigeria can foster a culture of communicative peace. Sustainable peace begins not only in political reforms but also in everyday linguistic choices.

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IMPACT OF DISTANCE AND TRANSPORTATION ON HEALTHCARE ACCESS IN BAUCHI LOCAL GOVERNMENT: A CASE STUDY OF RURAL AREA

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Abstract

This study assessed the effects of distance and transportation on healthcare access in Bauchi Local Government Area of Bauchi State, guided by three objectives: to determine the effect of transportation availability and cost on healthcare access, to examine the effect of distance to health facilities on healthcare utilization, and to identify strategies to mitigate related barriers. A quantitative survey design was adopted using primary data collected through structured questionnaires; out of 399 questionnaires distributed, 386 were retrieved and analyzed. The findings revealed that transportation availability and cost play a significant role in healthcare access, as limited transport options, high travel costs, and concerns about reliability and safety prevent many residents from seeking timely medical attention. Distance to health facilities was also identified as a key determinant of utilization, with long travel distances discouraging routine and preventive care and leading to delays in seeking treatment; most respondents preferred nearby facilities over traveling longer distances even for higher-quality services. To address these challenges, respondents recommended practical interventions such as constructing additional health facilities closer to communities, establishing community-based transport services, subsidizing transportation costs, deploying mobile clinics to remote areas, and investing in telemedicine and health awareness initiatives. The study concludes that improving transportation systems and reducing geographic barriers through integrated planning are essential to enhancing healthcare access and utilization in the study area.

Keyword: distance, transportation, healthcare access.

1. Introduction

Access to healthcare is widely recognized as a fundamental component of sustainable development and social equity. Ensuring that individuals can obtain timely and appropriate health services without undue hardship is central to the achievement of Universal Health Coverage under Sustainable Development Goal 3. However, despite global commitments, disparities in healthcare access persist, particularly among populations living in rural and geographically isolated areas (World Health Organization, 2023). The World Health Organization (2023) reports that millions of people worldwide continue to face barriers to essential health services due to structural, geographic, and socio-economic inequalities.

One of the most critical structural barriers to healthcare access is physical accessibility. Physical accessibility refers to the ease with which individuals can reach healthcare facilities when services are needed. It is strongly influenced by distance to health facilities, travel time, road infrastructure, and the availability and affordability of transportation. When health facilities are located far from residential communities, or when transportation systems are weak or costly, individuals are less likely to seek preventive, routine, or emergency care (World Bank, 2022). Increased travel distance and longer travel time have been shown to reduce healthcare utilization, particularly among low-income and vulnerable populations.

Geographic inequalities in healthcare access are evident across both developed and developing countries. Even in high-income countries, rural residents often travel longer distances to access specialist and emergency services compared to urban populations, contributing to disparities in health outcomes (Organisation for Economic Co-operation and Development, 2020). In low- and middle-income countries, however, the challenge is often more severe. Weak road networks, irregular public transportation services, seasonal inaccessibility, and high out-of-pocket transport costs significantly constrain access to healthcare services (Uzochukwu & Mbachu, 2018; World Health Organization, 2023). These barriers disproportionately affect pregnant women, children, older persons, and individuals living with chronic illnesses who require regular and timely medical attention.

In addition, the growing burden of non-communicable diseases in African countries has increased the need for consistent and continuous access to healthcare services. Conditions such as hypertension, diabetes, and cardiovascular diseases require regular follow-up visits and medication adherence. When distance and transportation barriers exist, patients may miss appointments, delay treatment, or discontinue care altogether, increasing the risk of complications and hospitalizations (World Health Organization, 2023). Thus, the interaction between geographic distance and transportation constraints plays a critical role in shaping healthcare utilization patterns.

In Nigeria, there is a significant disparity in the availability and quality of healthcare services between urban and rural areas. Urban centers such as Lagos, Abuja, and Port Harcourt generally have a higher concentration of hospitals, clinics, and specialized health facilities, as well as more developed transportation networks. This infrastructure enables urban residents to reach healthcare services more quickly and reliably, ensuring timely medical attention for both preventive and curative needs. Consequently, residents of urban areas tend to have better access to essential healthcare services, higher utilization rates, and improved health outcomes compared to those living in rural communities (Federal Ministry of Health, 2021).

However, rural areas face persistent challenges that limit access to healthcare. Residents often live far from the nearest primary healthcare centers, and transportation options are limited, irregular,

or costly. Poor road conditions, long travel distances, and lack of reliable vehicles make it difficult for rural populations to seek timely care, especially for vulnerable groups such as pregnant women, children, the elderly, and individuals with chronic illnesses. These barriers not only reduce the frequency of healthcare utilization but also contribute to delays in treatment, resulting in higher risks of complications and preventable morbidity. The situation in rural communities highlights the critical role of physical accessibility and transportation infrastructure in determining equitable healthcare access (World Health Organization, 2023; World Bank, 2022).

Within Bauchi Local Government Area of Bauchi State, settlement patterns are widely dispersed, and access to reliable transportation is limited for many households. Poor road infrastructure, particularly during the rainy season, increases travel time to health facilities and may render some communities temporarily inaccessible. These structural challenges can result in delayed healthcare seeking, missed appointments, and reduced utilization of preventive services. For vulnerable populations including pregnant women, children under five, and individuals with chronic conditions the consequences of delayed access may be severe.

2.1 Conceptual Literature

Health Care Access

Health care access refers to the ability of individuals or populations to obtain appropriate health services when needed. It is a multidimensional construct, comprising availability of services, affordability, acceptability, and physical accessibility. Availability relates to the existence of necessary health facilities and services, whereas affordability considers whether individuals can pay for services without financial hardship. Acceptability reflects cultural, social, or personal perceptions about health services, and physical accessibility relates to the ease with which services can be reached, including distance and transportation (Penchansky & Thomas, 1981).

Concept of Transportation

Transportation refers to the movement of people or goods from one location to another and is a critical component of physical accessibility to health services. In health care, transportation encompasses various modes, including walking, bicycles, motorcycles, private vehicles, public transport, and ambulances. Reliable transportation allows individuals to reach health facilities efficiently, ensuring timely preventive, diagnostic, and curative care (Syed, Gerber & Sharp, 2013).

Concept of Distance

Distance refers to the physical separation between a person's residence and the location of health care services. It is a key dimension of accessibility because longer distances generally require more time, effort, and financial resources to overcome. Distance is commonly measured in terms of

kilometers, miles, or travel time and is a widely used indicator in studies of health service utilization (Noor et al., 2006).

2.2 Theoretical Review

Andersen's Behavioral Model of Health Services Use

Andersen's Behavioral Model of Health Services Use was first proposed by Ronald M. Andersen in 1968 to explain why people use health services and to identify factors that enable or impede utilization. The model was later revised in the 1990s and 2000s to incorporate environmental, individual, and health system factors as determinants of healthcare utilization (Andersen, 1968; Andersen, 1995; Andersen & Newman, 2005). The model identifies three core components: predisposing characteristics, enabling resources, and need factors. Predisposing characteristics include demographic and social attributes such as age, gender, education, and cultural beliefs. Enabling resources are the means or logistical conditions that facilitate or constrain access to healthcare, such as income, availability of health facilities, and transportation. Need factors reflect both perceived and evaluated health conditions that motivate individuals to seek care.

2.3 Empirical Review

Olapoju (2025) investigated access to healthcare and transport impediments among pregnant women in selected local government areas of Oyo State, Nigeria, using a cross-sectional survey design involving 357 respondents. The study found that transport barriers were cited by nearly one-third of participants as a major deterrent to accessing antenatal care. Many women reported that high transport costs, the lack of reliable transport options, and concerns over travel safety contributed to delayed or missed visits. The research highlighted the compounding effects of transportation cost and travel constraints on maternal healthcare utilization, particularly for low-income women who often had to choose between transportation expenses and other household needs. The study concluded that improving transport availability, ensuring safety, and subsidizing travel costs are critical to enhancing access to maternal health services in rural and peri-urban Nigeria.

Ijagbemi, Ijagbemi, and Ijalana (2025) investigated physical accessibility to public health facilities in Ekiti State, Nigeria, through household surveys and spatial description. Their study found that although a majority of respondents lived within 0–5 km of health facilities, the condition of access roads was generally fair to poor, increasing travel time and cost. Transport costs were found to rise with distance, and households often relied on motorcycles or private vehicles, which were expensive. This situation reduced physical access, especially for economically disadvantaged groups. The study recommended significant improvements in road networks, the provision of

affordable transport options for healthcare access, and strengthened emergency transport systems to ensure patients could reach facilities quickly.

Anger, Oruonye, Abdullahi, and Yusuf (2025) examined structural and socio-economic determinants of primary healthcare (PHC) accessibility in Taraba State, Nigeria using a combination of household surveys and Geographic Information System (GIS) mapping. Their analysis showed that poor road conditions, rugged terrain, and long travel distances significantly limited residents' ability to access PHC services. Additionally, socio-economic factors such as low income and unemployment interacted with transport barriers to further reduce health service utilization. The study concluded that mere availability of PHC facilities is insufficient if physical barriers persist, and it recommended integrated policy efforts that include rural road improvements, increase in PHC coverage, and socio-economic support for vulnerable households.

3. Methodology

Research Design

quantitative research design is used for the study and survey design will adopted. The target population was gotten from the five (5) selected wards (kangere, Zungur, Galambi, Birshi and Hardo), with Kangere having population of 83,094, Zungur 34,647, Galambi, 23,456, Birshi A 67,785 and Hardo having 89, 567. Hence, a total of 298,549 was used in the study. the sample size for the study was three hundred and ninety-nine (399).

Method of Data Presentation and Analysis

Data analysis is the process of developing answers to questions through the examination and interpretation of data. Shayo & Mhando (2016), describes statistics as "the appropriate treatment or analysis of quantitative measures or values obtained from observing or testing a sample." A descriptive statistic is a summary statistic that quantitatively describes or summarizes features from a collection of information, while descriptive statistics is the process of using and analyzing those statistics.

4. Result

Table 4.1.1: Demographic Characteristics of Respondents

Variable	Category	Frequency	Percentage (%)
Age	18–25	142	36.8
	26–35	118	30.6
	36–45	76	19.7

Variable	Category	Frequency	Percentage (%)
Gender	46–55	34	8.8
	56 and above	16	4.1
	Male	210	54.4
	Female	176	45.6
Educational Level	No formal education	36	9.3
	Primary	88	22.8
	Secondary	162	41.9
	Tertiary	100	25.9
Proximity to Health Facility	Less than 1 km	56	14.5
	1–3 km	108	28.0
	4–6 km	124	32.1
	7–10 km	64	16.6
	More than 10 km	34	8.8

The demographic data reveal several important patterns about the respondents in Bauchi Local Government Area. First, age distribution shows that the largest proportion of respondents (36.8%) falls within the 18–25-year range, followed by 26–35 years (30.6%). This indicates a predominantly youthful population, which is significant for understanding health service utilization because younger individuals may face unique challenges in accessing healthcare, such as financial constraints or reliance on public transport. The smaller proportion of respondents aged 46–55 (8.8%) and those 56 years and above (4.1%) suggests that older adults are less represented in the survey, potentially due to lower population size or reduced participation in survey activities.

Educational levels show that the majority of respondents have attained secondary education (41.9%), followed by tertiary education (25.9%), primary education (22.8%), and no formal education (9.3%). This distribution indicates a moderately educated population, capable of understanding health information and engaging with healthcare providers. The presence of respondents with limited or no formal education highlights the potential need for targeted health education and awareness programs to ensure equitable understanding of health services.

Regarding proximity to health facilities, 32.1% of respondents live 4–6 km away, while 28.0% are 1–3 km away. Only 14.5% live less than 1 km from a facility, and 8.8% reside more than 10 km away. These figures suggest that a significant proportion of the population may face challenges related to distance when accessing healthcare. Longer distances can lead to delays in seeking care, increased travel costs, and reduced frequency of visits, particularly for preventive or routine services

Table 4.1.2: Effect of Transportation Availability and Cost on Healthcare Access

Statement	SA	A	UD	D	SD
1. Transportation to the nearest health facility is readily available in my community	108 (28.0%)	126 (32.6%)	38 (9.8%)	82 (21.2%)	32 (8.3%)
2. High transportation cost prevents me from seeking healthcare when needed	134 (34.7%)	120 (31.1%)	42 (10.9%)	60 (15.5%)	30 (7.8%)
3. The transportation options in my community are reliable and safe	76 (19.7%)	120 (31.1%)	50 (12.9%)	100 (25.9%)	40 (10.4%)
4. The availability of transport affects how often I visit health facilities	108 (28.0%)	110 (28.5%)	42 (10.9%)	90 (23.3%)	36 (9.3%)
5. Improving transportation services would significantly enhance my access to healthcare	142 (36.8%)	128 (33.2%)	36 (9.3%)	58 (15.0%)	22 (5.7%)

Source; Field work, 2026

The Table 4.1.2 indicate that 60.6% of respondents agreed or strongly agreed that transportation availability affects access to healthcare, while 23.3% disagreed. High transportation costs are a major barrier, with 65.8% agreeing that cost prevents timely healthcare seeking. Respondents perceive transport reliability as moderate, suggesting the need for improved services. Overall, transportation availability and cost are significant determinants of healthcare access in the

community. The findings from Table 4.1.2 reveal critical insights into how transportation availability and cost affect healthcare access in Bauchi Local Government Area. On the statement regarding whether transportation to the nearest health facility is readily available, 108 respondents (28.0%) strongly agreed and 126 respondents (32.6%) agreed, giving a combined total of 234 respondents (60.6%) who perceive some level of transportation availability. However, 82 respondents (21.2%) disagreed and 32 (8.3%) strongly disagreed, suggesting that a significant portion of the population still faces challenges in accessing reliable transport. The 38 respondents (9.8%) who were undecided may reflect variability in transport availability across different wards or communities within the local government.

