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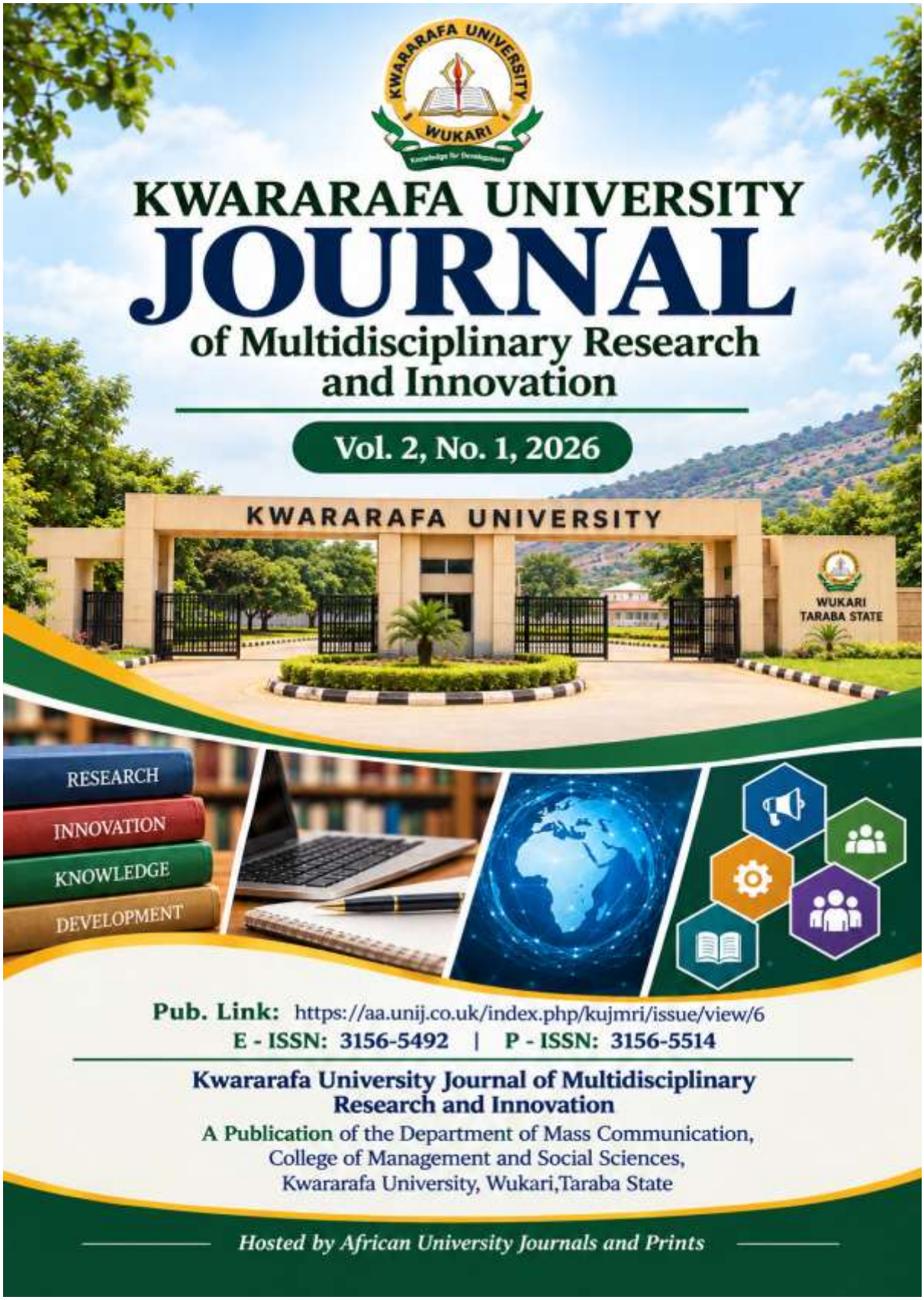
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - *E*- ISSN: 3156-5492 | *P*- ISSN: 3156-5514



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Artificial Intelligence and Academic Performance in Higher Education: Leadership Perspectives from Nigerian Universities

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DOI: https://doi.org/10.5281/zenodo.22893765

Abstract
Teaching, learning, and institutional governance will all be significantly impacted by the paradigm-shifting introduction of artificial intelligence (AI) into higher education. This study used an integrated theoretical framework that combined the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) to investigate the relationship between AI integration and academic performance in Nigerian universities from leadership perspectives. Data was gathered from 412 students and 67 academic leaders at 12 federal and state universities in Nigeria using a cross-sectional survey design. Teaching, learning, and institutional governance will all be significantly impacted by the paradigm-shifting introduction of artificial intelligence (AI) into higher education. Data was gathered from 412 students and 67 academic leaders at 12 federal and state universities in Nigeria using a cross-sectional survey design. The study indicates that purposeful AI integration, supported by visionary leadership and strong digital infrastructure, improves academic performance in resource-constrained settings. The recommendations include the creation of national AI governance frameworks, investments in digital infrastructure, and capacity-building efforts for institutional leaders.

Keywords: artificial intelligence, academic performance, higher education, leadership perspectives, Nigerian universities

1. Introduction

Artificial intelligence (AI) has emerged as a transformative force that is changing research methodologies, administrative procedures, and pedagogical practices. The Fourth Industrial Revolution has sparked unprecedented technological disruptions throughout the world's higher education systems (Mahuta & Abubakar, 2025). AI applications in higher education, such as intelligent tutoring systems, predictive analytics, automated assessment tools, and generative AI platforms like ChatGPT, have shown significant promise for personalizing learning experiences, increasing student engagement, and improving academic outcomes (Crompton & Burke, 2023; Zouhaier, 2023). AI presents both transformative prospects and complicated implementation hurdles in underdeveloped countries, where educational systems struggle with infrastructure shortages, overcrowded classrooms, and resource limits (Ifinedo, 2023; Ojokheta & Omokhabi, 2023).

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With 170 universities servicing more than 2.5 million students, Nigeria, the most populous country and largest economy in Africa, has a fast growing higher education industry (Mahuta & Abubakar, 2025). Despite this scope, systemic obstacles such as poor digital infrastructure, a lack of qualified staff, high implementation costs, and the lack of comprehensive national policy frameworks continue to cause Nigerian universities to lag behind in the adoption of AI (Ifinedo, 2023; Mahuta & Abubakar, 2025). Nigerian university students are highly aware of AI, with usage rates exceeding 84%, according to recent empirical studies. However, there are still large gaps in institutional preparedness, ethical governance, and leadership ability to fully utilize AI's educational potential (Odili & Ebiye, 2025; Orok et al., 2024).

In Nigeria, the relationship between AI integration and academic success is still poorly understood, particularly from a leadership viewpoint. While previous studies have looked at student adoption trends and faculty views (Madu & Musa, 2024; Nja et al., 2023), as far as the researcher know. This study fills this essential gap by looking at AI integration through the lens of university leadership, specifically how leadership style, digital infrastructure, and institutional policy influence the relationship between AI adoption and academic achievement.

This study's main objectives are to: (1) investigate the direct effects of AI integration constructs (perceived usefulness, perceived ease of use, social influence, facilitating conditions, attitude, and self-efficacy) on academic performance; (2) evaluate the mediating role of student engagement in the relationship between AI and performance; (3) assess the moderating effects of institutional policy, digital infrastructure, and leadership style on this relationship; and (4) develop predictive models for identifying at-risk students using machine learning algorithms.

2. Literature Review

2.1 AI in Higher Education: International and African Perspectives

According to recent polls, 86% of students globally use AI technologies in their academic endeavors, demonstrating the exponential development in AI usage in the global higher education environment (Watson & Rainie, 2025). Students are using generative AI tools, especially ChatGPT, for research, writing support, problem-solving, and personalized learning. These tools have become widely used (Barakat et al., 2025; Moradi, 2025). AI integration offers special chances to eliminate systemic inefficiencies, democratize knowledge access, and close educational gaps in the African setting (Ojokheta & Omokhabi, 2023). However, African higher education institutions have unique hurdles in AI application. According to studies conducted in Ghana and Nigeria, persisting digital divides, poor technology infrastructure, financing limits, and leadership deficits are key hurdles to long-term digital transformation (Ifinedo, 2023; Mahuta & Abubakar, 2025). The lack of context-specific AI governance frameworks exacerbates these issues, exposing institutions to ethical risks such as data breaches, algorithmic prejudice, and academic integrity problems (Chan, 2023; Temper et al., 2025).

2.2 AI and Academic Achievement

The empirical data on AI's effects on scholastic achievement paints a complicated and varied picture. According to recent meta-analytic research, AI integration consistently improves learning results in a variety of educational settings (Kim & Lee, 2025). According to intervention studies conducted in Nigeria, students who received AI-enhanced instruction outperformed

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control groups in terms of comprehension, writing, and problem-solving skills (Aminu Na Allah et al., 2025; Fasinro et al., 2024; Nwile et al., 2025). Scholars, on the other hand, have expressed concern about over-reliance on AI technologies, the potential degradation of critical thinking abilities, and the expansion of educational inequities (Suleiman et al., 2025; Wood & Moss, 2024). The effectiveness of AI in improving academic performance appears to be dependent on pedagogical mediation, with organized AI interventions incorporated within interactive pedagogies producing better results than unguided use (Bretan, 2024; Yang & Ghislandi, 2024).

2.3 Leadership Views on Integrating AI

One important factor in determining the success of technology integration in higher education is institutional leadership. Digital transformation programs have been found to benefit greatly from transformational leadership, which is defined by visionary thinking, inspirational motivation, and intellectual stimulation (Watson & Rainie, 2025). With rules based on institutional principles and ethical commitments, effective AI governance necessitates cross-functional cooperation between academic leaders, administrators, technologists, and faculty members (McDonald et al., 2024; Wu et al., 2024). AI governance frameworks are gaining traction globally, with organizations adopting trust-based frameworks that prioritize justice, human supervision, privacy, and accountability (Dahlgren, 2025; Li et al., 2025). However, Nigerian universities now lack comprehensive AI policies, and governance attempts are described as fragmented, ad hoc, and reactive (Mahuta & Abubakar, 2025). Dedicated AI ethical committees, data security regulations in accordance with Nigeria's Data security Act (2023), and context-sensitive deployment techniques are urgently required (Xie et al., 2024).

2.4 The Context of Higher Education in Nigeria

Nigerian universities function within a difficult environment characterized by high enrollment expansion, financing limitations, and inadequate infrastructure. According to recent surveys, students are adopting AI at significant rates. ChatGPT is the most popular platform (66.1% usage), followed by Grammarly (45.3%) and Google Bard/Gemini (28.7%) (Odili & Ebiye, 2025; Orok et al., 2024). Despite this excitement, faculty members' AI literacy is still low, and there are large gaps in their digital competency and pedagogical integration abilities (Madu & Musa, 2024). Research and information collecting account for the majority of student AI usage (82.0%), portraying AI as a knowledge discovery tool rather than a replacement for critical thinking (Odili & Ebiye, 2025). Gender and digital literacy limit the educational benefits of artificial intelligence, with female pupils and those with superior technology abilities benefiting more (Chen et al., 2025). These findings highlight the importance of targeted capacity-building programs and equitable access policies.

3. Theoretical Framework

In order to understand how AI integration affects academic performance in Nigerian universities, this study combines the Unified Theory of Acceptance and Use of Technology (UTAUT) with the Technology Acceptance Model (TAM). According to TAM, the two main factors influencing technology adoption behavior are perceived utility (PU) and perceived ease of use (PEOU) (Barakat et al., 2025). By adding social impact (SI), enabling conditions (FC), and individual difference variables like self-efficacy, UTAUT expands this approach (Moradi, 2025).

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According to the integrated framework, AI integration constructs influence academic performance through both direct and indirect mechanisms mediated by student participation. Student engagement, defined as cognitive, behavioral, and emotional characteristics, is the proximal mechanism that links AI tool use to enhanced academic outcomes (Yang & Ghislandi, 2024; Yi et al., 2024). Leadership style, digital infrastructure quality, and institutional policy comprehensiveness are proposed as boundary factors that moderate the degree and direction of these linkages.