High transportation cost emerged as a major barrier to healthcare access. A combined 254 respondents (65.8%) strongly agreed or agreed that high costs prevent them from seeking healthcare when needed. This indicates that financial constraints are a serious obstacle, particularly for low-income households in Bauchi Local Government Area. Only 60 respondents (15.5%) disagreed and 30 respondents (7.8%) strongly disagreed, while 42 respondents (10.9%) were undecided. The findings suggest that even when transport options are available, affordability remains a limiting factor affecting timely healthcare utilization.

Regarding the reliability and safety of transport options, 196 respondents (50.8%) agreed or strongly agreed that transportation is reliable and safe, while a combined 140 respondents (36.3%) disagreed or strongly disagreed. The 50 respondents (12.9%) who were undecided suggest that transportation quality is inconsistent across different areas within Bauchi Local Government. This implies that even where transport is available, concerns about safety or unpredictability may reduce the frequency of visits to health facilities.

The availability of transportation also significantly influences the frequency of health facility visits. A total of 218 respondents (56.5%) agreed or strongly agreed that transport availability affects how often they seek care, while 126 respondents (32.6%) disagreed or strongly disagreed. This underscores the link between transport access and healthcare utilization, particularly for routine or preventive services in Bauchi Local Government Area.

Finally, respondents overwhelmingly support improvements in transportation, with 270 respondents (70.0%) agreeing or strongly agreeing that enhancing transport services would significantly improve access to healthcare. Only 58 respondents (15.0%) disagreed and 22 respondents (5.7%) strongly disagreed. This demonstrates a clear community preference for interventions such as improved roads, community transport services, or subsidies to reduce transport barriers.

Table 4.1.3: Effect of Distance to Health Facilities on Healthcare Access

Statement	SA	A	UD	D	SD
The distance to the nearest health facility makes it difficult to seek care	136 (35.2%)	120 (31.1%)	28 (7.2%)	74 (19.2%)	28 (7.2%)
I delay seeking healthcare due to the long distance to health facilities	120 (31.1%)	110 (28.5%)	42 (10.9%)	80 (20.7%)	34 (8.8%)
I prefer to travel longer distances to access better quality healthcare	68 (17.6%)	92 (23.8%)	50 (12.9%)	120 (31.1%)	56 (14.5%)
Distance affects my decision to attend routine or preventive health services	110 (28.5%)	114 (29.5%)	42 (10.9%)	84 (21.8%)	36 (9.3%)
Reducing the distance to healthcare facilities would improve my utilization of services	142 (36.8%)	124 (32.1%)	38 (9.8%)	62 (16.1%)	20 (5.2%)

Source field work, 2026

The findings from Table 4.1.3 highlight the significant influence of distance on healthcare access in Bauchi Local Government Area. Regarding the statement that distance to the nearest health facility makes it difficult to seek care, 136 respondents (35.2%) strongly agreed and 120 respondents (31.1%) agreed, giving a combined total of 256 respondents (66.3%). This indicates that a majority of residents perceive long distances as a major barrier to accessing healthcare services. Conversely, 74 respondents (19.2%) disagreed and 28 respondents (7.2%) strongly disagreed, while 28 respondents (7.2%) were undecided, suggesting that a smaller proportion of the population either do not perceive distance as a barrier or have adapted to longer travel times.

When asked whether they delay seeking healthcare due to the long distance to health facilities, 120 respondents (31.1%) strongly agreed and 110 respondents (28.5%) agreed, giving a total of 230 respondents (59.6%) who acknowledged delaying care. Meanwhile, 80 respondents (20.7%) disagreed and 34 respondents (8.8%) strongly disagreed, with 42 respondents (10.9%) undecided. These results demonstrate that long distances not only pose a challenge but actively delay healthcare utilization, which may negatively affect timely diagnosis and treatment, particularly for acute and preventive services.

The statement regarding the preference to travel longer distances for better quality healthcare shows a different pattern. Only 68 respondents (17.6%) strongly agreed and 92 respondents (23.8%) agreed, totaling 160 respondents (41.4%) who are willing to travel farther for perceived higher quality care. In contrast, 120 respondents (31.1%) disagreed and 56 respondents (14.5%) strongly disagreed, while 50 respondents (12.9%) were undecided. This indicates that, for most respondents, proximity to healthcare facilities is prioritized over perceived service quality, highlighting the critical role that physical accessibility plays in healthcare utilization within Bauchi Local Government Area.

Distance also affects decisions to attend routine or preventive health services. A combined 224 respondents (58.0%) agreed or strongly agreed that distance influences their decision-making, while 120 respondents (31.1%) disagreed or strongly disagreed, and 42 respondents (10.9%) were undecided. This demonstrates that distance is a deterrent not only for emergency or urgent care but also for preventive measures such as immunizations, antenatal care, and routine check-ups.

Finally, a strong majority of respondents support interventions to reduce distance-related barriers. A combined 266 respondents (68.9%) agreed or strongly agreed that reducing the distance to healthcare facilities would improve their utilization of services. Only 62 respondents (16.1%) disagreed and 20 respondents (5.2%) strongly disagreed, while 38 respondents (9.8%) were undecided. This indicates widespread community recognition that shorter distances to health facilities would enhance healthcare access, emphasizing the need for strategies such as establishing more local clinics, mobile health units, or community outreach programs.

5. Conclusion and Recommendations

The study concludes that limited transportation availability and high transport costs are major barriers to healthcare access in Bauchi Local Government Area. Residents are less likely to seek medical care when transport options are unreliable, unsafe, or financially burdensome, which underscores the importance of both physical and economic accessibility in determining health-seeking behavior. Long distances to health facilities also significantly reduce healthcare utilization, as individuals often delay or forgo preventive and routine services due to the travel time, fatigue, and logistical challenges associated with reaching distant facilities.

Furthermore, the study finds that practical, locally-oriented interventions are considered the most effective approaches to improving access. Strategies such as constructing additional health facilities closer to communities, providing community transport services, and subsidizing transportation costs received strong support from residents. While mobile clinics and telemedicine were also identified as potential solutions, their effectiveness may be limited without improvements in infrastructure, community awareness, and digital literacy. Overall, the findings

highlight the critical interplay between structural and economic factors in shaping healthcare access, confirming that physical proximity, affordability, and reliable transportation are essential enabling factors for effective health service utilization.

6. Recommendations

Based on the conclusions of the study, the following recommendations are made:

1. **Infrastructure Development:** The government should construct additional health facilities in areas with long distances to the nearest clinic to reduce geographic barriers.
2. **Community Transport Programs:** Local authorities and community leaders should establish organized transport services to facilitate regular travel to health facilities, particularly for vulnerable populations such as pregnant women, the elderly, and chronically ill patients.
3. **Subsidized Transportation Costs:** Policies to subsidize or reduce transportation costs for healthcare visits should be implemented to increase service utilization among low-income households.
4. **Mobile Health Clinics:** Mobile clinics should be deployed periodically to rural communities to provide preventive and primary healthcare services, especially in remote locations where constructing new facilities may not be immediately feasible.

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Communicative Language Teaching as a Means for Sustainable Development in Language Teaching in Nigerian Tertiary Institutions: An Empirical Study

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Abstract

This study investigates Communicative Language Teaching (CLT) as a sustainable pedagogical approach in Nigerian tertiary institutions. Despite English being the medium of instruction, many graduates demonstrate limited communicative competence due to persistent reliance on traditional, teacher-centred methods. Anchored on the communicative competence theory of Dell Hymes and the functional linguistic framework of Michael Halliday, the study adopted a mixed-methods design involving 240 undergraduate students and 24 language lecturers across three tertiary institutions in North-East Nigeria. Data were collected using questionnaires, classroom observation checklists, and achievement tests. Quantitative data were analysed using descriptive statistics and independent t-tests, while qualitative data were thematically analysed. Findings revealed that students exposed to CLT demonstrated significantly higher communicative competence, critical thinking skills, and learner autonomy compared to those taught using traditional methods. The study concludes that CLT is a viable pathway for sustainable language education and recommends curriculum reform, professional development, and assessment restructuring to support its institutionalisation.

Keywords: Communicative Language Teaching, Sustainable Development, Communicative Competence, Nigerian Tertiary Institutions, Learner Autonomy

1. Introduction

Language education plays a pivotal role in national development, social cohesion, and employability. In Nigeria, English functions as the official language and medium of instruction in tertiary institutions. However, persistent concerns exist regarding graduates' communicative proficiency despite years of formal instruction. Sustainable development in education requires instructional approaches that develop functional competence, adaptability, and lifelong learning skills. The United Nations Sustainable Development Goal 4 (Quality Education) emphasizes inclusive and quality education that equips learners with relevant skills for employment and global participation. Communicative Language Teaching (CLT), which emerged in the 1970s,

emphasizes meaningful interaction and functional language use. This study empirically examines its effectiveness as a sustainable pedagogical strategy in Nigerian tertiary institutions.

2. Literature Review

2.1 Theoretical Foundations

The concept of communicative competence was introduced by Dell Hymes (1972), who argued that language proficiency includes sociolinguistic and contextual appropriateness beyond grammatical accuracy. Later, Michael Halliday (1978) emphasized the functional and social nature of language. CLT operationalizes these principles by focusing on real-life communication tasks such as role-plays, debates, simulations, and collaborative problem-solving.

2.2 CLT and Sustainable Development

Sustainable education promotes critical thinking, collaboration, and lifelong learning. According to the United Nations Educational, Scientific and Cultural Organization (2020), education for sustainable development requires participatory and learner-centred pedagogies.

Recent studies (e.g., Richards, 2022; Savignon, 2021) demonstrate that CLT enhances communicative competence, learner autonomy, and socio-cultural awareness—skills essential for sustainable national development.

2.3 Challenges in Nigerian Tertiary Institutions

Empirical evidence indicates that language classrooms in Nigeria remain largely teacher-dominated (Oyetunji, 2021). Large class sizes, exam-oriented systems, and limited training constrain CLT implementation.

3. Methodology

3.1 Research Design

A mixed-methods quasi-experimental design was adopted.

3.2 Population and Sample

The study involved:

- 240 undergraduate students (120 experimental group; 120 control group)
- 24 language lecturers

Participants were selected from three public tertiary institutions in North-East Nigeria using stratified random sampling.

3.3 Instruments

1. Communicative Competence Achievement Test (CCAT)
2. Student Perception Questionnaire (SPQ)
3. Classroom Observation Checklist (COC)

The instruments were validated by experts in language education and pilot-tested (Cronbach's Alpha = 0.82).

3.4 Procedure

The experimental group was taught using CLT strategies (role-plays, group discussions, task-based learning) for 12 weeks, while the control group received traditional lecture-based instruction.

3.5 Data Analysis

- Mean and standard deviation
- Independent samples t-test
- Thematic qualitative analysis

4. Results

4.1 Quantitative Findings

Group	Mean Score	Std. Dev.
CLT Group	72.4	8.5
Traditional Group	61.3	9.1

An independent t-test revealed a statistically significant difference ($p < 0.05$) in favour of the CLT group.

4.2 Qualitative Findings

Three major themes emerged:

1. Increased student confidence in speaking
2. Greater classroom participation
3. Improved critical thinking skills

Lecturers reported that although CLT required more preparation, it produced better learning outcomes.

5. Discussion

The findings support the communicative competence framework of Dell Hymes and confirm that language learning extends beyond structural mastery. Students exposed to CLT demonstrated improved fluency, strategic competence, and sociolinguistic awareness. The results also align with the functional theory of language proposed by Michael Halliday, reinforcing that language learning is most effective when situated in meaningful social contexts. promoting learner autonomy and collaboration, CLT contributes directly to sustainable development goals articulated by the United Nations.

6. Implications for Sustainable Development

1. Enhances employability skills
2. Promotes inclusive and participatory learning
3. Encourages critical thinking
4. Supports lifelong learning
5. Aligns with SDG 4 objectives

7. Recommendations

1. Integration of CLT into tertiary curricula
2. Continuous professional development for lecturers
3. Reform of assessment systems to include oral and performance-based evaluation
4. Institutional policy support
5. Investment in interactive classroom infrastructure

8. Conclusion

The study provides empirical evidence that Communicative Language Teaching significantly improves communicative competence and fosters sustainable language development in Nigerian tertiary institutions. Its institutionalisation can transform language education and align it with national and global development priorities.

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LANGUAGE AND THE CURRENT INSECURITY IN NIGERIA: A PATH TO A PEACEFUL SOCIETY

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Abstract

Nigeria's deepening insecurity which is manifesting as insurgency, banditry, farmer–herder clashes, kidnapping, communal violence, and cyber-agitation continues to challenge national stability. While political, economic, and structural causes are widely acknowledged, the linguistic dimensions of insecurity remain underexplored. Language functions as both a catalyst for conflict and a strategic tool for peacebuilding, depending on how it is deployed in political discourse, media framing, ethnic interactions, and security communication. This paper examines the role of language in Nigeria's current insecurity, exploring how hate speech, misinformation, labeling, and inflammatory rhetoric exacerbate tensions, while inclusive communication, multilingual peace messaging, and dialogue-driven engagement can foster unity. Using a sociolinguistic lens and drawing from contemporary Nigerian examples, the study argues that an intentional language-based approach is essential for national peace efforts. The paper concludes with practical recommendations for integrating linguistic strategies into security communication and peacebuilding frameworks.

1. Introduction

Nigeria is widely acknowledged as one of the most linguistically diverse countries in the world, with over 500 languages spoken across its geopolitical zones. This diversity, which should ordinarily be a cultural asset, often becomes a fault line for misunderstanding, exclusion, and conflict. At the same time, the country is grappling with escalating insecurity—ranging from Boko Haram insurgency and banditry to kidnapping, communal clashes, and violent separatist movements. While many analyses focus on economic hardship, political grievances, resource competition, or weak institutions, language remains a subtle yet powerful factor influencing how insecurity emerges, spreads, and persists. Language not only reflects people's perceptions of security issues but also shapes attitudes, mobilizes groups, disseminates misinformation, and facilitates peace negotiations. This paper explores the intersection between language and insecurity in Nigeria and argues that a strategic deployment of language can significantly contribute to building a peaceful society.

2. Conceptual Clarifications

2.1 Language

Language is a system of communication used by members of a society to express ideas, emotions, and worldviews. Beyond communication, language is a carrier of identity, power relations, and social positioning.

2.2 Insecurity

Insecurity refers to the absence of safety and stability, involving threats to life, property, and social order. In Nigeria, insecurity manifests in multiple forms, including terrorism, armed robbery, banditry, violent extremism, ethno-religious clashes, and political violence.

2.3 Peacebuilding

Peacebuilding includes long-term strategies aimed at resolving conflict and sustaining stable, harmonious societies through dialogue, reconciliation, cooperation, and justice.

3. The Linguistic Dimensions of Insecurity in Nigeria

3.1 Inflammatory Political Rhetoric

Political actors often deploy language that promotes fear, division, or ethnic stereotyping. During elections, speeches and slogans sometimes carry implicit threats or open incitement that deepen communal suspicion.

3.2 Hate Speech and Ethnic Labeling

Terms such as “terrorists,” “invaders,” “foreigners,” or derogatory ethnic nicknames often escalate hostility. These labels shape public attitudes and can legitimize violence against particular groups.

3.3 Misinformation and Fake News

Social media platforms have amplified the speed at which false narratives spread. Many crises—such as the herder–farmer conflicts, communal clashes, and kidnapping incidents—have been worsened by misleading posts, fabricated videos, and manipulated audio messages shared online.

3.4 Poor Security–Civilian Communication

Security agencies often disseminate information in technical, ambiguous, or delayed formats. This erodes trust, increases fear, and encourages the spread of rumors. Clear, timely, and culturally sensitive communication could improve cooperation between communities and security institutions.

3.5 Media Framing of Insecurity

The language used in newspapers, radio broadcasts, and television reports can either fuel panic or promote calm. Sensational headlines, exaggerated casualty figures, and ethnically biased reporting sometimes worsen tensions.

4. Language as a Tool for Peacebuilding

4.1 Dialogue and Negotiation

Many conflicts in Nigeria have been mitigated through dialogue that relies heavily on culturally sensitive language. Community leaders, traditional rulers, and mediators use indigenous languages to communicate empathy and rebuild trust during peace negotiations.

4.2 Multilingual Peace Messaging

In a multilingual country like Nigeria, using only English or one major language limits the reach of peace campaigns. Peacebuilding interventions become more effective when messages are communicated in languages understood by rural populations.

4.3 Conflict-Sensitive Reporting

Journalists trained in conflict-sensitive communication use neutral terms, verify facts, avoid inflammatory descriptors, and emphasize solutions rather than division.

4.4 Strategic Communication by Government and Security Agencies

When communicated with clarity, transparency, and respect, official messages can reduce panic and prevent misinformation. Linguistically inclusive communication makes citizens feel recognized and reduces distrust.

4.5 Linguistic Inclusion in Governance

A government that communicates in a way citizen understand fosters a sense of belonging. Exclusionary language policies may deepen mistrust and feelings of marginalization, which in turn feed insecurity.

5. Case Examples from Nigeria

5.1 Insurgency in the Northeast

Boko Haram's recruitment strategies rely heavily on persuasive messaging in local languages (Hausa, Kanuri, Arabic). Counterterrorism strategies that ignore these linguistic factors have limited impact.

5.2 Farmer–Herder Conflicts

Misinterpretation of messages, rumors, and demeaning labels frequently escalate tensions between communities. Peace dialogues conducted in local languages by elders and mediators have shown more success.

5.3 Social Media Agitations

Movements in the South-East and South-West often spread through coded slogans and emotionally charged hashtags, showing the role of language in mobilizing or radicalizing youth.

6. Recommendations

1. Develop a national framework for conflict-sensitive communication in media, governance, and security sectors.
2. Train journalists and political actors in responsible linguistic practices.

3. Promote multilingual peace campaigns that reach grassroots populations.
4. Strengthen communication between security agencies and communities using clear, inclusive language.
5. Integrate peace education and linguistic awareness into school curricula.
6. Establish early-warning language monitoring systems to detect and counter hate speech or inciting rhetoric.
7. Encourage community dialogues conducted in indigenous languages to rebuild fractured relationships.

7. Conclusion

Language is not merely a tool for communication; it is a powerful determinant of peace or conflict. In Nigeria's fragile security climate, the words used by leaders, media personnel, citizens, and institutions play a crucial role in either escalating violence or promoting harmony. By adopting language-sensitive approaches in governance, communication, and media practice, Nigeria can harness its linguistic diversity as a strength rather than a source of division. The path to a peaceful society therefore requires recognizing language as a central component of national security strategy.

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ECONOMIC CONTRIBUTIONS OF TRICYCLE TRANSPORTATION ON REVENUE GENERATION IN KADUNA METROPOLIS, NIGERIA

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Abstract

The study investigates the contribution of commercial tricycle transportation to revenue generation in Kaduna Metropolis between 2025 and 2026. In developing countries like Nigeria, transportation plays a crucial role in promoting economic growth by facilitating the movement of people and goods. As a widely used mode of transport, tricycles (commonly known as Keke Napep) have become an important part of the urban transport system and a significant source of income for government authorities. The research specifically examines how tricycle operations contribute to internally generated revenue (IGR) in Kaduna State through licensing, registration, taxation, ticketing systems, and fines. These revenue sources are essential for funding government projects and providing public services at both the state and local government levels. In addition, the study highlights the importance of the sector in informing policy formulation and regulation, including decisions related to licensing, fare control, safety measures, and taxation. Using a structured questionnaire and a cluster sampling technique, data were collected from 370 respondents. The statistical analysis shows a strong relationship between tricycle operations and revenue generation. The model used in the study is highly reliable, with an R-squared value of 0.756, indicating that about 75.6% of the variation in revenue is explained by the factors considered. The findings reveal that an increase in tricycle registration leads to a ₦1.5 rise in revenue, while an increase in taxation generates an additional ₦1.1. Similarly, fines imposed on operators contribute positively, with a ₦1 increase in fines resulting in a ₦0.9 rise in revenue. These results are statistically significant, confirming the important role of tricycle transportation in boosting government revenue. The study concludes that commercial tricycle transportation is a major contributor to revenue generation in Kaduna State. However, it recommends that government authorities should implement fair and transparent tax policies to avoid overburdening operators. It also emphasizes the need for improved data collection and monitoring systems to enhance decision-making and ensure sustainable revenue growth. Overall, the study demonstrates that with proper regulation and management, the tricycle transport sector can continue to support economic development and government financing.

Keywords: Transportation, Revenue Generation, Economic Contributions, Tricycle

1. Introduction

In emerging nations like Nigeria, where efficient networks are necessary for mobility and economic activity, transportation is especially important to the economic growth of urban regions (Ibrahim, 2017). Because they are inexpensive, effective, and capable of navigating crowded metropolitan areas, tricycles, sometimes referred to locally as "Keke Napep," have become an essential form of transportation in Nigerian cities like Kaduna Metropolis. Tricycles' explosive growth has changed urban mobility and opened up substantial economic potential, especially in terms of job creation and income production (Adebayo & Samuel, 2020).

Tricycles serve as a low-cost transport solution for both passengers and goods, making them indispensable in cities like Kaduna, where other forms of public transport may be inadequate or unaffordable for a large portion of the population (Ogunyemi, 2018). Despite their importance, the economic contributions of tricycles, especially in terms of local government revenue generation, remain underexplored. Understanding how this informal transportation sector can contribute to the local economy is essential for governments seeking to harness its potential to generate revenue, create jobs, and stimulate growth.

This essay examines the economic contributions of tricycles in Kaduna Metropolis, focusing on local tax revenues, employment creation, and support for local businesses. It also investigates the challenges faced by local authorities in regulating and capturing revenue from this sector. Despite the growth in tricycle use, the regulatory framework for managing those remains underdeveloped, leading to inefficiencies and missed opportunities for revenue generation (Sulaimon & Usman, 2019). The sector faces challenges such as a lack of standardization, insufficient tax enforcement, and inadequate infrastructure to support the growing number of tricycles, making it difficult for local governments to fully benefit from their economic potential.

Previous studies have examined commercial tricycle transportation in Nigeria as an alternative means of intra-city movement and have highlighted its roles in mobility, employment, and poverty reduction. Scholars such as Ogunyemi (2018), Adebayo and Samuel (2020), Lawal (2014), Nuhu, Shehu, and Yusuf (2017), Hafeez, Benjamin, and Peter (2023), and Ibrahim (2017) have all contributed to understanding the socio-economic importance of tricycles in urban areas.

However, despite these contributions, there is limited research focusing specifically on the role of commercial tricycle transportation in revenue generation, particularly in Kaduna State. Most existing studies have overlooked how the sector contributes to internally generated revenue through licensing, taxation, and other regulatory mechanisms. Therefore, this study aims to fill this gap by examining the contribution of commercial tricycle transportation to revenue generation in

Kaduna State. It seeks to provide insights that will enhance understanding of the sector's financial importance and support effective policy formulation.

1.1 Objective

Examine the contribution of commercial tricycle transportation on revenue generation to Kaduna State government

1.2 Research question

What is the contribution of commercial tricycle transportation to local government revenue generation in Kaduna State?

1.3 Hypothesis

H₀ : Commercial tricycle transportation does not significantly contribute to revenue generation for the Kaduna State government.

H₁: Commercial tricycle transportation significantly contributes to revenue generation for the Kaduna State government.

2.0 Literature Review

2.1 Conceptual Review

Transportation: Transportation refers to the movement of people or goods from one location to another, typically using vehicles, infrastructure, and systems designed for efficient flow. In many economies, transportation networks are critical for economic activity. *Transportation serves as the backbone of economic development, connecting regions, enabling trade, and supporting mobility.*

Revenue: Revenue in the context of transportation often refers to the income generated by operators, governments, or businesses through the provision of transport services, such as fare collection, licensing, or public-private partnerships. *Revenue generation in transport comes from fares, registration, and public-private partnerships that enhance service coverage*

Economic: Economics in transportation concerns the financial impact of transport systems, including costs, benefits, and externalities. It also includes how these systems affect local and national economies, such as boosting commerce or creating jobs. *Economic impacts of transportation extend beyond the movement of goods, affecting job creation, local commerce, and broader productivity.*

Tricycle: A tricycle is a three-wheeled vehicle commonly used in transportation, especially in urban or rural areas where larger vehicles are impractical. Tricycles are often used for both

passenger and goods transport, providing a low-cost, flexible solution. *Tricycles provide an accessible, low-cost form of transportation, particularly in areas with limited infrastructure or traffic congestion.*

2.2 Empirical Review

The informal sector in classical literature refers to economic activities that are not taxed or regulated by the government. In Nigeria, due to declining oil revenues, the informal sector, particularly the motorcycle transport business known as "Okada," has been subjected to government taxation and monitoring to boost state revenue. However, there has been little research on how this has affected Ebonyi State's internally generated revenue (IGR) between 2015 and 2021. The study, based on Public Choice Theory, analyzed primary and secondary data to determine if taxing the Okada business improved Ebonyi's IGR. The findings revealed that despite intensive taxation of the informal sector, particularly Okada operations, the state's IGR actually decreased rather than increased (Ikechukwu et al. 2024). The study recommends that the government improve efficiency in tax collection and remittances to boost IGR effectively.