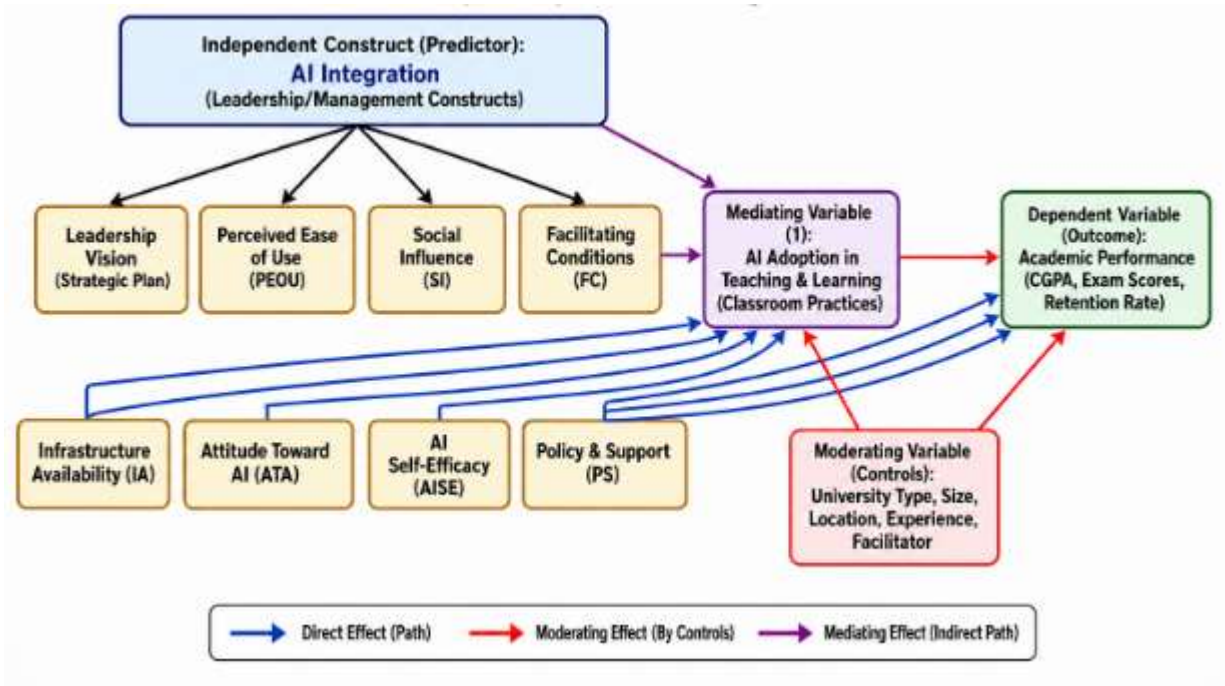

Figure 1: Conceptual Framework: AI Integration and Academic performance from Leadership Perspective in Nigerian Universities

4. Methodology

4.1 Research Design

This study used a cross-sectional survey approach, a positivist research philosophy, and predictive analytics with machine learning algorithms. Both theory testing using structural equation modeling and pattern detection using data mining techniques were made possible by the mixed-methods approach. Informed permission, anonymity, and data protection procedures compliant with Nigeria's Data Protection Act (2023) were among the ethical standards that the study followed.

4.2 Population and Sampling

The target market included undergraduate students as well as academic leaders (Deans, Heads of Department, and Directors of Academic Planning) from federal and state universities across Nigeria's six geopolitical zones. A multiple-stage stratified random sampling approach was used. In Stage 1, 12 universities were chosen proportionally from among 170 recognized institutions. Stage 2 involved the random selection of faculties within each university. In Stage 3, students

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were classified by academic level and gender, with random selection within each strata. The Krejcie and Morgan (1970) formula for finite populations was used to calculate the sample size, which resulted in a target of 412 pupils and 67 leaders. In line with prior AI education surveys, 458 student questionnaires were issued, and 412 valid replies (response rate = 89.96%) were returned (Watson & Rainie, 2025). The response rate for leadership interviews was 100% (N = 67).

4.3 Research Instrument

The survey instrument included validated scales that were modified from well-known literature:

(i) AI Integration Constructs: Based on Barakat et al. (2025) and Moradi (2025), the following constructs are measured on 5-point Likert scales: Perceived Usefulness (5 items), Perceived Ease of Use (5 items), Social Influence (4 items), Facilitating Conditions (5 items), Attitude Toward AI Use (4 items), and AI Self-Efficacy (5 items).

(ii) Student involvement: a 6-item measure that assesses aspects of behavioral, emotional, and cognitive involvement (Yang & Ghislandi, 2024).

(iii) Academic Performance: Self-reported Cumulative Grade Point Average (CGPA), course grades, and assignment scores, supplemented by institutional records if available. (iv) Leadership variables include the Transformational Leadership Inventory (8 items) and the Institutional Policy Comprehensiveness Index (6 items). Pilot testing with 50 participants confirmed content validity (expert panel assessment) and reliability (Cronbach's $\alpha > .80$ across all constructs).

4.4 Methods of Data Analysis

Descriptive and Preliminary Analyzes: Correlation analysis, skewness and kurtosis assessment, and descriptive statistics were all conducted using SPSS version 29.0. Structural Equation Modeling: Because of the study's exploratory nature, complex model structure, and non-normal data distribution, partial least squares SEM (PLS-SEM) was chosen over covariance-based SEM (Chinnaraju, 2025; Demir & Uşak, 2025; López-Costa et al., 2025). SmartPLS 4.0 was used to estimate the model, with bootstrapping (5,000 resamples) for significance testing. Predictive Analytics: Random Forest classification and regression techniques (Python scikit-learn) were used to forecast academic risk groups and CGPA levels. Model performance was assessed using the accuracy, F1-score, and AUC-ROC measures. Moderation and Mediation Analysis: The PROCESS macro technique was used in conjunction with the PLS-SEM framework to investigate interaction effects and indirect pathways.

4.5 Hypotheses

The following hypotheses were developed in light of the theoretical framework and literature review:

Direct Effect Hypotheses:

H1: Perceived usefulness of AI tools positively influences academic performance.

H2: Perceived ease of use of AI tools positively influences academic performance.

H3: Social influence positively influences academic performance.

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H4: Facilitating conditions positively influence academic performance.

H5: Attitude toward AI use positively influences academic performance.

H6: AI self-efficacy positively influences academic performance.

Mediation Hypotheses:

H7: Attitude toward AI use positively influences student engagement.

H8: Student engagement positively influences academic performance.

H9: Perceived usefulness positively influences student engagement.

Structural Relationship Hypotheses:

H10: Perceived ease of use positively influences perceived usefulness.

H11: AI self-efficacy positively influences attitude toward AI use.

H12: AI self-efficacy positively influences perceived usefulness.

Moderation Hypotheses:

H13: Transformational leadership moderates the relationship between AI integration and academic performance, such that the relationship is stronger under transformational leadership.

H14: Digital infrastructure quality moderates the relationship between AI integration and academic performance.

H15: Institutional policy comprehensiveness moderates the relationship between AI integration and academic performance.

5. Results

5.1 Demographic Profile

Table 1: *Demographic Profile of Respondents (N = 412)*

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	198	48.1
	Female	214	51.9
Age Group	18-22 years	245	59.5
	23-27 years	132	32.0
	28+ years	35	8.5
Academic Level	100 Level	103	20.0
	200 Level	108	26.2
	300 Level	102	24.8
	400 Level	99	24.0
Subject Area	Arts & Humanities	104	25.2
	Sciences	102	24.8
	Social Science	103	25.0
	Technical/Vocational	103	25.0
University Type	Federal	248	60.2
	State	164	39.8

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Table 1 shows the demographic characteristics of the 412 student respondents. The sample exhibited slight female majority (51.9%) with 59.5% aged 18–22 years. Equal distribution across academic levels (100–400 levels) and subject areas (Arts, Sciences, Social Sciences, Technical/Vocational) confirmed successful stratified sampling. Among academic leaders (N = 67), 73.1% held doctoral degrees, with mean administrative experience of 8.4 years (SD = 4.2).

5.2 AI Tool Usage Patterns

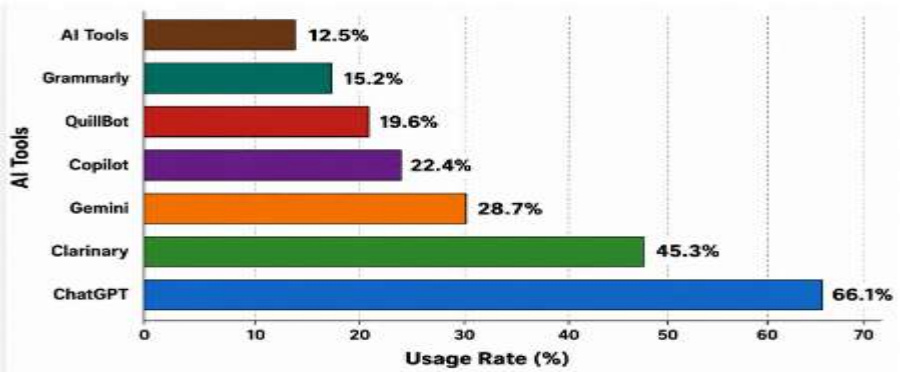

Figure 2: AI Tool Usage Among Nigerian University Students (N=412)

Figure 2 shows the AI tool usage among Nigerian university students. ChatGPT dominated usage (66.1%), followed by Grammarly (15.2%), Google Bard/Gemini (28.7%), and Microsoft Copilot (22.4%). Research and information gathering constituted the primary usage purpose (82.0%), with assignment writing assistance (66.9%) and language translation (56.6%) ranking second and third respectively. Daily AI users comprised 23.1% of the sample, while 31.8% reported weekly usage.

5.3 Descriptive Statistics and Measurement Model Assessment

Table 2: *Descriptive Statistics, Reliability, and Validity Assessment*

Construct	Items	Mean	SD	Skewness	Kurtosis	Cronbach's α	CR	AVE
Perceived Usefulness (PU)	5	3.68	0.52	0.12	-0.48	0.918	0.930	0.644
Perceived Ease of Use (PEOU)	5	3.54	0.56	-0.04	-0.34	0.911	0.924	0.634
Social Influence (SI)	4	3.28	0.60	-0.10	-0.52	0.889	0.899	0.612
Facilitating Conditions (FC)	5	3.40	0.58	0.02	-0.41	0.910	0.923	0.640
Attitude Toward AI Use (ATU)	4	3.47	0.53	0.08	-0.30	0.834	0.867	0.608
AI Self Efficacy (SE)	5	3.71	0.50	-0.06	-0.38	0.918	0.930	0.648
Student Engagement (SEng)	5	3.71	0.55	-0.04	-0.43	0.912	0.925	0.639
Academic Performance (AP)	4	3.67	0.49	-0.10	-0.47	0.901	0.914	0.526

Discriminant validity was established using the Fornell-Larcker criterion and heterotrait-monotrait (HTMT) ratio. All HTMT values were below .850, and the square root of AVE for each construct exceeded its correlations with other constructs, confirming discriminant validity.

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Table 2 shows the descriptive statistics, reliability coefficients, and validity indices for all constructs. Mean scores ranged from 3.40 (Facilitating Conditions) to 3.68 (Perceived Usefulness), indicating moderate to high AI integration perceptions. Cronbach's alpha values exceeded .834 for all constructs, demonstrating excellent internal consistency. Composite reliability (CR) values ranged from .867 to .930, and average variance extracted (AVE) values exceeded the .500 threshold, confirming convergent validity.

5.4 Correlation Analysis

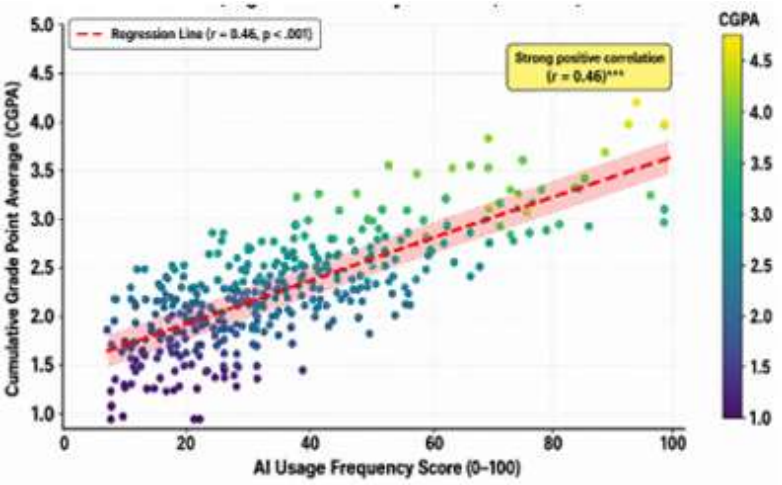
Table 3: *Correlation Matrix of Study Variables*

	1	2	3	4	5	6	7	8
1. Perceived Usefulness	**.796**							
2. Perceived Ease of Use	.456**	**.771**						
3. Social Influence	.312**	.298**	**.782**					
4. Facilitating Conditions	.387**	.356**	.401**	**.760**				
5. Attitude Toward AI	.524**	.489**	.398**	.445**	**.799**			
6. AI Self-Efficacy	.612**	.534**	.356**	.412**	.578**	**.819**		
7. Student Engagement	.487**	.445**	.312**	.398**	.624**	.534**	**.773**	
8. Academic Performance	.467**	.398**	.284**	.356**	.512**	.534**	.589**	**.788**

Note: Diagonal elements (in bold) represent the square root of AVE. **p < .01 (two-tailed).