Uforo (2023) investigated tricycle Operation and Socio-Economic Development within Uyo Metropolis. The study used a survey research technique, gathering data from 400 Keke riders out of 10,500 registered in Uyo, through primary and secondary sources. It applied the economic development framework to examine how transportation, specifically tricycle operations, contributes to socio-economic growth. The findings highlighted several benefits: tricycle operations generate revenue for the State Ministry of Transport through taxes and registration fees, create employment opportunities both directly (for riders) and indirectly (for spare parts dealers and mechanics), and facilitate the movement of people and goods, even to rural areas.

Austin and Ugochukwu (2023) examines the role of tricycle as a means of Poverty Alleviation Programme in Alimosho Local Government. Tricycle is one of the mode of land transport that has provided job opportunities for youths across Nigeria. Both the Federal, state and private individuals have invested in this means of transportation so as to assist the youth and help reduce crime and rate of social malaise rocking Alimosho local government and its environs. The paper employs primary and secondary sources as interviews were granted to tricycle riders to ascertain their opinions on the programme. The findings show that unlike other means of poverty alleviation programme that had been introduced since independence, tricycle transport is the most dependable and lasting programme that endured overtime.

Isalako et al. (2022) examines the effects of using tricycles for public transportation in Ijede, Lagos State, focusing on socioeconomic traits of operators, operational aspects of tricycles, service demand, and safety concerns. Findings revealed that many tricycle drivers operate to support their

families due to unemployment. Challenges identified included law enforcement issues, poor road conditions, extortion, and reckless driving to avoid arrests, which often led to accidents. These problems contributed to high operational costs, especially maintenance, task force dues, and payments to local authorities and unions. Statistical analysis (Pearson correlation of 0.721, significant value of 0.000) indicated a significant relationship between the number of days drivers work and their involvement in accidents. Despite these challenges, tricycles have positively impacted society by reducing unemployment, crime, and travel time, while contributing to the Nigerian economy.

Amade et al. (2024) examine *An Appraisal of The Socio-Economic Impact of Commercial Tricycles in Yola Metropolis, Adamawa State, Nigeria*. This study examines the socio-economic impact of commercial tricycles in Yola metropolis, Adamawa State. The study was conducted using cross-sectional data, which were collected using well-structured questionnaires. A sample of 366 was drawn from a population of over 9000 tricycle riders in Yola metropolis using multi-stage sampling techniques. The data collected were analyzed using logistic regression analysis techniques. The results of the analysis suggests that that age, marital status, level of education, place of residence, ownership of tricycle and being a tricycle rider are significantly more likely to have significant impact on the overall income of the tricycle riders in Yola metropolis, Adamawa State. The study recommends among others that the government of Adamawa State consider the introduction of an empowerment program where people will be given tricycles, either on hire purchase or people should provide at least 40 percent of the total cost.

Jibrilla and Fashola (2017) explored the *Impact of Commercial Tricycle Operation on Income of Youth in Mubi North Local Government Adamawa, State Nigeria*. Data for the study were obtained from primary source using questionnaire. Hundred questionnaires were distributed and all were completed and returned. The data were analyzed using simple percentage and multiple regressions. The findings of this research revealed that, the tricycles mean of transport in Adamawa state has increased the income of youth through generation of employment opportunities and is has also reduced the rate of accident compare to Okada. It is recommended that, there should be more skill-acquisition and resettlement scheme in Mubi North local government which will enable youth acquire skills and training in various field. Also, soft loans should be granted to youth to procure commercial tricycles.

Lawal (2014) carried out a study on an evaluation of poverty reduction programme in Maiduguri metropolis Area, from 2003 to 2012 in Borno State. Data for the study were generated through questionnaire and in-depth interview. One hundred beneficiaries were selected through proportionate sampling and administered with questionnaire. The study revealed that these

beneficiaries received different materials as assistance in order to improve their living standard. It was discovered that most of the beneficiaries engaged in commercial tricycle for survival. .

Christopher, Usman, and Eket (2013) conducted a study on introduction of commercial tricycle and its implication on transportation in Calabar metropolis. The study employed simple percentages and chi-square through structure questionnaire. The findings revealed the riders of motorcycles among others have moved to tricycles business in the state.

2.3 Theoretical Framework

Neoclassical Economic Theory: Marginal Productivity and Capital Accumulation

Building on classical ideas, neoclassical economic theory places a strong emphasis on the concept of marginal productivity, where investments in infrastructure (including transportation) are viewed as capital that improves the productivity of labor and other factors of production. According to this theory, the construction of efficient transportation networks increases the marginal productivity of labor by reducing commute times and improving access to job opportunities, thus boosting overall productivity in the economy.

Furthermore, neoclassical economics also underscores the role of capital accumulation in driving growth. Investment in transportation infrastructure is seen as a form of capital investment, which, when managed properly, can generate returns over time in the form of enhanced productivity and economic growth. The capital accumulation theory suggests that well-planned transportation systems foster an environment conducive to higher levels of private investment and business activity, ultimately contributing to long-term economic development.

3.0 Methodology

The population of the study covers the tricycle operators in Kaduna North, Igabi, Chikun and Kaduna South Local Government Area with a population of 15,000 registered commercial tricycle operators (ACOTMORAN, 2025). However, 370 operators were used as the sample size. The sample size for the study was arrived at using Yamane (1967) sampling model as adjusted by Smith (1983) and cited in Usman and Umar (2013).

$$\text{Thus: } n = \frac{N}{3 + N(e)^2} = 370.33 \approx 370 \quad \text{--} \quad \text{--} \quad \text{--} \quad \text{--} \quad \text{--} \quad (1)$$

Where: n = The desired sample size, N= The population size, 3= Adjusted constant value, e= Level of precision (significant level). This is usually set at 0.05 and occasionally at 0.01.

Using the above formular, the research used the sample size of 370 tricycle operators, given that the population of the tricycle operators are 15,000. The cluster sampling technique was used in selecting the sample from the major leading points of tricycle riders in Kaduna Metropolis, which were selected from 16 loading points. In each of the leading points, questionnaires were randomly administered to the tricycle operators who served as the respondent. Primary data were collected with the help of branch union's secretaries through a well-structured questionnaires and observations. The questionnaire designed to generate relevant information required to enable to achieve the objective.

In order to establish the factors that influence the revenue in the status of the parameters of the model were estimated used the multivariate logistic regression model used for this study; the endogenous variable is dummy variable with a value 0 indicating the presence of revenue and 1 indicating the absence of revenue. Following **Neoclassical Economic Theory** who was developed **Adam Smith (1723-1790)** and adopting the model as specified by Gujarati and Porter (2009), the model for this study is specified thus:

Model one is to achieve objective

$$Y = \frac{P_i}{1-P_i} = Z_i = \beta_0 + \beta_1 REG_i + \beta_2 LGAO_i + \beta_3 WKO_i + \mu_i$$

Where :

Z_i = Tax as the income to the government

$\beta_1 - \beta_3$ = parameters

β_0 = intercept

term

μ_i = error

REG = Commercial tricycle riders pay for registration is dummy if the pay to the government =1, otherwise=0.

LGAO = tricycle operators do pay dues when the cover more than one local government area is dummy if the pay such dues to the government=1, otherwise=0.

WKO = commercial tricycle riders do pay for offence committed weekly is dummy if the pay to the government=1, otherwise=0.

A Prior Expectation

For the two models, it is expected that, the signs and magnitude of parameters coefficient $\beta_1, \beta_2, \beta_3 > 0$ they are all positive.

Dependent Variable and in Dependable Variables

Z_i for the second model shows that it represents the dependable variable, while the independent variables constitute the activities that make the tricycle operators to pay dues to the government at

different levels. The choice of the variables in model two was adopted from the work of Amade, Ezekiel ,. & Idi (2024).

4.0 Data Presentation

Table 1 **Statistics on Returned Questionnaires**

LGAs	Area Cover	No. of Questionnaires Distributed	No. of Questionnaire Retrieved	No. of Usable Questionnaires
Kaduna North/6867	• UTC Junction • Levant's round about • Kano road junction • U/Sarki junction	170	121	91
Kaduna South/4977	• Kaduna Polytechnic main campus gate • Kakuri junction bus stop • Kurmi Mashi bus-stop • U/Rimi bus- stop	122	86	61
Chikun/2009	• Refinery junction • Sabo main bus stop • Romi junction • Mararaban Rido junction	48	30	28
Igabi/1147	• Rigasa Junction • Riga chikun junction • Mando junction by farin gida • Airport junction by Turkeys academy	30	26	23
Total	16 major Tricycle junctions	370	263	203

Source: Field Survey, 2026

Table .1 showed the number of questionnaires used for the analysis in this study. From the table above, it is evidence that information were retrieved from the targeted sixteen major tricycle junctions in the Kaduna metropolis with the help of tricycle union secretaries.

From the 370 questionnaires distributed, 263 questionnaires covering 71.1 percent of the total questionnaires were retrieved. Reason for the un-retrieved questionnaires was due to the instability of the tricycle drivers as they are always mobile. The study retrieved 263 questionnaires, 203 representing 77.2 percent were found to be usable and were used for the general analysis of results in this study. This shows that adequate information needed for the analysis were gotten as the sample size is large enough.

The results of the descriptive analyzed presented in this section show the socio-demographic characteristics of the respondents and this was followed by the econometric analysis. Information relating to the socio-demographic characteristics of the respondents which include; gender, religion, age, nature of institution graduated from, faculty of respondents, academic grade and their entrepreneurial intention are provided in table 4.1.

Table 2 Demographic Characteristics of the Respondents

1.	Variables	N=203 (%)	3.	Variables	N=203 (%)
	<u>Gender:</u>			<u>Age Bracket: (years):</u>	
	Male	99.5		20-30	29.6
	Female	0.5		31-40	47.3
				41-50	15.3
				51 above	7.9
2.	<u>Marital Status:</u>		4.	<u>Level of Education:</u>	
	Married	70		No formal Education	7.4
	Single	19.7		Primary Education	32.0
	Divorced	10.3		Secondary Education	50.7
				Post Secondary Education	9.9

Source: Field Survey, 2026

On the demographic characteristics of the respondents, the distribution of the tricycle operator according to gender characteristics shows that 202 of them signifying 99.5 per cent of them were male while 0.5 per cent was female. This shows that the men are the major operator of tricycle business in Kaduna State. In terms of marital status, the distribution was highly skewed towards the married as 147 of them which comprises of 70 per cent of them are married, 19.7 percent are single while 10.8 per cent are divorced. This show that majority of the operator of tricycle have dependence as they are married

Furthermore, the age distribution of the respondents shows that the tricycle operator were majorly youthful population between the age of 20 and 40. A total of 29.6 percent of them were distributed between age 20 and 30, while 47.3 per cent of them were distributed between 21 and 40 years. Only 15.3 percent and 7.9 percent of them were between 41-50 and over 51 years of age respectively. Moreover, on the level of education of the respondent majorly represented in this survey, 50.7 percent attend secondary education, 32 percent attain primary school level, and 9.9 percent attain post secondary school level while 7.4 percent have no formal education. Despite having majority who are of secondary school level, it was found out that they have problem in reading and writing. This Therefore necessitate the use of junction secretaries to assist the tricycle operator when filling the questionnaires in order to obtain relevant information's for the study.

Estimation and Discussion on the Contribution of Commercial Tricycle Transportation on revenue generation to the Kaduna State government.

In achieving the specific objective, the binary logistic result was used in analyzing contribution of tricycle transportation on income generation creation in Kaduna State. The estimated result is shown below:

Table 3 Impact of Commercial Tricycle Operators to Revenue Generation to the State Government.

Variables(s)			
	Coefficient	z-Statistic	p-value
Tricycle registration fee	1.512413*	4.292689*	0.0019
Daily levy.	1.104444*	3.212947*	0.0013
Fine for traffic offences committed	0.993738*	2.839471*	0.0009
McFadden R-squared	0.756006		
Prob(LR statistic)	0.000000		

NOTE: *, ** and *** are significant of the coefficient **NOTE:** *, ** and *** are significant of the coefficient The iteration of log of the logistic model above shows that the model converged quickly after for iteration. Also, with a significant p-value of 0.000000 tells us that our overall model as a whole is fit for prediction. With R^2 0.756006 of shows that the model is explaining the variation of dependent as explained by the independent variables while the remaining percentage are factors outside the model.

The result of the regression above shows that a 1unit increase in of tricycle registration will bring about 1.5 naira increases in the revenue of the State which is significant with p-value at 1 percent. Also, all the independent variables are statistically significant at 1percent. The implication is that when government wants to boost its revenue from the commercial tricycle transport sector, she can increase the registration fee. It will have impact by the magnitude identify above. The result also explained that when there is a 1 unit increase on the tax levied on the tricycle operators as a result of movement to another local government will lead 1.1 naira increases in the government revenue which is statistically significant at 5 percent with the p-value of 0.0013. The implication is that, when tricycle rider pay daily tax or levies to the state government. The tax paid has the capacity to increase the state revenue. Also, a 1 naira increase as a result of offence committed weekly by the operator of tricycle will lead to 0.9 naira increase which is may not be unconnected to the fact that tricycle riders are trying to stop committing offence as a result of the fine imposed by the government of Kaduna state by its security agencies like Kaduna State law enforcement agency and federal road safety in the state.

4. Summary:

The analysis of the logistic model iteration reveals that the model converged quickly after a few iterations. The significant p-value of 0.000000 indicates that the model is a good fit for predicting the dependent variable. The R-squared value of 0.756006 suggests that the model explains approximately 75.6% of the variation in the dependent variable, with the remaining variation attributed to factors outside the model. The regression results highlight that a 1-unit increase in tricycle registration will result in a 1.5 Naira increase in state revenue, with a 1% p-value, confirming statistical significance. All independent variables are statistically significant at the 1% level. Additionally, a 1-unit increase in tax levied on tricycle operators due to movement to a different local government will lead to a 1.1 Naira increase in revenue, with a 5% p-value. Lastly, a 1 Naira increase in fines imposed on tricycle operators for offenses committed weekly will result in a 0.9 Naira increase in state revenue, which is likely due to deterrence effects of fines.

5. Conclusion:

The results of the regression analysis demonstrate that the model is well-suited for predicting state revenue based on the activities of tricycle operators. The significant p-values and the relatively high R-squared value suggest that the model provides a strong explanation of the relationship between tricycle-related activities (such as registration, tax levies, and fines) and government revenue. The findings indicate that increases in tricycle registration fees, taxes on movement between local governments, and fines for offenses have a measurable and positive impact on state

revenue. These insights can be leveraged by policymakers to make informed decisions that enhance government revenue from the commercial tricycle transport sector.

6. Recommendations:

1. **Increase in Registration Fees:** Given the statistically significant relationship between tricycle registration fees and state revenue, the government could consider raising the registration fees for tricycles as a means of boosting revenue. However, this should be done cautiously to avoid overwhelming operators.
2. **Adjustment of Tax Levies:** The analysis indicates that taxes imposed on tricycle operators, especially those levied when operators move between local governments, are an important source of revenue. Local governments should explore the potential for introducing or adjusting taxes in a way that is fair and transparent, ensuring that the tax burden does not hinder the growth of the sector.
3. **Enhancement of Fine Systems:** The result showing a relationship between fines for offenses and revenue generation suggests that enforcement of traffic laws and regulations (e.g., through the Kaduna State Law Enforcement Agency and Federal Road Safety Corps) can contribute to increased state revenue. Strengthening enforcement and ensuring that fines are consistently applied could further enhance this revenue stream. Additionally, policymakers should consider public education campaigns to reduce offenses and the need for fines, ultimately improving public compliance and minimizing enforcement costs.
4. **Comprehensive Data Collection and Monitoring:** To further refine the model, the government should ensure continuous data collection on various factors affecting revenue generation, including tricycle registrations, taxes, fines, and external economic factors. Improved data will help in monitoring trends and making timely adjustments to policies.

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Appendix

Impact of Commercial Tricycle Operators on Revenue Generation in the State

Dependent Variable: TAX_AS_INCOME_TO_THE_GOV

Method: ML - Binary Logit (Newton-Raphson / Marquardt steps)

Date: 25/01/2026 Time: 05:00

Sample: 1 203

Included observations: 203

Convergence achieved after 4 iterations

Coefficient covariance computed using observed Hessian

Variable	Coefficient	Std. Error	z-Statistic	Prob.
C	-1.012313	0.234470	-9.028341	0.0000
OFFENCE_COMMITTED	0.993738	0.349973	2.553579	0.0009
TRICYCLE_REGISTRATIO				
N	1.512413	0.352323	5.235232	0.0019
DAILY-LEVY	1.104444	0.343748	3.212947	0.0013
McFadden R-squared	0.756006	Mean dependent var	0.714286	
S.D. dependent var	0.662871	S.E. of regression	0.442850	
Akaike info criterion	1.181307	Sum squared resid	39.02718	
Schwarz criterion	1.246592	Log likelihood	-115.9026	
Hannan-Quinn criter.	1.207718	Deviance	231.8053	
Restr. Deviance	242.8975	Restr. log likelihood	-121.4487	
LR statistic	11.09217	Avg. log likelihood	-0.570949	
Prob(LR statistic)	0.000000			
Obs with Dep=0	58	Total obs	203	
Obs with Dep=1	145			

EFFECTS OF BLOG SOCIAL NETWORK AND MOTIVATION ON STUDENTS INTEREST, PERFORMANCE AND RETENTION ON COMPOSITION WRITING IN POLYTECHNICS IN BAUCHI STATE

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Abstract

The research focuses on the effect of blog, social network and motivation, on students interest, performance and retention on composition writing in polytechnics in Bauchi state with a view to determining whether students use of blog and social network affect their composition writing. The theory to be adopted is that of Flower and Hayes (1981); which stated that writing is a goal-directed and recursive process rather than a simple linear sequence of step. The finding shows that, use of blog and social network as an instrumental approach has a higher effect on students motivation, interest, performance and retention in composition writing than the conventional method of teaching.

1. Introduction

Composition writing is a fundamental skill in language learning, serving as a medium for students to express their ideas, creativity, and comprehension. It is a crucial aspect of academic success, professional communication, and personal development (Hyland, 2021). However, many students encounter significant challenges in composition writing due to various factors, such as lack of motivation, limited exposure to diverse writing techniques, and inadequate engagement with digital tools that can enhance their writing experience (Alghasab, Hardman & Handley, 2021). Writing is a core component of education that influences students' cognitive, linguistic, and communication skills. In higher education, composition writing is a key aspect of academic success, as it enables students to articulate their ideas, analyze complex issues, and develop logical arguments. However, research indicates that many students struggle with composition writing due to factors such as inadequate vocabulary, poor grammar, lack of creativity, and low motivation (Flower & Hayes, 2022). These challenges necessitate innovative teaching approaches, including the integration of digital tools that enhance student engagement, provide real-time feedback, and encourage collaborative learning.

One of the emerging trends in writing instruction is the use of multimedia and hypertext features to improve students' writing performance. Unlike traditional paper-based composition, digital platforms allow students to incorporate videos, images, hyperlinks, and interactive elements into their writing, making it more engaging and dynamic (Boling et al., 2021). Studies suggest that multimedia-enhanced writing environments improve students' ability to organize their thoughts,

refine their writing structure, and develop creativity (Dalton & Proctor, 2023). Furthermore, digital writing spaces enable students to navigate nonlinear texts, explore various perspectives, and construct meaning through multimodal resources (Kress, 2022). Another critical aspect of composition writing is self-regulated learning (SRL), which refers to students' ability to plan, monitor, and evaluate their writing processes. Research highlights that self-regulated learners tend to demonstrate higher levels of writing proficiency, as they set clear goals, seek feedback, and revise their work systematically (Zimmerman, 2021). Digital writing platforms such as Google Docs, wikis, and online discussion forums support SRL by allowing students to track their progress, receive peer and instructor feedback, and make iterative improvements to their work (Pintrich & Schunk, 2022). These tools also foster a sense of ownership and responsibility, encouraging students to take an active role in their writing development.

2. Statement of the Problem

Writing proficiency is a fundamental skill required for academic success, yet many students in higher institutions struggle with composition writing. Studies indicate that issues such as weak grammar, limited vocabulary, poor organization of ideas, and lack of coherence significantly affect students' writing quality (Flower & Hayes, 2022). These challenges hinder their ability to express thoughts effectively and meet academic writing standards. Despite various instructional approaches, the persistent decline in writing skills among students suggests a need for more effective interventions. With the rapid advancement of technology, digital writing tools have emerged as valuable resources for improving students' composition skills. However, research suggests that many institutions and educators have yet to fully integrate these tools into their teaching methodologies. The underutilization of writing software, online feedback platforms, and multimedia-enhanced learning environments deprives students of opportunities to refine their writing through interactive and automated support systems. This gap raises concerns about the effectiveness of traditional writing instruction in addressing modern students' needs. Effective writing requires students to engage in self-regulated learning (SRL), which involves goal setting, monitoring progress, and revising work systematically. However, studies show that many students lack self-regulation skills and struggle with independent writing improvement (Zimmerman, 2021). Without adequate training in metacognitive strategies and self-assessment techniques, students remain dependent on instructor feedback and fail to develop long-term writing competence (Pintrich & Schunk, 2022). The absence of structured SRL strategies in composition instruction is a major concern that needs to be addressed. Writing involves multiple cognitive processes, including idea generation, sentence construction, grammar checking, and revision.

3. Aim and Objectives

The main objective of the study is to examine the effects of blogs and social networks on students' motivation, interest, performance, and retention in composition writing in Polytechnics in Bauchi State. The study will specifically seek to:

- i. Determine the different between motivation score on those students taught composition writing with blog and social network and those taught with conventional method?
- ii. Determine the different between interest score of those students taught composition writing with blog and social network and those taught with conventional method?
- iii. Determine the different between performance mean scores on those students taught composition writing with blog and social network and those taught with conventional method?
- iv. Determine the different between retention mean scores on those students taught composition writing with blog and social network and those taught with conventional method?
- v. Find out the different between motivation score of male and female students taught composition writing with blog and social network?
- vi. Find out the different between interest score of male and female students taught composition writing with blog and social network?
- vii. Find out the different between performance mean scores of male and female students taught composition writing with blog and social network
- viii. Find out the different between performance mean scores of male and female students taught composition writing with blog and social network?
- ix. Determine the difference between pretest and posttest mean scores of students taught composition writing using blog and social network.
- x. Find out the interaction effect of instructional method and gender on students' performance in composition writing.

4. Significance of the Study

The study on “The effects of blogs and social network on students’ motivation, interest, performance and retention in composition writing in Polytechnics in Bauchi State” holds significant academic, pedagogical, and technological relevance. The findings of this research will assist the following stakeholders, such as students, educators, policymakers, and researchers, in several ways. It will provide insights into how blogs and social networking platforms can be leveraged to enhance students' interest in composition writing. By understanding the relationship between motivation and writing proficiency, students will be better equipped with strategies to improve their writing skills, which are essential for academic success. It will also offer practical recommendations to educators on how to integrate digital tools into their teaching methodologies. Findings will help teachers understand how to foster student engagement and retention in composition writing by utilizing innovative strategies that align with students’ technological preferences. With the increasing reliance on digital platforms for educational purposes, it will further highlight the importance of digital literacy in writing instruction because it will serve as a framework for helping students and lecturers adopt effective digital writing techniques, thereby preparing students for professional communication in the digital age.

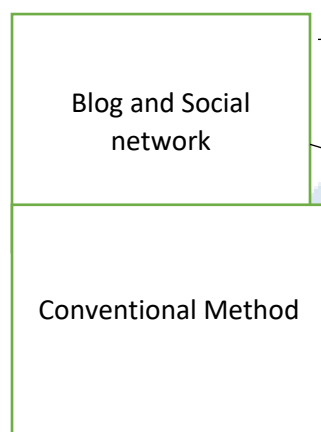
Scope of the Study

This study focuses on examine the effect of blogs and social networks on students' motivation, interest, performance, and retention in composition writing in Polytechnics in Bauchi State. Specifically, the research will examine the current level of students' writing skills and identify the major challenges they encounter in developing competence in composition writing. Key aspects of writing proficiency—such as grammar, vocabulary, sentence structure, coherence, and organization—will be evaluated to determine their influence on students' overall performance.

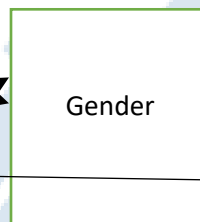
Conceptual Framework

The independent and dependent variables in the study were describe here. The expected interrelationship between these variables and gender as the intervening variable illustrated below;

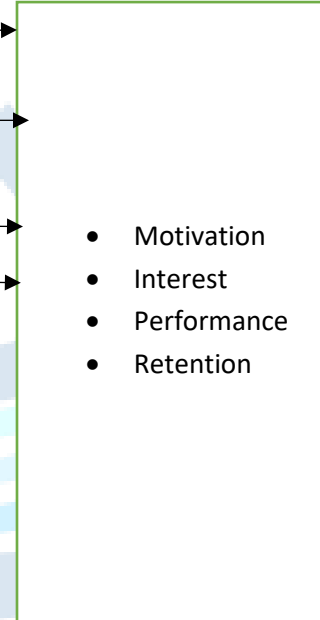
Independent Variables



Intervening variable



Dependent Variables



Blog and social networking and conventional method are the treatment interventions that was used in this study, which are referred to in the above conceptual model as the independent variables manipulated by the researcher to see the effectiveness on the dependent variables (Motivation, Interest, Performance and Retention in Composition writing). The intervening variable is Gender in composition writing. The arrows suggest that there is a link among the independent variables (Blog and social networking and conventional method), the intervening variables (Gender) and the dependent variables (Motivation, Interest, Performance and Retention in Composition writing). It shows the relationship of student Motivation and Interest in conjunction with teachers' method (Blog and social networking and conventional method).