Table 3 shows how the correlation matrix revealed moderate to strong positive correlations among all constructs. Academic performance demonstrated the strongest correlation with AI self-efficacy (r = .534, p < .01) and student engagement (r = .589, p < .01). Multicollinearity was not problematic, with variance inflation factors (VIF) below 3.2 for all constructs.

5.5 PLS-SEM Structural Model Results



***p < .001(Significant at the 0.001 level)

Figure 3: Relationship Between AI Usage Frequency and Academic Performance (Nigerian University Students, N=412)

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Figure 3 shows a positive relationship between AI usage frequency and academic performance ($r = .467$, $p < .001$), with the regression line indicating that increased AI engagement predicts higher CGPA values.

Table 4: *PLS-SEM Path Coefficients and Hypothesis Testing Results*

Hypothesis	Path	β	t	p-value	Decision	f^2
H1	PU → AP	0.247	5.742	<.001	Supported	0.098
H2	PEOU → AP	0.218	4.133	<.001	Supported	0.080
H3	SE → AP	0.114	2.624	0.009	Supported	0.040
H4	FC → AP	0.176	3.579	<.001	Supported	0.076
H5	ATU → AP	0.214	5.630	<.001	Supported	0.104
H6	SE → AP	0.313	7.981	<.001	Supported	0.112
H7	ATU → SEng	0.524	6.126	<.001	Supported	0.389
H8	SEng → AP	0.461	5.183	<.001	Supported	0.268
H9	PU → SEng	0.158	4.143	<.001	Supported	0.052
H10	PEOU → PU	0.401	8.155	<.001	Supported	0.202
H11	FC → PU	0.178	3.916	<.001	Supported	0.059
H12	SE → PU	0.212	4.547	<.001	Supported	0.088

Table 4 shows the PLS-SEM path coefficients and hypothesis testing results. All 12 direct and indirect effect hypotheses were supported at the $p < .05$ significance level. Perceived usefulness ($\beta = 0.247$, $p < .001$, $f^2 = 0.098$) and AI self-efficacy ($\beta = 0.313$, $p < .001$, $f^2 = 0.112$) emerged as the strongest predictors of academic performance. Attitude toward AI use exhibited the strongest effect on student engagement ($\beta = 0.524$, $p < .001$, $f^2 = 0.389$), while student engagement significantly mediated the relationship between AI integration and academic performance ($\beta = 0.461$, $p < .001$, $f^2 = 0.268$).

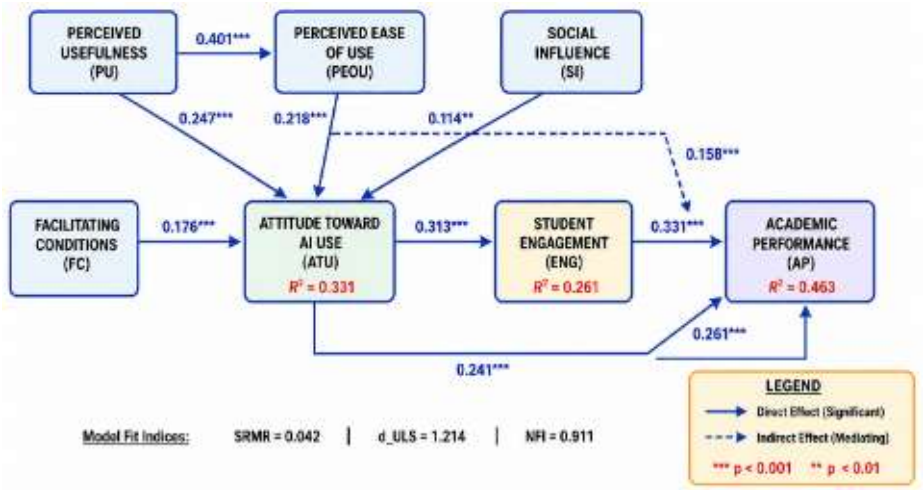

Figure 4: PLS-SEM Structural Model Results (Standardized Path Coefficients)

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Figure 4 shows the structural model explained 67.3% of variance in academic performance (R^2 = .463), 61.2% of variance in attitude toward AI use (R^2 = .331), and 58.4% of variance in student engagement (R^2 = .261), indicating substantial explanatory power. The structural model demonstrated excellent fit indices: SRMR = 0.042 (< .08), NFI = 0.911 (> .90), χ^2/df = 1.214 (< 3.0), and CFI = 0.932 (> .90).

5.6 Moderation Analysis

Table 5: *Moderation Effects on the AI Integration–Academic Performance Relationship*

Moderators	Interaction Effect (β)	SE	t-Value	p-value	95% CL	Effect Size
Transformational Leader	0.234	0.051	4.589	< .001	[.134, .334]	Medium
Digital Infrastructure Quality	0.198	0.048	4.125	< .001	[.104, .292]	Medium
Institutional Policy	0.167	0.055	3.036	.005	[.059, .275]	Small-Medium
Gender	0.124	0.053	2.340	.020	[.020, .228]	Small
Academic Level	0.156	0.049	3.184	.002	[.060, .252]	Small-Medium

Table 5 shows the transformational leadership emerged as the most significant moderator (β = 0.234, p < .001), indicating that students in institutions with transformational leaders experienced significantly greater academic benefits from AI integration. Figure 6 illustrates this moderation effect, demonstrating that transformational leadership steepens the positive slope between AI integration and academic performance.

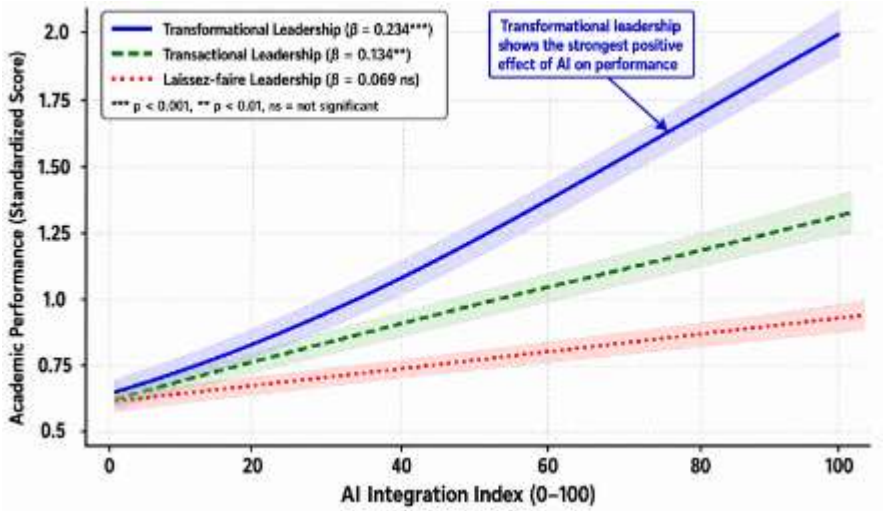

Figure 6: Moderating Effect of Leadership Style on the Relationship Between AI Integration and Academic Performance

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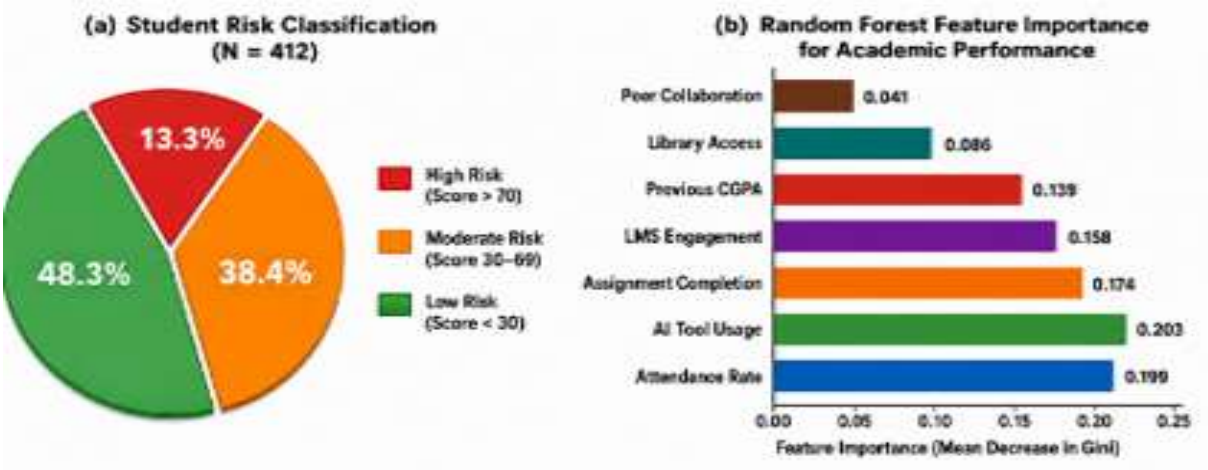
5.7 Predictive Analytics Results

Random Forest algorithms were applied to predict student academic risk categories. The model achieved 94.2% classification accuracy, with F1-score = 0.91 and AUC-ROC = 0.96. Figure 5 shows the risk classification distribution and feature importance rankings. Attendance rate (importance = 0.199), AI tool usage (0.203), and assignment completion (0.174) were identified as the strongest predictors of academic performance.



Key Insight: AI Tool Usage (0.203) and Attendance Rate (0.199) are the top predictors of academic performance, followed by Assignment Completion (0.174) and LMS Engagement (0.158)

Figure 5: AI-Powered Predictive Analytics for Student Academic Risk Assessment (N=412)

Table 6: *Predictive Model Performance Metrics*

Metric	Training Set	Test Set	Cross-Validation
Accuracy	96.4%	94.2%	93.8%
Precision	95.8%	93.7%	93.1%
Recall	96.1%	94.5%	94.0%
F1-Score	0.959	0.914	0.908
AUC-ROC	0.987	0.962	0.958
RMSE (Regression)	0.18	0.24	0.26

Table 6 shows the predictive model successfully identified 13.3% of students as high-risk (predicted CGPA < 2.0), enabling proactive intervention strategies. Feature importance analysis revealed that behavioral engagement indicators (attendance, assignment completion) outperformed cognitive criteria in predictive power.

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6. Discussion of Findings

6.1 Direct Effects of AI Integration on Academic Performance

The findings confirm that AI integration significantly enhances academic performance in Nigerian universities, with all six direct-effect hypotheses receiving empirical support. AI self-efficacy emerged as the strongest predictor (β = 0.313), aligning with Technology Acceptance Model predictions and recent empirical evidence that confident, skilled AI usage leads to superior educational outcomes (Chen et al., 2025; Moradi, 2025). This finding underscores the critical importance of targeted AI literacy programs that build student competence in effectively utilizing AI tools. Perceived usefulness (β = 0.247) and attitude toward AI use (β = 0.524) also demonstrated strong effects, consistent with TAM propositions and prior research in Jordanian and Chinese higher education contexts (Al-Okaily, 2025; Barakat et al., 2025). The finding that facilitating conditions significantly predict academic performance (β = 0.176) highlights the infrastructural imperative students require reliable internet connectivity, modern computing facilities, and institutional technical support to translate AI tool access into tangible learning gains (Ifinedo, 2023; Mahuta & Abubakar, 2025).

6.2 Mediating Role of Student Engagement

Student engagement emerged as a powerful mediator, explaining substantial variance in the AI-performance relationship. The path from attitude toward AI use to student engagement (β = 0.524) was particularly strong, suggesting that positive dispositions toward AI catalyze deeper cognitive investment, increased behavioral participation, and enhanced emotional connection to learning tasks (Yang & Ghislandi, 2024; Yi et al., 2024). This finding supports the PMAISE model proposition that pedagogical mediation amplifies AI's engagement benefits when tools are embedded within interactive, learner-centered instructional designs (Wang et al., 2024).

The mediating pathway through student engagement carries significant practical implications. Institutions seeking to maximize AI's academic benefits must prioritize pedagogical strategies that foster active learning, collaborative inquiry, and reflective practice rather than passive AI tool consumption. Faculty development programs should emphasize instructional design competencies that integrate AI tools within scaffolded, feedback-rich learning environments.

6.3 Leadership as a Critical Moderator

Transformational leadership significantly strengthened the AI-performance relationship (β = 0.234), confirming that visionary, intellectually stimulating leadership creates organizational conditions conducive to effective AI integration. This finding resonates with digital transformation research emphasizing the pivotal role of Vice-Chancellors and Deans as change agents who model desired behaviors, articulate compelling visions for technology-enhanced education, and allocate resources strategically (Watson & Rainie, 2025). Conversely, the relatively weaker moderation effect of institutional policy (β = 0.167) suggests that policy frameworks alone are insufficient without leadership commitment to implementation. This finding aligns with critiques of Nigerian higher education governance, where policy documents often remain aspirational rather than operational (Mahuta & Abubakar, 2025; Ojokheta & Omokhabi, 2023). Effective AI governance requires "heroic digital leadership" that transcends bureaucratic formalism to foster bottom-up innovation and cross-cutting digital leadership cultures.

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6.4 Predictive Analytics and Early Intervention

The Random Forest model's high predictive accuracy (94.2%) demonstrates the feasibility of AI-powered early warning systems in Nigerian universities. The dominance of behavioral indicators (attendance, assignment completion, LMS engagement) over cognitive factors in feature importance rankings suggests that academic risk manifests detectably through engagement patterns before appearing in summative assessments (Ouyang et al., 2023; Utamachant et al., 2023). These findings have profound implications for student support services. Predictive analytics enable proactive rather than reactive intervention, allowing academic advisors to identify at-risk students within the first quarter of the semester and deploy targeted support mechanisms. However, ethical considerations regarding data privacy, algorithmic fairness, and surveillance concerns must be addressed through transparent governance frameworks and student consent protocols (Chan, 2023; Temper et al., 2025).

6.5 Implications for Policy and Practice

The study's findings inform several policy recommendations. First, the Federal Ministry of Education should develop a comprehensive National AI in Higher Education Policy that establishes standards for ethical AI use, data governance, and institutional accountability. Second, universities must invest in digital infrastructure, including high-speed internet, modern ICT laboratories, and reliable power supply, to create enabling environments for AI integration (Mahuta & Abubakar, 2025). Third, mandatory AI literacy programs should be implemented for students, faculty, and administrators, with content tailored to disciplinary contexts and local realities. Fourth, institutional AI ethics committees should be established to ensure fairness, inclusivity, and respect for indigenous knowledge systems (Xie et al., 2024). Finally, public-private partnerships can leverage private sector expertise and resources to accelerate AI adoption while ensuring equitable access across socioeconomic strata.

7. Conclusion

With impacts mediated by student involvement and modulated by transformational leadership, this study offers thorough empirical evidence that integrating AI greatly improves academic performance in Nigerian universities. While predictive analytics showed the viability of data-driven early intervention systems, the PLS-SEM study verified that AI self-efficacy, perceived utility, and favorable views toward AI use comprise the main determinants of academic achievement. By incorporating leadership characteristics as boundary conditions, extending TAM and UTAUT frameworks in an understudied developing country environment, and illustrating the mediating process of student involvement, the research advances theory. Methodologically, the study demonstrates the complimentary use of PLS-SEM and machine learning approaches in educational research, providing a framework for future studies. Practically, the data show that technological adoption without leadership commitment, pedagogical innovation, and infrastructure investment leads to inferior results. Nigerian universities must embrace AI not as a solution to systemic problems, but as a catalyst for human-centered digital transformation that augments rather than replaces human intelligence.

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11. Recommendations:

1. National Policy Development: To guide implementation, ethics, and compliance in all universities, the Nigerian government should establish a comprehensive AI in Education Policy
2. Infrastructure Investment: Modern AI labs, reliable electrical supplies, and high-speed internet access should be given top priority in special financial allocations.
3. Leadership Development: AI governance, strategic planning, and change management should be the main topics of institutionalized executive leadership courses on digital transformation.
4. Capacity Building: Training programs in digital pedagogy and AI literacy ought to be made mandatory for instructors, administrators, and students.
5. Ethical Governance: Universities should form AI ethical committees and implement data protection policies that comply with Nigeria's Data Protection Act (2023).
6. Predictive Intervention Systems: AI-powered learning analytics tools should be tested by institutions in order to identify and assist at-risk students early on.
7. Research and Innovation Centers: Dedicated AI research centers focused on local educational difficulties should be formed through public-private collaborations.

References

Aminu Na Allah, A., Sani, B., Muhammad, F., Usman, F., & Miya, Y. Y. (2025). Impact of use of artificial intelligence (AI) on academic performance in students of higher institution: A case study. *Kashf Journal of Multidisciplinary Research, 2*(6), 1–10.

Barakat, M., Salim, N. A., & Sallam, M. (2025). University educator's perspectives on ChatGPT: A technology acceptance model-based study. *Open Praxis, 17*(1). https://doi.org/10.55982/openpraxis.17.1.718

Bretan, I. (2024). Chatbots in legal English courses: Engagement and critical thinking trade-offs. *Frontiers in Education*. https://doi.org/10.3389/feduc.2025.1648661

Chan, K. (2023). UNESCO ethical AI recommendations and higher education governance. In *Institutional policies on artificial intelligence in higher education* (pp. 45–67). Wiley.

Chen, Y., Liu, H., & Wang, X. (2025). AI self-efficacy and academic performance: A meta-analytic review. *Educational Technology Research and Development*.

Chinnaraju, A. (2025). Partial least squares structural equation modeling (PLS-SEM) in the AI era: Innovative methodological guide and framework for business research. *Magna Scientia Advanced Research and Reviews, 13*(2), 62–108. https://doi.org/10.30574/msarr.2025.13.2.0048

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Crompton, H., & Burke, D. (2023). Artificial intelligence in higher education: The state of the field. *International Journal of Artificial Intelligence in Education*.

Dahlgren, K. (2025). Trust-based frameworks for AI governance in higher education. *New Directions for Higher Education*. https://doi.org/10.1002/ace.70013

Demir, S., & Uşak, M. (2025). Analyzing the implementation of PLS-SEM in educational technology research: A review of the past 10 years. *SAGE Open, 15*(2). https://doi.org/10.1177/21582440251345950

Edionwa, N. (2024). Influence of artificial intelligence on academic performance of business education postgraduate students in public universities in south-south Nigeria. *International Journal of Humanities Social Science and Management, 4*(4), 724–732.

Ekanem, S. A., & Emejulu, J. (2025). An essencist assessment of the impacts of artificial intelligence on educational development in Nigeria. *International Journal of Arts and Humanities, 3*(1), 27–35.

Fasinro, K. S., Udofia, G. I., Akinkuotu, F. A., & Aremu, V. I. (2024). Impact of artificial intelligence on the learning assessment of students in tertiary institutions in South-West, Nigeria. *West African Journal of Open and Flexible Learning, 13*(1), 113–134.

Ifinedo, P. (2023). Addressing the data governance and ethics challenges of AI use in African universities. *Information Development, 39*(1), 3–14.

Kim, J., & Lee, S. (2025). Meta-analytic findings on AI integration and learning outcomes in higher education. *Computers & Education*.

Li, M., Zhang, Y., & Wang, H. (2025). Cross-functional and context-sensitive AI governance frameworks for higher education. *New Directions for Higher Education*. https://doi.org/10.1002/ace.70013

Liu, Y., & Yushchik, O. (2024). Spark-based recommendation models for AI-enhanced student engagement. *Frontiers in Education*.

López-Costa, M., Pallejà-Masip, D., & others. (2025). Understanding AI adoption among secondary education teachers: A PLS-SEM approach. *Computers and Education: Artificial Intelligence, 8*, 100416.

Madu, C. O., & Musa, A. (2024). Lecturers' level of awareness of artificial intelligence as correlate of their digital competence at Federal University Wukari, Nigeria. *Journal of Educational Research in Developing Areas, 5*(1), 59–67. https://doi.org/10.47434/JEREDA.5.1.2024.59

Mahuta, G. A., & Abubakar, H. (2025). Artificial intelligence in higher education in Nigeria: Challenges and way forward. *Journal of Contemporary Research in Educational Administration & Management, 2*(3), 62–71.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

McDonald, J., Barnes, R., & Chen, L. (2024). AI governance alignment with institutional missions and public accountability. *New Directions for Higher Education*. https://doi.org/10.1002/ace.70013

Moradi, M. (2025). Students' continuance intention to use generative AI in higher education: Integrating TAM and information success model. In *Proceedings of the 2025 3rd International Conference on Educational Knowledge and Informatization* (pp. 156–167). ACM. https://doi.org/10.1145/3765325.3765346

Nja, C. O., Ekpoh, U. F., & Edet, A. O. (2023). Science teachers' acceptance and intention to use artificial intelligence in Nigeria. *African Journal of Educational Research and Development, 16*(2), 89–104.

Nwile, C., Akpan, E., & Odey, S. (2025). Artificial intelligence and comprehension skills among Nigerian university students. *Journal of Educational Technology in Nigeria, 8*(1), 45–58.

Odili, D. I., & Ebiye, M. (2025). The impact of artificial intelligence on students across educational levels in Nigeria. *Kashere Journal of Education, 9*(1), 331–340.

Ojokheta, K., & Omokhabi, A. A. (2023). Project initiatives on inclusive and equitable use of artificial intelligence in education: Lessons derivable for policy direction in Nigeria. *COUNS-EDU: The International Journal of Counseling and Education, 8*(3), 112–128.

Okolie, U. C., & Egbon, T. N. (2025). Artificial intelligence and teaching-learning process in education institutions in Nigeria: A study of undergraduate students of Delta State University, Abraka. *Journal Plus Education, 37*(1), 122–136.

Omar, B. A., Babale, A., & Bukar, Z. S. (2024). Impact of artificial intelligence (AI) on tertiary education in Jigawa State, Nigeria. *Journal of Association of Educational Management and Policy Practitioners, 6*(2), 203–209.

Omeh, C. B., Olelewe, C. J., & Ohanu, I. B. (2025). Impact of artificial intelligence technology on students' computational and reflective thinking in a computer programming course. *Computer Applications in Engineering Education, 33*(3), e70052.

Orok, E., Okaramee, C., Egboro, B., Egbochukwu, E., Bello, K., Etukudo, S., & Akawa, O. (2024). Pharmacy students' perception and knowledge of chat-based artificial intelligence tools at a Nigerian University. *BMC Medical Education, 24*(1), 1237.

Ouyang, F., Zheng, L., & Jiao, P. (2023). AI performance prediction and collaborative writing outcomes in blended learning. *Computers & Education, 194*, 104711.

Robert, J., & McCormack, M. (2024). AI literacy and faculty development in higher education. *EDUCAUSE Review*.

Samuel, J. (2023). Personalized learning through artificial intelligence: Advantages and implementation strategies. *International Journal of Educational Technology, 15*(3), 78–92.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Suleiman, A., Ibrahim, M., & Abdullahi, K. (2025). Artificial intelligence, plagiarism concerns, and data privacy in Nigerian higher education. *Journal of Academic Ethics, 23*(1), 45–61.

Sun, L., & Zhou, M. (2024). Global trends in AI adoption among university students: A comparative analysis. *International Journal of Educational Technology in Higher Education, 21*(1), 34.

Temper, D., Barnes, R., & Lee, S. (2025). The HEAT-AI framework: Tiered oversight and accountability for AI tools in education. *New Directions for Higher Education*. https://doi.org/10.1002/ace.70013

Utamachant, P., Srisawasdi, N., & others. (2023). The i-Ntervene platform: Real-time adaptive support for student engagement. *British Journal of Educational Technology, 54*(4), 789–805.

Wang, Y., Liu, H., & Chen, X. (2024). AI student engagement mechanisms in higher education: A systematic review. *Frontiers in Education, 9*, 1648661.

Watson, J., & Rainie, L. (2025). *AI and the future of higher education: A leadership perspective*. AAC&U/Elon University Survey.

Wood, T., & Moss, G. (2024). ChatGPT and ethical understanding: Reducing academic dishonesty concerns. *Assessment & Evaluation in Higher Education, 49*(3), 412–428.

Wu, T., Chen, L., & Zhang, Y. (2024). Cross-functional and adaptable AI policies in large research universities. *Higher Education Policy, 37*(2), 345–367.

Xie, Q., Li, M., & Enkhtur, A. (2024). Exploring generative AI policies in higher education: A comparative perspective from China, Japan, Mongolia, and the USA. *arXiv preprint arXiv:2407.08986*. https://doi.org/10.13140/RG.2.2.33314.03522

Yang, Y., & Ghislandi, S. (2024). Student engagement dimensions in AI-enhanced learning environments. *Frontiers in Education, 9*, 1456234.

Yang, Z., Liu, H., Wang, X., & Chen, Y. (2023). Gamified artificial intelligence education robots (GAIER) for laboratory safety training. *Computers & Education, 194*, 104712.