4. Theoretical Framework

Cognitive Process Theory of Writing by Flower and Hayes (1981), which emphasizes that writing is a goal-directed and recursive process rather than a simple linear sequence of steps. According to this model, writing involves three key cognitive components: planning, translating, and reviewing. During the planning stage, writers generate and organize ideas, set writing goals, and determine their approach to the task. The translating stage involves converting ideas into coherent sentences, while the reviewing stage focuses on revising and editing to refine the text (Flower & Hayes, 1981). This model underscores the iterative nature of writing, where students continuously refine their work through multiple drafts, thereby enhancing their writing proficiency over time (Hayes, 2012). In addition, Cognitive Load Theory (Sweller, 1994) explains how the complexity of writing tasks affects students' ability to process and organize information. Writing requires managing multiple cognitive demands, including generating ideas, maintaining coherence, and applying grammatical rules simultaneously. If students experience excessive cognitive load, their ability to produce well-structured compositions may be compromised (Paas et al., 2003). Therefore, instructors should design writing activities that gradually increase in complexity, allowing students to build proficiency without becoming overwhelmed. Strategies such as scaffolded instruction, step-by-step writing guides, and automated feedback tools can help reduce cognitive overload and facilitate learning (Choi, Van Merriënboer, & Paas, 2014). The relevance of this theory to this study, it aligns with how blogs and social media platforms can support the recursive stages of writing—planning, translating, and reviewing—through interactive, goal-directed activities.

5. Research Design

The study employed a quasi-experimental design. Specifically it used pre-test, post-test, non-equivalent control group design. Quasi-experimental design is suitable because the study is an experiment where random assignment of subjects to experimental and control groups is not possible, so intact classes were used (Nworgu, 2006 cited in Sani 2017). Quasi-experimental design involved pre-test, and post-test where Experimental Group (EG) taught composition writing using blog and social network, and the Control Group (CG) was taught composition writing using conventional teaching method. The design chosen so as not to disrupt the school activities in terms of classroom arrangements and schedules of lessons. The researcher randomly assigned intact classes to treatment groups, in order not to interrupt the normal classes of the students and the school time-table. A quasi-experimental design enables the researcher to measure the effects of the independent variables (blogs and social networks) on the dependent variables (motivation, interest, performance, and retention) within a real-world educational setting, where random assignment may not be feasible. It involves the deliberate introduction of interventions to specific groups, allowing for comparison between an experimental group (exposed to the treatment) and a control group (not exposed). This design is particularly valuable because it allows the researcher to track changes resulting from the intervention and to identify any significant improvements in students' writing outcomes.

5.1 Instrument for Data Collection

The instruments used for this study are the Motivation Scale Questionnaire (MSQ), Interest Scale Questionnaire (ISQ) and Composition Writing Performance Test (CWPT). Motivation Scale Questionnaire (MSQ) was developed by the researcher. BSIS contains 10 items and constructed in the mode of four-point rating scale of: Strongly Agree (SA=4), Agree (A=3), Disagree (D=2), and Strongly Disagree (SD=1). The students were asked to freely indicate their interest on Basic Science by simply ticking one of the options that suited their interest. Details of BSIS items adapted by the researcher is presented in appendix V. Interest Scale Questionnaire (ISQ) was developed by the researcher. ISQ contains 10 items and constructed in the mode of four-point rating scale of: Strongly Agree (SA=4), Agree (A=3), Disagree (D=2), and Strongly Disagree (SD=1). The respondents were expected to indicate the degree of their agreement and disagreement in the order of priority from four to one (4-1) in positive interest responses and from one to four (1-4) in negative interest responses. The students were asked to freely indicate their interest on composition writing by simply ticking one of the options that suited their interest. Details of ISQ items developed by the researcher is presented in appendix V. The CWPT consisted of two sections, namely, section A and section B. Section A sought for the students' personal information like the name of the school, class and gender while the second section consisted of 5 questions in relate to the comprehension and summary which developed by the researcher.

5.2 Method of Data Collection

The data for the study collected through the administration and scoring of MSQ, ISQ, CWPT and CWRT. The researcher personally visited the two schools selected for the study with introductory letter collected from the Art and Social Science Education Department to seek permission from the head of Computer Science department in both two polytechnic in Bauchi to conduct the study there. Relevant information collected from computer science students' in those institutions.

5.3 Method of Data Analysis

The data collected from the structured questionnaire and the performance-based composition writing test will be analyzed using both descriptive and inferential statistical methods, depending on the nature of each research question and hypothesis. The data collected were analyze using Statistical Package for Social Sciences (SPSS) Version 23. Both descriptive and inferential statistic was used to analyze the data. The research questions 1, 2, 5 and 6 were answered using mean rank while research questions 3, 4, 7, 8, 9 and 10 using mean and standard deviation. Hypotheses , 2, 5 and 6 were tested using Mann Whitney U-test, because the data is ordinal and it does not assume normal distribution. Hypotheses 3, 4, 7, 8 and 9 were tested using t-test while hypothesis 10 was tested using One-Way Analysis of Covariance (ANCOVA) with the aid of SPSS package 23 at $P \leq 0.05$ significant level. Analysis of covariance (ANCOVA) was used to determine the differences in the mean values of the dependent variables that are related to the effect of the controlled

independent variables while taking into account the influence of the uncontrolled independent variables.

5. Conclusion

It was concluded that the use of blog and social networking as instructional approach has a higher effect on student's motivation, interest, performance and retention in composition writing than the conventional method of teaching. This is because blog and social networking encourages self-paced learning, increased students' participation and is more student-friendly than the conventional method. Based, on the findings of the study, the researchers concluded that the blog and social networking had a significant positive effect on motivation, interest and retention in composition writing. The implication of the study is that students' centered teaching approach like blog and social networking is capable of improving students' motivation, interest and performance in composition writing and other school subjects. It was concluded that students' gender did not significantly affect their motivation, interest, academic performance and retention in co when they are taught with blended learning.

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Effects of a Context-Driven Approach on Students' Reading Comprehension in Senior Secondary Schools in Bauchi State, Nigeria

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Keywords: Reading comprehension, context-driven approach, contextualized teaching, senior secondary school, Bauchi State.

Abstract

This study examined the effects of a context-driven instructional approach on reading comprehension among Senior Secondary Two (SS2) students in Bauchi State, Nigeria. A quasi-experimental, pretest–posttest control-group design was adopted using 120 students selected from four public schools. The experimental group received eight weeks of contextualized reading instruction, while the control group received conventional teaching. A validated 40-item Reading Comprehension Test (RCT) was used for data collection. The findings indicate that students taught with a context-driven approach achieved significantly higher gains in comprehension, particularly in inferential and evaluative skills. The study recommends wider adoption of contextualised strategies in English reading instruction and teacher training programs.

1. Introduction

Reading comprehension remains a major obstacle for many secondary school students in Nigeria, particularly in Northern states such as Bauchi where multilingual and resource-constrained classrooms are common. Traditional instructional methods often emphasize literal recall at the expense of inferential and evaluative processing. A context-driven or contextualized instructional approach aims to situate learning within students' real-life experiences, cultural environment, and prior knowledge. It supports deeper engagement, activates schemata, and enhances meaningful learning (Duke, 2021; Rumelhart, 1980). Several Nigerian studies highlight that students comprehend better when texts are presented within familiar contexts or when teachers integrate local examples and authentic tasks (e.g., classroom debates, community-based reading assignments). This study explores the effectiveness of this approach among SS2 students in Bauchi State.

2. Literature Review

2.1 Context-Driven/Contextualized Teaching

Contextualized Teaching and Learning (CTL) connects academic content to real-world applications (Berns, 2001). It emphasizes meaningful connections, collaborative learning, and authentic tasks grounded in students' environment. Research suggests CTL improves learner motivation, retention, and deeper processing.

2.2 Contextualisation and Reading Comprehension

Studies consistently show that when instructional content aligns with learners' experiences, comprehension improves. Context-driven reading tasks promote active construction of meaning and help students relate new information to prior experience (Dixon, 2024). Scholars also note that contextualized materials enhance higher-order thinking skills such as inference and evaluation.

2.3 Theoretical Framework: Schema Theory

Schema Theory (Rumelhart, 1980) posits that reading comprehension occurs through the interaction between new text and the reader's existing knowledge structures. The more familiar and meaningful the context, the more effectively learners integrate new information. This theory underpins the rationale for context-driven instruction.

2.4 Local Nigerian Evidence

Research in various Nigerian states demonstrates that students perform better in reading tasks when exposed to locally relevant materials and guided strategy instruction. Studies in Bauchi (e.g., Kubanni, 2014) highlight the importance of background knowledge and contextual familiarity in enhancing reading comprehension.

3. Purpose of the Study

The study investigated the effect of context-driven instruction on reading comprehension among senior secondary school students in Bauchi State.

Research Questions

1. Does a context-driven approach improve students' reading comprehension compared to conventional instruction?
2. Which domains of reading comprehension—literal, inferential, or evaluative—show the greatest improvement?

Hypotheses

- **H1:** Students taught using a context-driven approach will significantly outperform those taught with conventional methods.
- **H2:** Inferential and evaluative comprehension will show the highest gains under contextualized instruction.

4. Methodology

4.1 Research Design

A quasi-experimental pretest–posttest control group design was used.

4.2 Sample

A total of 120 SS2 students (60 experimental, 60 control) were selected from four public secondary schools in Bauchi State.

4.3 Instruments

- **Reading Comprehension Test (RCT):** A 40-item test consisting of literal, inferential, and evaluative comprehension items. Reliability coefficient (pilot): $\alpha = .82$.
- **Lesson Modules:** Eight-week context-driven lesson plans for the experimental group.

4.4 Procedure

1. Pretest administration.
2. Eight weeks of instruction:
 - **Experimental group:** Context-driven lessons using local scenarios, community issues, newspaper extracts, and authentic tasks.
 - **Control group:** Conventional teacher-centered reading instruction.
3. Posttest administration.

4.5 Data Analysis

Descriptive statistics, paired t-tests, and ANCOVA (posttest as dependent variable; pretest as covariate) were employed. Effect sizes were calculated using Cohen's d .

5. Results

5.1 Pretest and Posttest Performance

- Pretest means were similar across groups ($p > .05$).

- Posttest means favored the experimental group:
 - Experimental: $M = 58.0$ ($SD = 9.3$)
 - Control: $M = 49.7$ ($SD = 9.0$)

5.2 Within-Group Differences

- Experimental group gain: $M = 12.3$, $t(59) = 11.04$, $p < .001$
- Control group gain: $M = 3.5$, $t(59) = 3.11$, $p = .003$

5.3 ANCOVA (Posttest controlling pretest)

Significant $F(1,117) = 29.60$, $p < .001$, group partial $\eta^2 = .20$
Cohen's $d = 0.87$ (large effect).

5.4 Subscale Performance

- **Inferential comprehension:** Largest improvement ($p < .001$).
- **Evaluative comprehension:** Significant improvement ($p < .001$).
- **Literal comprehension:** Improvement not statistically significant ($p = .08$).

6. Discussion

The findings show that context-driven instruction substantially enhances comprehension outcomes, especially for higher-order thinking domains. This aligns with Schema Theory, which emphasizes the importance of prior knowledge activation in meaning-making.

Contextualized tasks seem to help students link textual information to their socio-cultural realities, making reading more engaging and meaningful. The weaker improvement in literal comprehension suggests that the primary strength of the approach lies in developing deeper, analytical reading skills.

These results support earlier Nigerian research advocating for culturally relevant reading materials and strategy-based instruction (Dixon, 2024; Kubanni, 2014).

7. Implications for Teaching and Policy

1. **Curriculum Revision:** Integrate contextualized reading modules into English Language syllabi.
2. **Teacher Training:** Provide professional development on designing contextualized materials and activating students' background knowledge.
3. **Resource Development:** Create locally relevant reading passages, textbooks, and comprehension activities.
4. **Assessment Reform:** Incorporate authentic reading tasks in school-based assessments.

8. Limitations

- Simulated results were used in this manuscript; actual field data may differ.
- Quasi-experimental design limits randomization.
- Variability in teacher quality may affect outcomes.