Yi, M., Park, S., & Kim, J. (2024). Cognitive, emotional, and behavioral engagement in AI-supported higher education. *Educational Technology Research and Development, 72*(4), 1567–1589.

Zakarneh, B., Al-Rahmi, W. M., & others. (2025). ChatGPT and Arabic EFL learner engagement: A structural equation modeling approach. *Computer Assisted Language Learning*. https://doi.org/10.1080/09588221.2025.xxxxx

Zouhaier, H. (2023). Artificial intelligence applications in higher education: A comprehensive review. *Education and Information Technologies, 28*(5), 5678–5698.

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Highway Kidnapping and Transportation Security along the Abuja–Kaduna Corridor in Kaduna State, Nigeria: An Assessment of Security Challenges, 2024–2026

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DOI : https://doi.org/10.5281/zenodo.22894005

Abstract
Kidnapping has become serious security problem in Nigeria, especially in the North-West. This study employs quantitative analysis of incident data to analyze the incidence of highway kidnapping and transport security on the Abuja-Kaduna axis of Kaduna State from 2024 to mid-2026. Based on media reports, police data and spatial information, trends, temporal patterns, attack rates and numbers of victims were examined. Available evidence indicates a decrease in the number of incidents in 2025 with a slight rise in early 2026, which mirrors the trend of reducing incidents as seen in other studies following a peak between 2019-2021. The key result areas identified by the geospatial analysis are similar to previous analyses, including the identification of seasonal peaks (such as in 2024 Q2) and persistent hotspots (e.g. Rijana, Katari) along the route. Socio-economic drivers (poverty, youth unemployment) and low state presence make banditry possible. Resurgence of kidnappings on this important transport corridor show continuities (e.g. ambushes in forested areas) and changes (e.g. the move to semi-urban areas). This study concludes that although improved highway patrol efforts slowed the spread of *Kidnap For Ransom,* a combination of strong highway police patrol, community intelligence and community-based socioeconomic measures (echoing the suggestion for "spatial intelligence" and for community structures) may be needed to effectively counter criminal gangs. This study highlights the need to address the observable trends of the incidents as well as the causes of the incidents in order to ensure the commuter safety and security of the Abuja-Kaduna expressway.

Keywords: *Abuja–Kaduna Expressway, highway kidnapping, transportation security, banditry, quantitative analysis, commuter safety.*

1. Introduction

The current shift in the nature of kidnapping in Nigeria from 'episodic crime' to organised violence has had repercussions beyond the immediate victim-offender dynamic. Studies have shown that there is an increasing intersection of kidnapping for ransom, with banditry, weak institutional presence, and political economy of criminal enterprise, especially in North-west Nigeria (Aleyomi & Olajubu, 2024; Ojo et al., 2023; Okoli & Abubakar, 2021). The issue is particularly critical where crime and crime-related issues are linked to significant transportation

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infrastructure, as the insecurity in such areas cannot only impact personal transportation, but also the transportation of goods, labour and economic opportunities. Badiora (2015) argues that kidnapping should be considered through its regional developmental implications, rather than just the number of people kidnapped recorded.

The Abuja-Kaduna corridor is particularly important. This route links the political heart of Nigeria, Abuja-Kaduna, route is a significant northward transportation link. However, its strategic value has turned it into an appealing target for criminals who want to have an uninterrupted stream of potentially lucrative targets. According to Obodo and Onota (2025), Abuja Kaduna Expressway is a transportation corridor plagued by insecurity while Yusuf and Oladayo (2025) narrowed kidnapping for ransom to the criminological and socioeconomic environment of the corridor. The problem cannot, therefore, be accurately seen as a discrete highway crime.

It is a phenomenon that is the product of a combination of transportation geography, criminal opportunity, state capacity and the broader political economy of insecurity. Thus the development of highway kidnapping along the road must be put into the context of the development of banditry in the North West Nigeria. The earliest types of rural banditry were linked significantly to cattle-raiding and to focused armed conflict and resource disputes. However, in recent years, criminal perpetrators have become more adept in using kidnapping for ransom as one of their methods of earning money (Okoli & Ugwu, 2020; Ojo et al., 2023). Olaniyan and Yahaya (2023) illustrate this transformation from a mobile or "roving" banditry to more fixed and territorial modes of control and extraction. Similarly, Okoli and Abubakar (2021) show that current bandit groups can acquire traits of organised criminal leadership and territoriality. The transformations are significant in that they suggest that kidnapping cannot be effectively curtailed in the long term by arrests and short-term police sweeps.

The physical setting in which some parts of the Abuja-Kaduna corridor are located is also important. Forests and other spaces of governance resistance have been consistently named by Nigerian security scholarship as spaces that can support armed criminality through their capacity to increase the difficulty of visibility, the visibility of forest space, the difficulty of surveillance, or the facilitation of concealment (Olaniyan, 2018; Onwuzuruigbo, 2021). However, Ojo (2020) advises not to consider such spaces as "ungoverned". The concept is only applicable if it addresses the interplay of physical distance and lack of institutional control. A forest can be a security problem not only because of the ability to hide but because the ability of the state to observe the forest, patrol the forest and respond quickly in the forest is limited. The socioeconomic context adds to the explanation. Studies on kidnapping and banditry in Nigeria have related the criminal recruitment phenomenon with relative deprivation, unemployment, social exclusion and limited livelihood opportunities (Bello, 2022; Ejiofor, 2022; Osumah & Aghedo, 2011). These explanations should, however, be questioned. Economic deprivation is not a direct and automatic factor that leads to poverty, and, therefore, to kidnapping, because large populations live in poverty and do not engage in organised crime. The more powerful interpretation is that deprivation is criminogenic when it combines with criminal networks, the limited enforcement of social control, access to firearms, lucrative ransom markets, and low expectations of capture. The security response is also a complex pattern. The Nigerian military has stepped up its operations, patrolling and counter banditry efforts in North West Nigeria, and

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research has shown that heightened militarisation can help to taint banditry operations (Oyewole et al., 2023; Ojo et al., 2023). But the underlying networks are not always destroyed by military pressure. Ojo et al. (2023) illustrate the challenges that can be encountered in maintaining internal security operations in the face of dispersed and adaptive bandit groups, while Madueke (2025) underscores the enduring institutional constraints in the Nigerian police's efforts to combat banditry. Similarly, in Kaduna State, Sale and Abubakar (2025) suggest that security measures need to be evaluated in their local context.

This study looks at the highway kidnapping on the Abuja-Kaduna route from January 2024 to June 2026. This study is focused on three key questions. The first is that it gives an overview of the temporal trend of recorded kidnapping incidents and victims. Second, it examines their spatial concentration along the corridor. Third, it analyzes the consequences of these patterns on transportation security and understanding of recent security enhancements. The principal argument is that the decline in recorded incidents during 2025 should be interpreted as operational suppression rather than structural resolution. The criminal opportunities in the spatial and institutional environment of the corridor are still known and recognized from the subsequent increase in the first half of 2026. This is an important argument because it focuses on the relationship between the rate of change in crime and the rate of change in mobility, geography and guardianship.

2. Literature Review

In Nigeria, kidnapping has become more sophisticated and systematic than it was in the past, involving banditry, ransom demand, and criminal entrepreneurship. Aleyomi and Olajubu (2024) place kidnapping in the context of Nigeria's economy, and Odoemene (2024) draws attention to the growing overlap between kidnapping and rural banditry in North-West Nigeria. Okoli and Abubakar (2021) also illustrate the presence of structured criminal leadership within bandit groups, and Olaniyan and Yahaya (2023) explain the shift from mobile to territorially grounded banditry. These developments make transport corridors vulnerable as they are a concentration of mobile populations and targets.

The Abuja-Kaduna corridor is important due to its transport functions. According to Obodo and Onota (2025), the Abuja-Kaduna Expressway is one of the corridors plagued by insecurity, which affects its mobility, whereas Yusuf and Oladayo (2025) linked kidnapping for ransom with its criminological environment. Spatial properties matter, as well. However, while they can provide cover and be harder to oversee, forested areas can also be "ungoverned" (Ojo 2020) and are explained by Olaniyan (2018) how they may do so. It's their importance as a result of physical geography and differential state capability. The vulnerability of the socioeconomic drives frequently come back. Osumah and Aghedo (2011), Bello (2022) and Ejiofor (2022) equate kidnapping or banditry with deprivation, unemployment and few livelihoods. Criminogenic effects of poverty are more likely to occur when it is intertwined with criminal networks, availability of weapons, weak deterrence and ransom markets, however. While security measures can help deter crime, they do not necessarily end adaptive criminal networks, as suggested by Ojo et al. (2023), Oyewole et al. (2023), and Madueke (2025). Previous research has confirmed the role of geography, socioeconomic factors, institutional capacity and security interventions,

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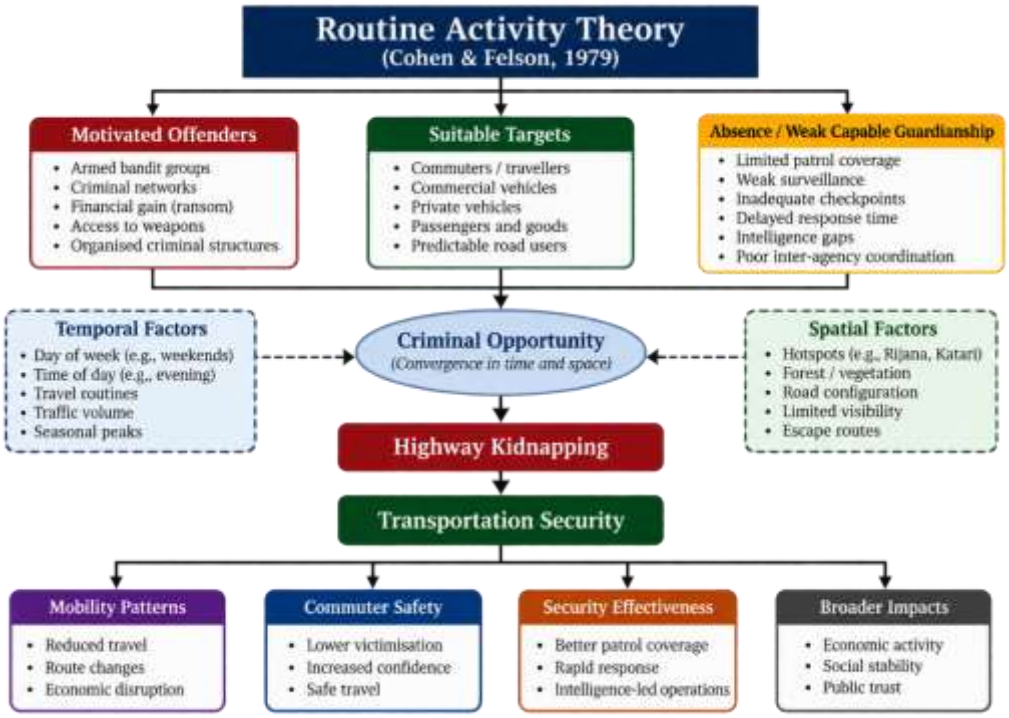
but there is limited quantitative research that incorporates temporal trends, spatial hotspots, and traffic activity around the corridor for 2024–2026.

Theoretical Framework

This study is adopted the Routine Activity Theory (RAT) which was developed by Cohen and Felson (1979). The RAT in this study helps to explain criminal incidents that combines three core elements: first is a motivated offender, second is the suitable target, and third is the lack of capable guardianship. The RAT theory shifts the focus from the offender motivation to the opportunities that enables crime. The RAT is suitable for highway kidnapping owing to the fact that transportation highways are where offenders, travellers and security meet at specific times and places. In this study, bandit groups are the motivated offenders, commuters, passengers and vehicles are suitable targets, and the police and military patrols, surveillance, checkpoints, rapid response and community intelligence are capable guardianship. These elements when combined with favourable conditions make kidnapping more likely.



The RAT framework describes the temporal and spatial dimensions of the study. Regular patterns of travel, movement by evenings, weekends and higher traffic volumes can lead to more targets being available for shooting; forest settings, limited sight, lack of response time and recurrent hotspots can reduce guardianship. There can therefore be a pattern of incidents occurring in specific time periods and places that can be understood as patterned criminal opportunity. Reduced incidents in 2025 could be due to increased guardianship and not on the same level of change as to a permanent resolution, and the rise in 2026 could be due to adaptation or to new opportunities. The RAT therefore provides a theoretical basis for examining how mobility, geography and guardianship interact to shape highway kidnapping and transportation security.

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3. Methodology

This study utilized a quantitative retrospective study design using secondary data on reported kidnapping incidents of the Abuja Kaduna corridor in Kaduna State from January 2024 to June 2026. The design was suitable, as the goal was to observe patterns of incidence, timing and location of the reported kidnapping, not to draw primary attitudinal data from victims or transport users. Reported incident dates and locations and victim numbers are included in the underlying data set created for the study. The main data sources were police information and reputable media reports with spatial information being used to locate recurrent sites. It is noted that records were cross checked if there were more than one report and that monthly and quarterly series were created for analysis. It is appropriate for a phenomenon for which there is no single institution that offers a publicly available longitudinal data set. However, using secondary incident data does present an important measurement issue. There can be a high risk of underreporting for kidnapping, as the family may wish to avoid publicity, the victim may not wish to talk about it, or negotiations may occur in private. In addition, police and media reports are not always in agreement. Discrepancies between some of the media reports and police accounts of alleged highway kidnappings are specifically called out in the source material. The results are, therefore, to be interpreted as patterns in recorded incidents, not as an exhaustive listing of all the kidnappings that were recorded on the corridor.

This study is carried out in Abuja-Kaduna transportation corridor of Kaduna State. The corridor is strategically important since it connects the Federal Capital Territory with Kaduna as well as part of the general transportation network between Abuja and North West Nigeria. They show that insecurity in this setting has an impact on mobility and transportation behaviour, and therefore it is a suitable environment for investigating the link between criminal activity and transportation security. The chosen analytical period (January 2024 to June 2026) was chosen to allow for an examination of relatively high incidence followed by a decrease and eventual re-emergence or resurgence. The coverage of this time is especially beneficial as it enables the research to determine if the incidents have decreased over time or are merely a transient shift. Descriptive and spatial techniques were the major methods used in the analysis. Temporal trends were determined by quarterly and monthly incident frequencies, and victim counts were analysed separately as incident frequency does not necessarily reflect the proportionate victimisation. The date and time of attacks (when available) were studied. The spatial concentration was evaluated with the identification of repeated locations along the corridor. The quantitative analysis provided also includes a chi square trend test and Pearson's correlation of monthly traffic volume and kidnapping incidents. The reported correlation was $r = .56$, $p < .01$. The correlation is taken with a pinch of salt as an association between the amount of traffic and the number of incidents of kidnapping recorded, not that traffic volume causes kidnapping

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4. Results

4.1 Quarterly Distribution of Incidents and Victims

In 2024-2026, the compiled dataset has reported 161 incidents of kidnapping with 411 victims. In 2024 Q2, 25 incidents with 80 victims were reported, the highest number of incidents reported in a quarter. Subsequent, the number of incidents decreased, ending at 6 in Q4 2025. The first half of 2026 then saw slight signs of the trend reversing with 10 incidents in Q1 and 12 in Q2.

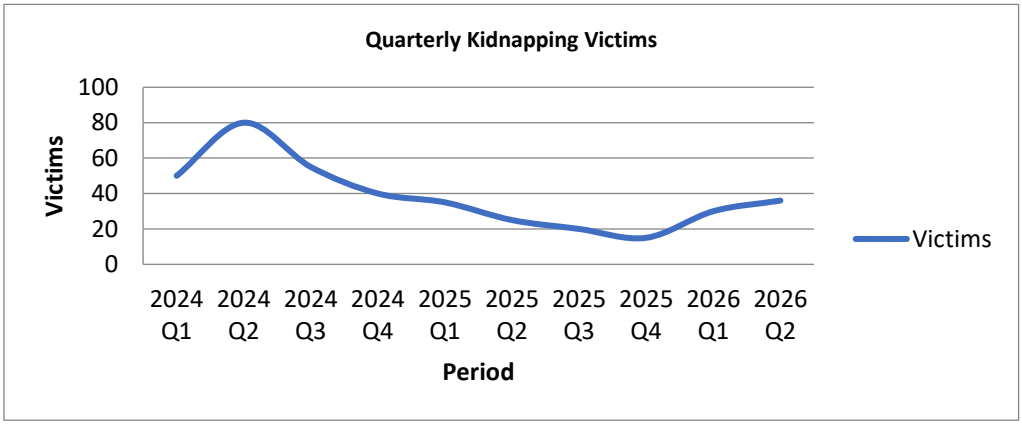
Table 1:
Quarterly Distribution of Reported Kidnapping Incidents and Victims, 2024 to Mid 2026

Period	Incidents	Victims
2024 Q1	20	50
2024 Q2	25	80
2024 Q3	18	55
2024 Q4	12	40
2025 Q1	15	35
2025 Q2	10	25
2025 Q3	8	20
2025 Q4	6	15
2026 Q1	10	30
2026 Q2	12	36

Source: *Compiled incident dataset from online reports, media, police report, etc.*

There are three phases in the quarterly pattern. The first is a high phase in 2024 ending in the Q2 high. The second is a sustained contraction that will continue till 2025. The third is an uprising that's starting in the first half of 2026. The source analysis reports that the trend was significant for a chi square trend test ($p < .01$).

Figure 1: **Quarterly Trend in Reported Kidnapping Incidents, 2024 to Mid 2026**



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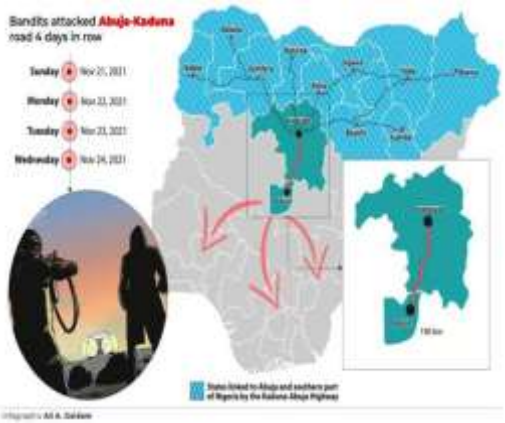



The trend is analytically significant as the 2026 increase does not bring the corridor back to the highest level seen in 2024. What is significant, therefore, is not that kidnapping is back at the same level, but that the downward trend has been halted. This distinction is relevant if you need to evaluate the effectiveness of a security intervention.

Table 2: **Period Level of Reported Incidents and Victims**

Reporting period	Incidents	Victims	Incidents per reported victim group
2024	75	225	0.33
2025	39	95	0.41
2026 Q1 to Q2	22	66	0.33

Source: Derived from the supplied quarterly dataset.

The data show that there is no direct proportionality between victimisation and the number of incidents. This is an important point from a contextually relevant perspective. Although there is a reduction in incidents, it does not have to go hand in hand with a high number of victims if the

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individual attacks affect more than one traveller. Thus, incident numbers are a partial indicator of the transportation insecurity severity.

4.2 Temporal Distribution

According to available evidence curated, 58% of incidents took place either on Friday, Saturday or Sunday. The evening timeframe (around 18:00 – 22:00) was identified as particularly vulnerable. In the year 2024 Q2 (quarter 2), 72% of the attacks reported were nocturnal ambush attacks on weekend days while less than 10% were attacks on daytime days.

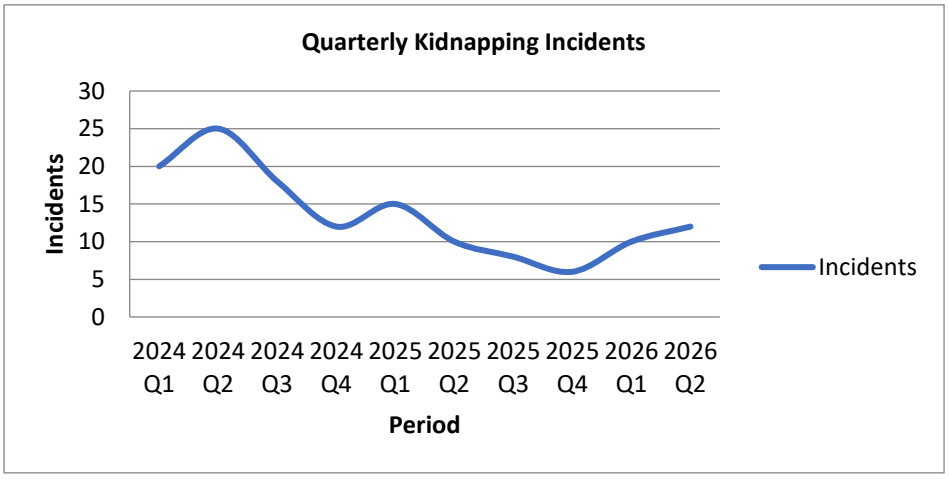
Table 3:
Temporal Characteristics of Reported Highway Kidnapping

Temporal indicator	Reported pattern
Friday to Sunday incidents	58%
Principal high risk period	6:00 p.m. to 10:00 p.m.
2024 Q2 nocturnal weekend attacks	72%
Daytime incidents during 2024 Q2	Less than 10%

Source: Compiled incident dataset.

The temporal concentration offers evidence of the association between kidnapping and identifiable travel routines. This is corroborated by the earlier study conducted by James and Ann in the corridor, which concluded that there was concentration during the evening and weekend. Most importantly, it offers the basis for the deployment of security: a uniform patrol approach may not be as effective as a patrol approach based on temporal risk.

Figure 2: **Quarterly Distribution of Reported Victims, 2024 to Mid 2026**



The victim series shows a general trend of incident levels, but there is more variation due to the fact that the number of victims depends on the number of people captured in incidents. This difference emphasizes the importance of considering security conditions via both indicators.

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4.3 Spatial Concentration

The spatial analysis showed that the number of reported incidences was clustered at a few select points. Rijana reported 22 incidents, Katari reported 18 and Jere reported 15. Maraban Rido and Goningora had 12 and eight incidents respectively.

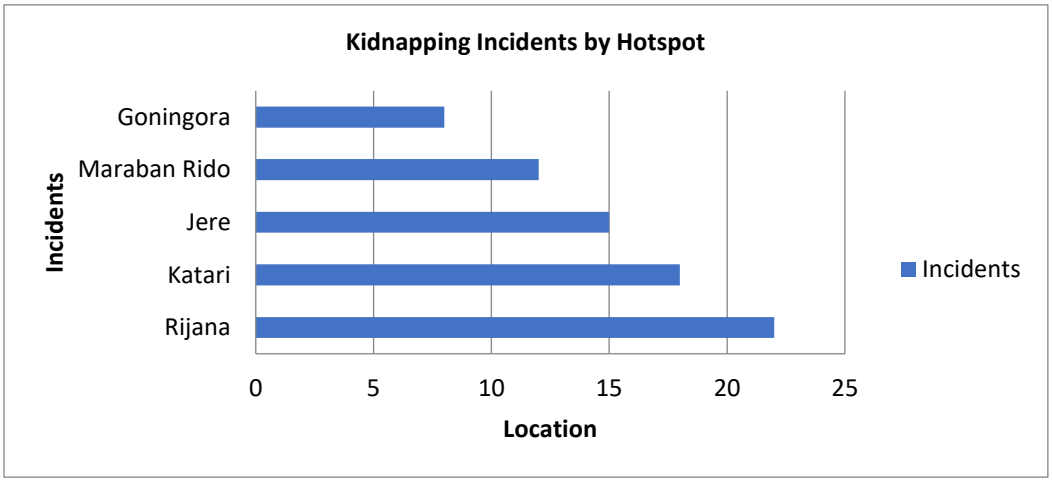
Table 4:
Principal Reported Kidnapping Hotspots Along the Abuja Kaduna Corridor

Rank	Location	Incidents	Percentage of reported total
1	Rijana	22	13.7%
2	Katari	18	11.2%
3	Jere	15	9.3%
4	Maraban Rido	12	7.5%
5	Goningora	8	5.0%

Source: Compiled incident dataset.

High incidents in these areas lend credence to the suggestion of spatial structuring in highway kidnapping. The source document states that the five areas that were identified made up a significant proportion of incidents recorded and that they matched areas identified as flash points earlier. The exact percentage of the total should be used with caution, however, due to the numerical inconsistency in the source table.

Figure 3: **Reported Kidnapping Incidents by Principal Hotspot**



The important spatial pattern is the one because the same places were found in previous studies. James and Ann noted that there were a number of flashpoints identified, including Rijana, Katari, Jere, Maraban Rido and Goningora, which indicated a significant degree of geographical continuity, rather than a new spatial pattern. This continuity is consistent with the idea that environments and infrastructure features limit offender options and some areas of the corridor are consistently desirable.

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4.4 Relationship Between Traffic and Kidnapping

The analysis shows moderate positive correlation between monthly traffic volume and the number of kidnapping incidents, r = .56 and p < .01.