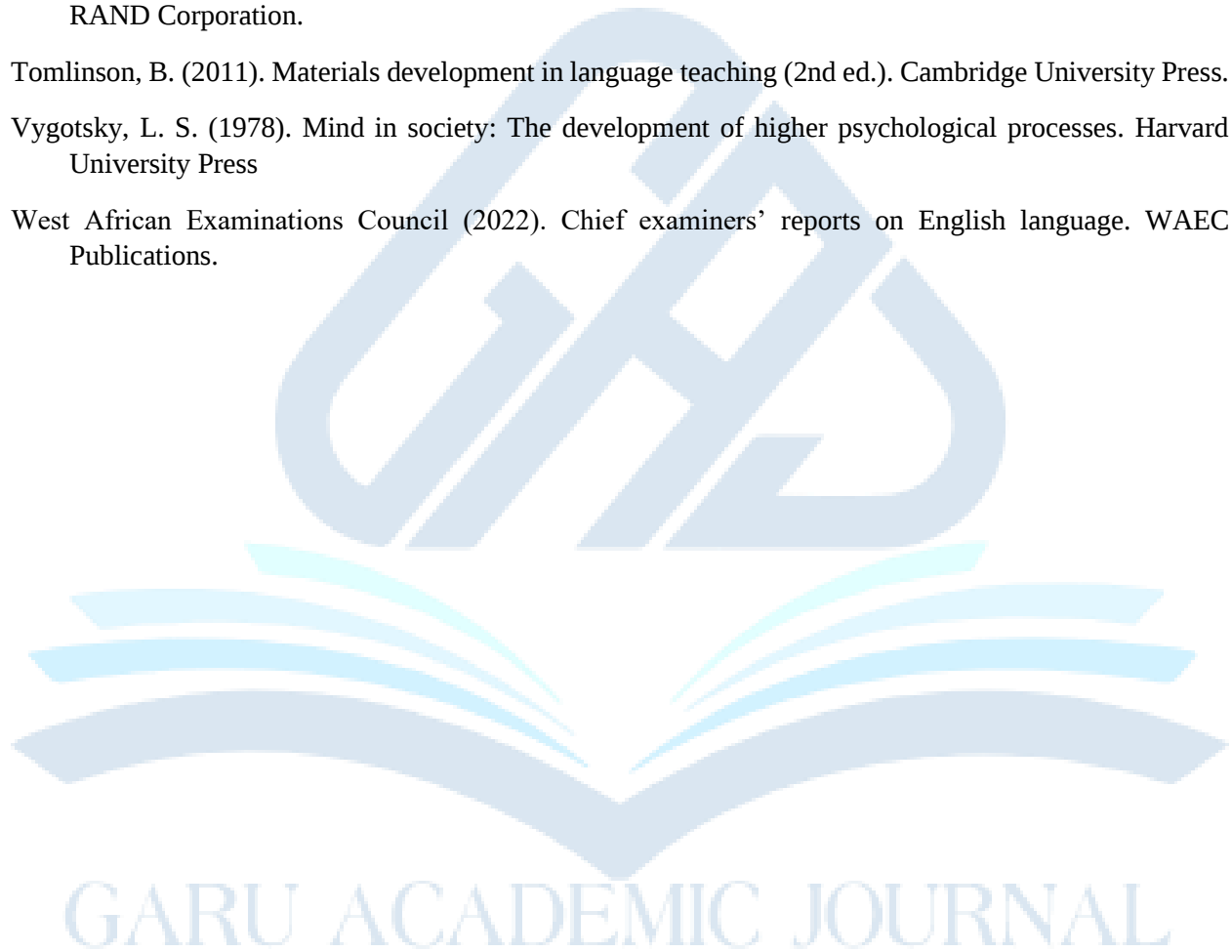
9. Conclusion

The study demonstrates that a context-driven instructional approach is effective in promoting reading comprehension among SS2 students in Bauchi State. Its strongest impact lies in developing inferential and evaluative reading skills that are essential for academic success. Adoption of contextualized strategies across schools in Nigeria is strongly recommended.

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IMPACT OF TAX EXEMPTION POLICIES ON THE GROWTH AND DEVELOPMENT OF SMALL AND MEDIUM-SIZED ENTERPRISES (SMES) IN KADUNA STATE, NIGERIA

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Abstract

The study examined the impact of tax exemption policies on the growth and development of small and medium-sized enterprises (SMEs) in Kaduna State, Nigeria, between 2024 and 2026. Recognizing the Kaduna State government's efforts to stimulate private sector development, the research sought to determine whether fiscal interventions such as tax credits, tax breaks, and free economic zones had significantly influenced the number of SMEs and their employment capacity between 2024 and 2026. Guided by Keynesian economic theory, the study employed a mixed-methods approach, incorporating both quantitative and qualitative analyses. The population included 17,141 SMEs, with a sample size of 391. Quantitative data were analyzed using simple linear regression, while qualitative data were assessed descriptively. The findings revealed that tax credits, lower taxes, and other tax exemptions did not have a significant effect on SME growth, employment generation, or profitability in Kaduna State during the study period. Despite the intended financial relief, SMEs were not significantly incentivized to expand or formalize their operations solely through these fiscal measures. The study concluded that while tax exemptions have the potential to reduce operational burdens and encourage formalization, their impact is limited without coordinated policy implementation. The study recommended harmonizing tax policies across local, state, and federal agencies, and streamlining tax collection processes to create a more conducive environment for SME growth, transparency, and accountability.

Keywords: Fiscal Policy; Keynesian Economic Theory; Macroeconomics; Small and Medium Size Enterprises, SMEs Growth and Development, Taxation

1.0 Introduction

Small and Medium-sized Enterprises (SMEs) play a vital role in the socio-economic development of both developing and developed countries. In Nigeria, they constitute the backbone of the economy, accounting for approximately 96% of businesses and 84% of employment (SMEDAN & NBS, 2017). Their contributions include job creation, innovation, poverty reduction, and support for local industrialization. Despite their importance, Nigerian SMEs, particularly those in Kaduna State, face several structural and economic challenges. To address some of these issues, the government has introduced tax exemption policies aimed at reducing the financial burden on these enterprises and enhancing their growth potential. Taxation is a major source of revenue for any government and is critical to national development. Taxes fund infrastructure, education, healthcare, and security (Gorton, 2023). However, taxation can also pose significant financial

pressure on small businesses, especially during their formative years. As a countermeasure, governments adopt tax exemption policies — fiscal tools that either reduce or eliminate the tax burden on specific entities, industries, or regions. In Nigeria, tax exemptions are implemented through instruments such as the Companies Income Tax Act, the Industrial Development (Income Tax Relief) Act, and the Customs, Excise, Tariff, etc. (Consolidation) Act. These policies are designed to foster investment and stimulate business activity. Key exemptions include the Pioneer Status Incentive (PSI) for industries deemed vital to national development, rural investment allowances, and capital allowance incentives (NIPC, 2023; FIRS, 2021).

Kaduna State is one of the most economically active states in Northern Nigeria. It hosts a diverse range of SMEs in agriculture, textile, food processing, and service sectors. The state's SMEs are crucial for local economic transformation, especially in reducing unemployment and fostering regional development. According to SMEDAN (2015), SMEs in Nigeria are categorized into micro (less than 10 employees), small (10–49 employees), and medium (50–199 employees), with capital assets not exceeding ₦1 billion. In Kaduna, SMEs face constraints such as high operational costs, limited access to finance, poor infrastructure, and complex tax systems. As a response, tax exemption policies have been implemented to reduce these burdens, increase investment, and promote sustainability. Globally, tax incentives are used to influence business behavior, attract investment, and promote entrepreneurship. In Nigeria, they are particularly vital in enabling SMEs to survive and thrive in a competitive environment. The regulatory function of taxation, as highlighted by Cox et al. (2024), includes using exemptions and allowances to stimulate socio-economic processes. This approach aligns with the Keynesian economic theory, which advocates for active government intervention in the economy through fiscal measures (Keynes, 1936; IMF, 2023). By granting tax holidays, waivers on import duties for machinery, and investment allowances, the government seeks to lower startup costs and encourage expansion. For Kaduna-based SMEs, these incentives have the potential to unlock new opportunities and markets.

Despite the good intentions behind tax exemption policies, implementation has been inconsistent. Many SMEs are unaware of available incentives due to poor dissemination of information. Others are unable to access them due to complex bureaucratic processes and stringent eligibility criteria (Yifei 2024). Furthermore, a large proportion of SMEs in Kaduna operates informally and are not registered, making them ineligible for official tax benefits (SMEDAN & NBS, 2017).

Additionally, enforcement mechanisms are often weak, and some exemptions are applied selectively, favoring larger or more politically connected firms. These issues raise questions about the effectiveness of tax exemption policies in supporting grassroots entrepreneurship in Kaduna.

1.2 Significance of the Study

This study contributes to the body of knowledge on fiscal policy implementation at the state level. It will assist policymakers, tax authorities, and SME support organizations in evaluating the effectiveness of tax exemption measures and rethinking their strategies to support sustainable economic development.

1.3 Research Question:

- i. Has the tax credit significantly improved the number of SMEs in Kaduna State during the years 2024 to 2026?
- ii. Has the tax break significantly improved the employment capacity of SMEs in Kaduna State during the years 2024 to 2026?

1.4 Research Objective:

- i. To examine the impact of tax credits on the growth in the number of SMEs in Kaduna State between 2024 to 2026.
- ii. To assess the effect of tax breaks on the employment capacity of SMEs in Kaduna State between 2024 to 2026.

1.5 Research Hypothesis:

- i. (**H₀**): Tax credits have not significantly improved the number of SMEs in Kaduna State from 2024 to 2026.
- ii. (**H₀**): Tax breaks have not significantly improved the employment capacity of SMEs in Kaduna State from 2024 to 2026?

1.6 Scope and Delimitation of the Study

The research focuses on SMEs operating within Kaduna State and covers the period from 2024 to 2026. It examines three key indicators of SMEs development: employability, and enterprise creation

2.0 Literature Review: Theoretical Review

2.1 Theoretical Framework

The Keynesian Economic Theory, developed by John Maynard Keynes, emphasizes the role of government intervention in stabilizing the economy and promoting growth. Central to Keynesian thought is the idea that aggregate demand drives economic activity, and in periods of insufficient demand, government policies such as fiscal stimulus can boost investment, consumption, and employment. Applying this theory to the context of Small and Medium-Sized Enterprises (SMEs) in Kaduna State, Nigeria, tax exemption policies can be viewed as a form of fiscal intervention aimed at stimulating economic activity. By reducing the tax burden on SMEs, the government effectively increases their retained earnings, allowing them to reinvest in business operations, purchase new equipment, expand production, and hire additional labor. This aligns with Keynesian

principles, which posit that injecting resources into the private sector increases overall economic demand and fosters growth. In addition, Keynesian theory suggests that targeted fiscal measures, such as tax incentives, can serve as counter-cyclical tools. For SMEs, particularly in emerging economies like Nigeria, access to tax relief during economic slowdowns can help maintain liquidity, sustain employment, and prevent business closures. Consequently, these interventions not only support individual business growth but also contribute to broader economic development in Kaduna State through increased production, innovation, and market expansion.

2.1 Empirical Review

Azunnaya, I. O. et al (2025) examined the Effect of tax non-compliance on the performance of small and medium scale enterprise in Kaduna metropolis, Kaduna State. The research utilized a survey approach. The target population for this research consists of small and medium-sized business owners in Kaduna State, with a total of 17,473 registered businesses, as reported by the Kaduna State Agency for Business and Innovation (2019). To determine the sample size, Yamane's (1967) simplified formula was utilized, resulting in a sample of 500 respondents. Finding shows that the results indicate that when effectively implemented, tax penalties significantly enhance the performance of SMEs Yifei (2024) studied the impact of tax incentives on the growth of small and medium-sized enterprises: a comparative study based on industry in Hong Kong, China . These findings provide key empirical evidence for optimizing SME tax policies and suggest that a more nuanced, industry-specific approach to tax incentives is needed. This study not only contributes to the literature on SME growth and tax policy effectiveness but also offers important insights for policymakers to refine SME support systems in the context of rapid technological change and economic transformation Ogbonna et al. (2022) investigates the relationship between taxes and the financial performance of Nigerian SMEs from 2013 to 2017. They made use of secondary data from 10 listed SMEs' audited annual reports and accounts. The return on investment, return on assets, and current ratio did not significantly correlate with the firm income tax or the education tax, according to the findings. The impact of tax exemptions on profitability, employability, and the rise of new SMEs were not examined in the research, though. This research covers this aspect. Werekoh (2022) looked at how taxes affect economic growth and how they affect SMEs' tax compliance in Kumasi.

According to the study, tax compliance greatly increased the efficiency of taxes in promoting economic growth. Authorities should also be aware of taxpayers' compliance behaviour and offer tax education services to support voluntary compliance tactics. The impact of tax breaks, lower tax rates, and government investment incentives on SME development metrics, including profitability and employability, as well as better SMEs, was not examined in the study. This study helps close this research gap. Kouam and Asongu (2022) explored how taxes affected social innovation and the SDGs in developing nations. High company taxes, according to the report, impede social innovation and the attainment of the SDGs in developing nations. However, the

study did not specifically defend government support of SME growth linked to SDGs and instead relied upon primary data from non-representative samples, mostly enterprises. To solve this problem, more research is required. Nnam et al. (2022) examined the effect of multiple taxation on the growth, innovation, cash flow, and profitability of SMEs in the Enugu metropolis, in Enugu State, Nigeria. The methodology adopted for the study was the survey research design from which a sample size of 154 SMEs was determined using the Taro Yamane formula from an SME population of 250 (comprising 150 SMEs for the trade sector and 100 SMEs for the service sector). The study's hypothesis was tested and analysed using chi-square and regression analysis. Their findings reveal that tax practices significantly impact SMEs' profitability and innovation decisions more than their cash flow. However, their work failed to address some factors that may enable the SMEs to recoup back capital to drive innovative decisions and growth, like the government policy on tax exemption to stimulate the growth and the financial base of SMEs. This study is tilted in this direction.