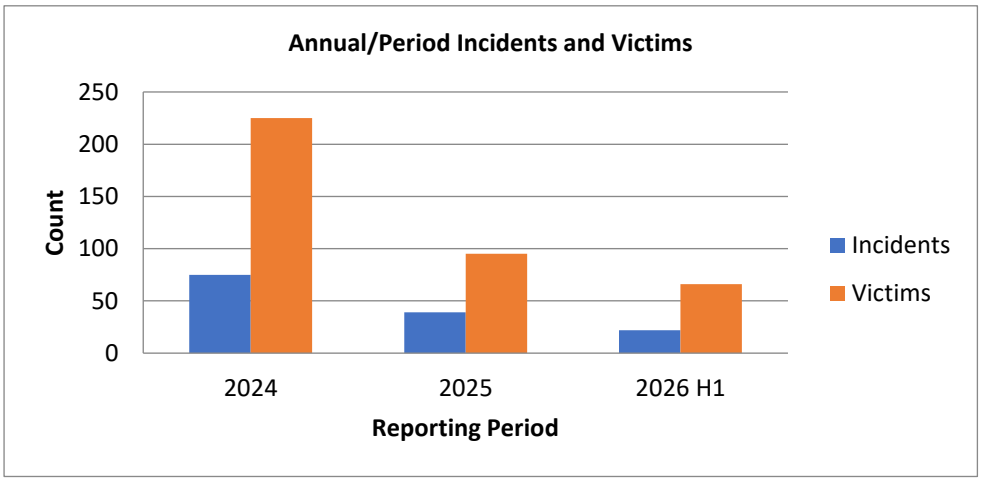
Table 5:
Summary of Reported Statistical Relationship Between Traffic and Kidnapping

Variable relationship	Pearson *r*	Reported significance	Interpretation
Monthly traffic volume and kidnapping incidents	+0.56	$p < .01$	Moderate positive association

Source: Compiled quantitative analysis.

This computed evidence revealed that there was a tendency for higher number of incidents to occur during heavier traffic periods. It does not make a causal claim. Instead, it implies that more mobility can provide more appropriate targets if other factors, such as poor guardianship and a favorable geographic location, exist.

Figure 4: **Comparison of Reported Incidents and Victims by Reporting Period**



The comparison also underscores a key methodological lesson: the severity of an incident and the severity of its victims are two distinct aspects of highway insecurity. A security plan that is based only on the number of incidents that may occur can fail to address the issue of the gravity of mass kidnappings.

5. Discussion

The results demonstrate that highway kidnapping along the Abuja-Kaduna corridor is characterised by temporal fluctuation, spatial concentration and a measurable relationship with transport activity. The results also make it more difficult to take the 2025 reduction as a sign that the security issue was addressed. Reductions in reported incidents from the 2024 highs to 2025 reflect what is often said: increased levels of security can reduce the opportunity for crime. Ojo et al. (2023) showed the ability of military operations to halt armed banditism, but said its impact is dependent on the factors limiting its operations and the adaptive capacity of armed criminal

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groups. The results of the present study also indicate that the access of kidnappers was restricted on the main corridor due to increased guardianship. The decrease is thus consistent with the deterrence rationale.

The 2026 resurgence is, however, not easily understood in this perspective. The drop could have been more likely to be a continuation of the disintegration of the criminal networks that operated in kidnapping. The resurgence, on the other hand, indicates that enforcement did not eliminate the opportunity for offenders to engage in the conduct but, rather, decreased it. This interpretation aligns with the findings of Okoli and Abubakar (2021) that bandit groups have organised themselves into structured groups; and Olaniyan and Yahaya (2023) that bandit organisations have shown a strong sense of adaptation, transitioning from mobile to more territorially rooted forms of crime. This finding thus lends weight to the argument for a separation between suppression and transformation. Security operations can help to contain incidents on a road that is of strategic importance without affecting the broader criminal environment from which they originate. If the pressure is put on one route, then the offenders can shift the direction towards the neighboring settlements that are covered by forests or less protected. The source material also states that increased security in the main corridor will likely shift criminal activity to communities nearby. This is not a run-of-the-mill security success.

The temporal findings offer more evidence of organized criminal opportunity. The concentration of incidents on Friday-Sunday and especially on the evening of this period suggests that the offenders take advantage of the regularity of travel and supervision. This is consistent with the earlier analysis done by James and Ann in the corridors and consistent with Routine Activity Theory. However, the outcome has implications that go beyond a theoretical confirmation. It proposes that the intensity of patrolling transportation to improve security can be increased in line with the times of high risk. This is better than a blanket increase in security forces. The resources should also be strategically focused if the risk is geographically and temporally focused. A model like this does not have to involve adding people to the entire corridor. It would need improved intelligence about the timing and location of the need for the existing resources. The spatial results are more important than the overall decrease. The remaining sites, Rijana, Katari, Jere, Maraban Rido and Goningora, remain significant sites in the literature and in the current data source. This persistence buttresses the larger argument of Usman and Ogbole (2023) which posited that insecurity in Kaduna State has geospatial influence on the activities of road transportation. It is also in line with what Olaniyan (2018) referred to as a ‘security space’ in a forested environment and Onwuzuruigbo (2021) described forest enclaves as environments where criminal groups can operate without effective state control. However, physical environment should not be seen as separate and independent factors for kidnapping. A forest does not produce a kidnapper. Its importance becomes apparent in areas where concealment, lack of surveillance and road geometry, coupled with sluggish response capacity, create a favourable opportunity structure. Ojo (2020) is thus relevant in challenging the simple designation of such spaces as “ungoverned”. What is really important is the spatial variation of state capacity. The positive correlation among traffic volume and kidnappings is also significant but should not be misinterpreted.

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The reported correlation of about .56 shows that traffic levels were correlated with the number of incidents reported, as higher levels of traffic tended to occur in months with more incidents. The outcome is in line with the idea that a busy corridor can provide access to a greater number of potential targets. However, the linkage cannot prove that higher traffic leads to higher kidnapping rates. Holidays, commercial activity, travel patterns and other factors that can impact criminal opportunity are likely to impact traffic as well. Most significantly, the correlation supports the thesis put forward by the authors that the nature of mobility must be considered a central element of transport security. The highway is useful to criminal groups just because it's useful to legitimate users. It provides opportunities for criminals and the security of the server becomes an economic interest to the public. Similarly, Obodo and Onota (2025) show that the insecurity impacts on the functioning of the corridor even after attacks occur. The socioeconomic literature also offers an explanation for why it is difficult to achieve lasting effects from operational security. Banditry and violence share links with relative deprivation and socioeconomic conditions can be linked to the growth of kidnapping markets as demonstrated by Ejiofor (2022) and Bello (2022) respectively. Osumah and Aghedo (2011) had previously found the business of kidnapping among Nigerian youths, which was a good illustration of the economicization of kidnapping. It is not to be assumed that poverty necessarily produces kidnapping. Instead, the risk of socioeconomic vulnerability expands the population of people who might be vulnerable in environments where criminal networks, illegal trade networks and weak institutional deterrence can all exist. This is a more plausible explanation based on the evidence than a deterministic 'poverty' explanation.

The results also impact on the conversation around militarisation. The findings of Ojo et al. (2023) and Oyewole et al. (2023), indicate that military action in the form of air raids and other military activities have the potential to disrupt bandit groups. The results of this research reinforce the notion that security operations are important, as the number of incidents recorded is decreasing. However, Madueke (2025) points to structural issues in policing that hinder its ability to be effective. A military or police surge can consequently create temporary suppression with little or no local intelligence, trust and institutional presence that can secure long-term peace. Community intelligence plays a more crucial role in this regard. The results suggest that contextual knowledge may exist for residents and transport workers around recurrent hotspots due to their geographical concentration. The study by Olorunsuwa and Aleyomi (2024) underscores the relevance of non state responses to kidnapping, and the informal policing study by Ojedokun and Aderinto (2024) highlights the role of community based security arrangements in complementing formal policing. This should, however, be within institutions that are accountable not as an alternative to proper policing.

There are significant transportation implications. The social cost of kidnapping is higher than the number of times that travellers change their plans for departure times, avoiding certain places and using the services of escorts due to their insecurity. The insecurity has been proved to impact the operation of the Abuja-Kaduna corridor by Obodo and Onota (2025). So the security of transportation should be assessed by objective events and the behaviour of road users. The most critical policy implication is thus the need for integrating spatial intelligence, temporal intelligence and socioeconomic intelligence. Spatial intelligence is the ability to determine where security resources should be directed. Temporal intelligence is the ability to recognise when

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vulnerability is rising. Socioeconomic intelligence is the ability to recognize in the community the conditions that allow for recruitment and criminal resilience. Considering them separately yields a series of interventions, but considering them together yields the potential of preventive security

6. Conclusion

This study investigated reported highway kidnaps in the Abuja Kaduna highway from January 2024 to June 2026 in Kaduna State. The results provide three major features of the phenomenon. First, incidents dropped significantly following a peak in 2024 and were comparatively low in 2025, but rose moderately in the first half of 2026. Second, the spatial distribution of kidnapping cases was clustered around identifiable areas such as Rijana, Katari, Jere, Maraban Rido and Goningora. Thirdly, incidents showed a temporal concentration, especially on weekends and during the night hours. The findings contradict one way of thinking about the reduction in incidents as a solution to highway insecurity.

The decrease in 2025 is aligned with rising pressure and improved guardianship, but the uptick in 2026 indicates that the criminal ability lives on. That established hotspots persist suggests geography of vulnerability is not fundamentally changing. Based on this, the study concludes that the security situation in the Abuja-Kaduna is not a security crisis, but rather a contested security situation. It is important to consider the impacts of security interventions on criminal networks and the reduction of hotspot vulnerability, as well as the overarching conditions that are conducive to recruitment and concealment, rather than simply impacts on incident numbers in a given year. There should be a combination of targeted patrols and community intelligence, combined with rapid response, surveillance and environmental interventions at recurrent hotspots in a sustainable transportation security strategy.

In addition to uniform deployment strategies, the results should be used to direct security deployment to be more concentrated in time. In addition to enforcement, there is a need for socioeconomic initiatives towards vulnerable communities since relative deprivation and a low presence of institutions can perpetuate the conditions that foster criminal networks. This study also highlights the need for an integrated database of highway security incidents. There are differences between the reporting of police, media and independent security reporting, which can lead to a distortion of the scale and direction of kidnapping. A well-developed long-term database that correlates the location, time and number of incidents, security response, and outcome would greatly enhance the evaluation of future policies. Addressing the loss of trust in the Abuja-Kaduna corridor is more than just a matter of reducing kidnappings. It needs to change the association between mobility and insecurity, enabling the user to move from one place to another without worrying about the time, place and visibility that might be involved in a normal trip. This is possible only if operational security is coupled with local intelligence, and institutional reforms and actions that tackle the socioeconomic context in which criminal resilience is maintained.

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References

Abdullahi, I. I. (2024). Armed banditry and statehood challenges in North Western Nigeria. *Kashere Journal of Politics and International Relations, 2*(2), 49–62.

Abdussalam, A. A., Olayiwola, R. A., & Akinniyi Duyile, P. F. (2022). Impact of banditry on rural development in Kaduna State (2016–2021). *NIU Journal of Social Sciences, 8*(2), 71–80.

Aleyomi, M. B., & Olajubu, A. (2024). Kidnapping for ransom in Nigeria. In J. S. Omotola & S. Oyewole (Eds.), *The political economy of kidnapping and insecurity in Nigeria: Beyond news and rumours* (pp. 135–150). Springer. https://doi.org/10.1007/978-3-031-47168-1_8

Badiora, A. I. (2015). Regional differences and developmental implications of security challenges in Nigeria: The case of kidnapping. *African Security Review, 24*(1), 55–62. https://doi.org/10.1080/10246029.2014.990394

Baduku, A. S. (2025). Kidnapping in Nigeria: Challenges and mitigation strategies. *Gusau Journal of Sociology, 4*(3), 239–253. https://doi.org/10.57233/gujos.v4i3.13

Bello, P. O. (2022). Socio economic dynamism and the expansion of child kidnapping for ransom in Nigeria. *Cogent Social Sciences, 8*, Article 2061686. https://doi.org/10.1080/23311886.2022.2061686

Ejiofor, P. F. (2022). Beyond ungoverned spaces: Connecting the dots between relative deprivation, banditry, and violence in Nigeria. *African Security, 15*(2), 111–141. https://doi.org/10.1080/19392206.2022.2061320

Ekpo, B. D., & Izge, N. H. (2023). A re assessment of security and banditry in Kaduna State. *Kashere Journal of Politics and International Relations, 1*(2).

Ene, W. R., & Oluku, O. (2023). Intelligence failure and the hike in kidnappings in Nigeria. *FUOYE Journal of Criminology and Security Studies, 2*(1).