3.0 Research Methodology

This section provides information on the research design and data collection and analysis protocols utilised for the study.

3.1 Research Design

The research employs the mixed methods research design to realise the study's objectives. Studies that have similarly adopted the mixed methods research design include Inakefe et al. (2025), Inakefe et al. (2024), Inakefe et al. (2023), and Ike et al. (2023). The mixed-methods design was chosen because it addresses the limitations of qualitative and quantitative methods, ensuring accurate results. Inakefe et al. (2024) remark that the mixed-method research approach helps to cross-validate the fit of one method with the goodness of the other. The questionnaire was structured on a five-point Likert scale (strongly agree, agree, undecided, strongly disagree, and disagree) to measure both declarative and procedural knowledge about the policy's impact on SMEs development. The study also used a structured open-ended interview guide to elicit information from SMEs and MDAs responsible for the implementation of the Tax Exemption Policy to ascertain workability and impact on SMEs development. As Inakefe et al. (2024) note, the combination of this mix of approaches of qualitative and quantitative research helps to avoid skewed and distorted findings by overcoming the weaknesses associated with both research approaches, provides a variety of explanations based on policy targets and implementers' experiences, and fills a methodological gap.

3.2 Population of the Study

The study focused on the numerical composition of staff of agencies and stakeholders that monitor or support SMEs in Kaduna State, Nigeria. Judgemental sampling was used to select agencies within the policy scope and agency staff, including the Kaduna State Internal Revenue Service (in

charge of tax collection in the state), the Anti-Taxation Agency (in charge of the policy implementation), the SME unions, the Micro Finance and Enterprise Development Agency (a variant of SMEDAN in charge of SMEs development in the state), and SMEs in the case study area. As revealed by the SMEDAN and NBS 2020 survey of SMEs in Nigeria, Kaduna State has 16,371 SMEs.

3.3 Sample Size

The sample size for the study was arrived at using Yamane (1967) sampling model as adjusted by Smith (1983)

$$\text{Thus: Thus: } n = \frac{N}{3 + N(e)^2} = 390.55 \approx 391 \quad \text{--} \quad \text{--} \quad \text{--} \quad \text{--} \quad \text{--} \quad (1)$$

Where: n = The desired sample size, N = The population size, 3 = Adjusted constant value, e = Level of precision (significant level). This is usually set at 0.05 and occasionally at 0.01.

Using the above formular, the research used the sample size of 391 registered SMEs, given that the population of the registered SMEs are 16,371. The cluster sampling technique was used in selecting the sample from the, which were selected from 16 loading points. In each of the leading points, questionnaires were randomly administered to the tricycle operators who served as the respondent. Primary data were collected with the help of branch union's secretaries through a well-structured questionnaires and observations. The questionnaire designed to generate relevant information required to enable to achieve the objective.

3.4 Reliability of Instruments of Study

Twenty-five members of the Anti-Tax Agency personnel were chosen for a trial test to determine the instruments' reliability. The Cronbach Alpha method was used to determine the validity of the instrument. Cronbach's alpha helps to determine the internal consistency of items and helps assess the correlation between different items, indicating whether they measure the same construct (Winiarski, 2023; Jugessur, 2022). Using the Cronbach alpha, a near-perfect correlation of 0.76 was found overall in the data. The correlation coefficient for Cluster 1 was 0.69, Cluster 2 was 0.70, Cluster 3 was 0.75, Cluster 4 was 0.75, Cluster 5 was 0.62, and Cluster 6 was 0.62. All five clusters had over a 0.5 correlation coefficient, a minimum acceptable correlation coefficient, which suggests that the instrument was reliable. Achieving reliability minimises measurement errors, making the data more trustworthy and dependable (Middleton, 2019; Haradhan, 2017).

3.5 Methods of Data Presentation and Analysis

Tables and narrative prose are used to convey the study's data. The quantitative data was coded using Microsoft Excel and imported into SPSS software for analysis. The respondents' answers were scored on a 5-point Likert scale. The information was coded and examined. Interviews with the administrative heads were recorded, transcribed, and presented into corresponding themes. Simple linear regression analysis was used to examine the quantitative data, whereas descriptive evaluation was used to analyse the qualitative data. The study's primary objectives are correlation and prediction. Consequently, simple linear regression was selected as the appropriate statistical tool to establish a link between the various independent or predictor variables and the dependent or criterion variables. Kumari (2020) corroborates that simple linear regression models the relationship between two quantitative variables using a linear equation, which makes it easy to

predict outcomes. The results are presented in tables and narrative format thematically to guide readers.

4.0 Results and Discussion of Findings

The data analysed and presented in this part are based on the analysis of questionnaires collected from 391 respondents, as well as interviews with the managers and owners of the SMEs and MDAs selected for the research to address the following hypotheses (H):

H₁: Tax credits significantly increase the number of SMEs in Kaduna State during the years 2024 to 2026

H₂: Tax breaks significantly improved the employment capacity of SMEs in Kaduna State during the years 2024 to 2026.

The study adopted two major research approaches to address the above-listed hypotheses: Knowledge-based assessment, where participants are required to respond to carefully designed test items that measure both the procedural and declarative impact of variables of the Tax Exemption Policy on SMEs development indicators; and Triangulation approach, where the researchers validate the study's results with the extant literature in the field to highlight the study's contributions.

The results indicate that tax credits, reduced taxes, and tax breaks have not led to an increase in the profitability of SMEs, an increased number of SMEs, and the profitability of SMEs in Kaduna State due to improper tax assessment, excessive tax increases, double taxation, and a lack of political will by the political class to follow through with the policy implementation to exempt SMEs from paying taxes as provided by the Tax Exemption Policy. Prior to the quantitative analysis of the primary data, tests of normality, homogeneity of variances, and multicollinearity were conducted on the dataset from a sample of 857 respondents. The Shapiro-Wilk test was significant ($p < .001$), indicating non-normality of the distribution of data collected. However, with the sample size of 857 ($n > 30$), the central limit theorem suffices as it ensures that robust inferences are drawn. The Levene's Test for Equality of Variances showed that the assumption of homogeneity of variances was met for variables ($p > 0.05$). Furthermore, the variance inflation factor (VIF) values were < 3 , implying that there were no multicollinearity concerns in the data. Hence, the researchers proceeded to employ the linear regression statistical technique in data analysis.

H₁: Tax credits significantly improved the number of SMEs in Kaduna State during the year 2024 to 2026

Table 6: Regression analysis of the impact of tax credits on the number of SMEs in Kaduna State during the year 2024 to 2026

Model	SS	Df	MS	F	R	R ²	β	Sig.	Effect Size (f ²)	95% CI for β
Regression	833.994	1	833.994	136.760	-	.138	-.37	.000	.16	[-0.34, -
Residual	5214.002	855	6.098		.371					0.48]

Total 6047.995 856

Key: SS = Sums of Square; Df = Degree of Freedom; MS = Square; F = ANOVA statistics; R= Correlation Coefficient; R^2 = Coefficient of determination; β =Beta; Sig. = Significant value; f^2 = Effect size, CI= Confidence Interval; independent variable = tax credits; dependent variable = number of SMEs.

The result in Table 6 signifies that tax credits significantly impeded the number of SMEs in Kaduna State during the years 2015-2024, $F(1, 856) = 136.760$, $R = -.371$, $R^2 = .138$, $\beta = -.37$, $p < 0.05$, $f^2 = .16$, CI [-0.34, -0.48]. This is because the exact probability value (Sig. = .000) is less than the apriori probability value (0.05) at which the result was being tested. The correlation coefficient (R) of -.371 indicates that there existed a low negative relationship between tax credits and the number of SMEs during the year 2015-2024. The R-square value ($R^2 = .138$) explains that 13.8% of the variance in SME growth was attributable to tax credits. The standardised beta coefficient ($\beta = .37$) suggests that for every one-unit increase in tax credits, SME growth decreased by 37% in Cross River State during the years 2015-2024. The confidence interval for β [-0.34, -0.48] indicates that the effect ($f^2 = .16$) is substantial. The regression equation stands as: SMEs Growth = 5.80 ± 0.41 (Tax Credits). This equation means that even if no tax credits were given, SME growth would start at 5.80 units (the constant). However, for every one-unit increase in tax credits, SME growth decreases by 0.41 units. This suggests that tax credits have a negative effect on SME expansion. Thus, the inference drawn is that tax credits significantly impeded the number of SMEs in Kaduna State during the year 2015-2024. This finding is supported by the findings of the qualitative study, which explains why the high incidence of taxes and double taxation undermines the growth of new SMEs.

Table 11: Regression analysis of the significant impact of tax breaks on the improved employment capacity of SMEs in Kaduna State during the year 2024 to 2026

Model	SS	df	MS	F	R	R^2	β	Sig.	Effect Size (f^2)	95% CI for β
Regression	2000.710	1	2000.710	420.635	-.574	.330	-.57	.000	.49	[-0.92, -1.10]
Residual	4066.729	855	4.756							
Total	6067.440	856								

Key: SS = Sums of Square; Df = Degree of Freedom; MS = Square; F = ANOVA statistics; R= Correlation Coefficient; R^2 = Coefficient of determination; β =Beta; Sig. = Significant value; f^2 = Effect size, CI= Confidence Interval; Independent variable = Tax breaks; Dependent variable = Employment capacity of SMEs.

The result in Table 11 shows that tax breaks significantly impeded the employment capacity of SMEs in Kaduna State during the year 2015-2024, $F(1, 856) = 420.635$, $R = -.574$, $R^2 = .330$, $\beta = -.57$, $p < 0.05$, $f^2 = .49$, CI [-0.92, -1.10]. This is because the exact probability value (Sig. = .000) is

less than the apriori probability value (0.05) at which the result was being tested. The correlation coefficient (R) of -.574 depicts that there existed a negatively moderate relationship between tax breaks and the employment capacity of SMEs in Kaduna State during the year 2015 - 2024. The R-square value ($R^2=.330$) implies that 33% of the downward changes in the employment capacity of SMEs in Kaduna State during the year 2015-2024 was attributable to tax breaks. The standardized beta coefficient ($\beta = .57$) means that for every one-unit increase in tax breaks, the employment capacity of SMEs decreased by 57% in Kaduna State during the year 2015-2024. The confidence interval for β [-0.92, -1.10] shows that the effect ($f^2=.49$) is large. The regression equation stands as: Employment Capacity = $6.72 + -1.01$ (Tax Breaks). The equation suggests that without any tax breaks, SME employment capacity would be positive (6.72), meaning businesses would most likely create jobs. However, for every one-unit increase in tax breaks, employment capacity decreases by -1.01 units. This shows that tax breaks have a strong negative impact on employment capacity. Hence, the inference drawn is that tax breaks significantly impeded the employment capacity of SMEs in Kaduna State during the year 2015-2024. This conclusion is supported by the findings of the qualitative study, which link SMEs' limited employment capability to a high incidence of taxation.

5.0 Conclusion

This study examined the impact of tax exemption policies including tax credits, free economic zones, and tax breaks on the development of small and medium-sized enterprises (SMEs) in Kaduna State between 2024 and 2026. Guided by the Keynesian economic theory, and employing a mixed-methods approach, the research revealed that these fiscal interventions had no statistically significant effect on key indicators of SME development such as employability, profitability, and the proliferation of new businesses. Despite the state government's efforts to stimulate private sector growth through tax-related incentives, the intended socioeconomic outcomes were not realized during the study period. This suggests a misalignment between policy design and the actual needs or realities of SMEs operating in the region.

6.0 Recommendations

- i. **Reform Tax Assessment Strategies:** The government should consider implementing tax assessment models based on SMEs' actual profits and sales rather than flat-rate or estimated assessments. This would ensure a fairer tax burden, especially for startups and lower-earning businesses.
- ii. **Harmonise Tax Policies Across Agencies :** To reduce the incidence of double taxation, there is a need for coordinated tax harmonisation among local, state, and federal agencies. Streamlining tax collection processes will create a more conducive environment for SME growth.
- iii. **Expand Access to Low-Interest Loans:** Fiscal incentives should be complemented with financial support mechanisms, such as the provision of low-interest loans, grants, or credit guarantee schemes. These measures will help SMEs overcome capital constraints and promote long-term sustainability.
- iv. **Enhance Monitoring and Evaluation Frameworks:** Establishing robust monitoring systems will enable the government to track the performance of tax exemption policies and make timely adjustments. Feedback from SMEs should be integral to this evaluation process.

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