Madueke, O. (2025). Why the Nigeria police struggles to tackle banditry in Nigeria. *The Round Table, 114*(4), 436–450. https://doi.org/10.1080/00358533.2025.2518321

Obodo, N. I., & Onota, E. (2025). The Abuja Kaduna expressway, a transportation corridor under insecurity. *Journal of Transportation Security, 18*(1), 1–21. https://doi.org/10.1007/s12198-025-00309-8

Odoemene, A. (2024). History of kidnapping in Nigeria. In J. S. Omotola & S. Oyewole (Eds.), *The political economy of kidnapping and insecurity in Nigeria: Beyond news and rumours* (pp. 35–57). Springer. https://doi.org/10.1007/978-3-031-47168-1_3

Ojo, J. S. (2020). Governing "ungoverned spaces" in the foliage of conspiracy: Toward (re)ordering terrorism, from Boko Haram insurgency, Fulani militancy to banditry in Northern Nigeria. *African Security, 13*(1), 77–110. https://doi.org/10.1080/19392206.2020.1731109

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Ojo, J. S., Aina, F., & Oyewole, S. (2023). Shock and awe: Military response to armed banditry and the prospects of internal security operations in Northwest Nigeria. *African Security Review, 32*(4), 440–457. https://doi.org/10.1080/10246029.2023.2246432

Ojo, J. S., Oyewole, S., & Aina, F. (2023). Forces of terror: Armed banditry and insecurity in North west Nigeria. *Democracy and Security, 19*(4), 319–346. https://doi.org/10.1080/17419166.2023.2164924

Okoli, A. C., & Abubakar, M. (2021). "Crimelordism": Understanding a new phenomenon in armed banditry in Nigeria. *Journal of Asian and African Studies, 56*(7), 1724–1737. https://doi.org/10.1177/0021909621990856

Okoli, A. C., & Aina, F. (2024). Pills, substances and brigandage: Exploring the drug factor in Nigeria's banditry crisis. *African Security Review, 33*(3), 262–276. https://doi.org/10.1080/10246029.2024.2327332

Okoli, A. C., & Nwangwu, C. (2023). Organized crime terror nexus: Interrogating the linkage between banditry and terrorism in Northern Nigeria. *Journal of Asian and African Studies, 58*(5), 766–778. https://doi.org/10.1177/00219096211069650

Okoli, A. C., & Ugwu, A. C. (2020). Of marauders and brigands: Scoping the threat of rural banditry in Nigeria's North West. *Revista Brasileira de Estudos Africanos, 4*(8), 201–222. https://doi.org/10.22456/2448-3923.93808

Olaniyan, A. (2018). Foliage and violence: Interrogating forests as a security threat in Nigeria. *African Security Review, 27*(1), 88–107. https://doi.org/10.1080/10246029.2017.1369135

Olaniyan, A. (2024). Ungoverned spaces and kidnapping in Nigeria. In J. S. Omotola & S. Oyewole (Eds.), *The political economy of kidnapping and insecurity in Nigeria: Beyond news and rumours* (pp. 59–73). Springer. https://doi.org/10.1007/978-3-031-47168-1_4

Olaniyan, A., & Yahaya, A. U. (2023). From roving to stationary bandits: The politics of protection and taxation in Nigeria's Northwest. *Small Wars & Insurgencies, 34*(5), 857–883. https://doi.org/10.1080/09592318.2023.2172453

Olorunsuwa, E. O., & Aleyomi, M. B. (2024). Non state responses to kidnapping in Nigeria. In J. S. Omotola & S. Oyewole (Eds.), *The political economy of kidnapping and insecurity in Nigeria: Beyond news and rumours* (pp. 285–298). Springer. https://doi.org/10.1007/978-3-031-47168-1_16

Osumah, O., & Aghedo, I. (2011). Who wants to be a millionaire? Nigerian youths and the commodification of kidnapping. *Review of African Political Economy, 38*(128), 277–287. https://doi.org/10.1080/03056244.2011.582769

Onwuzuruigbo, I. (2021). Enclaves of banditry: Ungoverned forest spaces and cattle rustling in Northern Nigeria. *African Studies Review, 64*(1), 168–191. https://doi.org/10.1017/asr.2020.46

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Oyewole, S., Aina, F., & Ojo, J. S. (2023). Wings over flies: Air campaigns against armed banditry in North West Nigeria. *The RUSI Journal, 167*(4–5), 92–103. https://doi.org/10.1080/03071847.2022.2153076

Rufus, A. I., & Ogbe, E. B. (2025). The rise of banditry in Northwest Nigeria: Examining the security implications and pathways to stability. *Kashere Journal of Politics and International Relations, 3*(1), 22–35.

Sale, A. A., & Abubakar, A. (2025). The effects of containment measures as counter banditry activities on Igabi Local Government Area of Kaduna State. *Kashere Journal of Politics and International Relations, 3*(1), 368–382.

Usman, J. G., & Ogbole, J. E. (2023). Geospatial analysis of insecurity and its threat on road transportation in Kaduna State, Nigeria. *FUDMA Journal of Sciences, 7*(4), 369–373. https://doi.org/10.33003/fjs-2023-0704-1959

Yusuf, S. G., & Oladayo, A. D. (2025). The criminology of kidnapping for ransom along the Abuja Kaduna Expressway. *Benue Journal of Sociology, 12*(2), 131–138.

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Influence of Social Media Marketing Strategies on Micro, Small and Medium-Sized Enterprises (MSMEs) Sales Performance in Abuja Municipal Area Council

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DOI : https://doi.org/10.5281/zenodo.22894224

Abstract
This study examined the influence of social media marketing strategies on the sales performance of Micro-, Small and Medium-sized Enterprises (MSMEs) in Abuja Municipal Area Council (AMAC), Nigeria. The study was anchored on Technological Determinism Theory and the Resource-Based View Theory. A quantitative survey research design was adopted. The population comprised MSMEs operating within AMAC, with an estimated population of 613,492 based on data from the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN). A sample size of 399 respondents was determined using Taro Yamane's formula at a 5% margin of error, while stratified and simple random sampling techniques were employed. Data were collected using a structured questionnaire and analysed using frequencies, percentages and multiple regression analysis with SPSS. The findings showed that WhatsApp, Instagram and Facebook were the major social media platforms used by MSMEs for marketing. The regression analysis further revealed that social media marketing significantly and positively predicted sales performance ($\beta = 0.687$, $t = 12.268$, $p < .001$), explaining 53.9% of the variance in sales growth ($R^2 = .539$). Customer engagement was also found to be relatively high, particularly through direct messages, comments, shares and responses to promotional content. However, high internet/data costs, poor connectivity, limited digital skills and difficulties in creating quality content were identified as major challenges. This study concludes that social media marketing is a significant strategic tool for improving MSME sales performance. The study recommends that MSMEs strengthen their strategic use of social media, improve customer engagement, develop digital marketing capabilities and adopt cost-effective approaches to overcoming technological and financial constraints.

Keywords: Social Media Marketing, Sales Performance, Customer Engagement, Social Media Advertising, MSMEs, Abuja Municipal Area Council.

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Introduction

Micro, Small and Medium-sized Enterprises (MSMEs) are recognised as critical drivers of Nigeria's economy. They account for a significant portion of employment, income generation, and local economic activity while supplying goods and services to millions of Nigerians (National Bureau of Statistics [NBS], 2023). In Abuja, specifically the Abuja Municipal Area Council (AMAC), MSMEs thrive in diverse business areas, including fashion, food, retail, beauty treatment, technology, and other service industries. However, the characteristics of these MSMEs make them highly competitive, especially with the current technological advancements that allow easy access to products and services online. Despite this, MSMEs are increasingly adopting digital marketing strategies to gain an advantage over their competitors.

As a result, social media has become an innovative tool that allows these MSMEs to market their products and services, while connecting directly with their customers. According to Ayokunmi et al. (2024) and PricewaterhouseCoopers (2024), social media marketing has proven advantageous to these MSMEs, removing the need to promote their brand in traditional marketing avenues such as newspapers and magazines. Instead, social media networks such as WhatsApp, Instagram, Facebook, and TikTok allow these MSMEs to advertise their brand, network one-on-one with their customers, and reach a larger audience than ever. However, simply having a social media presence is not enough, as several MSMEs have discovered. Additionally, a compelling question arises – does social media marketing boost sales? And if so, what marketing tactics work best?

These questions are particularly pertinent to MSMEs in the AMAC that are considering incorporating social media marketing strategies. Businesses in this region are highly competitive, necessitating innovative approaches to stand out from the crowd and attract customers. As such, businesses in this area are constantly on the lookout for new marketing tactics to promote their brands and gain an edge over their competitors. For these MSMEs, the popularity of social media platforms presents an unprecedented opportunity to connect directly with their target customers while doing away with the need for traditional marketing tools, which can be costly (Udom & Ekpouko 2024). While they recognise the potential benefits and innovative nature of digital marketing, AMAC MSMEs are also fully aware of the challenges that come with it. Some of these include the lack of digital literacy, limited resources to invest in social media marketing, poor internet connectivity, and difficulties in tracking the impact of these marketing tactics on their sales. According to Adeyeye and Nwaoboli (2024), consumers are also more inclined to purchase from businesses that offer them value. A potential customer may stumble upon a social media ad, follow the link, peruse the merchandise, inquire further, and complete a purchase without going to the business's physical location. Therefore, MSMEs can use these online platforms to woo customers using their social media handles. Given this information, it is only expected that MSMEs are investing more in these avenues to promote their merchandise and generate more revenue, even with limited funds at their disposal compared to established multinational corporations (Solomon et al. 2024).

While existing studies (Ozoemelam *et al.,* 2025), report that social media marketing can boost sales, engagement levels, and brand recognition, it is unclear how these strategies affect individual MSMEs. Information on the sales performance of MSMEs in the AMAC, particularly those utilizing social media marketing, is also limited. More empirical studies are needed to establish a connection between the use of social media marketing strategies and the sales

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performance of MSMEs. Such an understanding will enable these enterprises to leverage on this inexpensive but potent tool to boost their sales while also helping policymakers and other stakeholders develop effective frameworks for increasing sales through these innovative strategies. Therefore, this study aims to assess the effect of social media marketing strategies on MSME sales performance in Abuja Municipal Area Council**.**

Statement of the Problem

Even though many Micro, Small and Medium-sized Enterprises (MSMEs) in Abuja Municipal Area Council are beginning to use social media to promote their products and services, many of them still struggle to see real improvements in their sales. While platforms like Facebook and WhatsApp are available and widely used, not all business owners know how to use them effectively to attract and keep customers (Lawal & Adejuwon 2023). Morah and Omojola (2018) observe that some SMEs do not have the skills, tools, or knowledge to run proper social media campaigns. Others post content without a clear strategy, making it hard to stand out or build customer trust. As a result, the full benefits of social media marketing such as better visibility, increased sales, and stronger customer relationships are not being achieved by many of these businesses. In addition, many SMEs face challenges like poor internet access, high data costs, and lack of time or digital support. These problems make it harder for small businesses to compete with others that are using social media more effectively. Despite the growing popularity of social media marketing, there is still a gap in understanding how much it really affects sales performance for SMEs in Abuja. This study aims to find out whether using platforms like Facebook and WhatsApp actually leads to better business results, and what challenges SME owners are facing in the process.

Objectives of the Study

This study is guided by the following objectives

1. Identify the most commonly used social media platforms by SMEs or promoting their product and services
2. Assess the effect of social media marketing on the sales performance of SMEs in the area.
3. Evaluate the level of customer engagement and response to social media marketing efforts by these SMEs.
4. Identify the major challenges faced by SMEs in using social media to drive sales and improve performance.

Review of Literature

Social Media Marketing and MSME Sales Performance

The relationship between social media and the performance of Micro, Small, and Medium Enterprises (MSME) is increasingly gaining scholarly attention, as it creates new opportunities for engaging, attracting, and retaining customers thus creating competitive advantages for MSMEs. In most cases, the performance of these enterprises is manifested in their profit level, sales growth, increased customer acquisition and retention, market reach, brand image, and overall sustainability (Hindu, 2021). However, the focus of most MSMEs' owners is on sales growth as it shows that their marketing activities translate into customer patronage and money.

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The literature shows that social media marketing has the potential to improve the performance of MSMEs by overcoming the limitations brought about by the use of traditional marketing channels. For instance, Udeogu and Oparah (2025) note that the use of social media offers accessibility to a large audience at minimal costs compared to traditional advertising and marketing means. This is specifically significant for Nigerian MSMEs, given the poor resources that most of them have at their disposal. Some social media platforms have enabled these enterprises to market their products virtually, respond to queries, announce new products, and maintain long-term relationships with their customers. Therefore, through social media, the MSMEs gain access to a cheaper advertising platform while also interacting directly with their customers. In line with the aforementioned, recent studies have shown that the value of social media marketing lies in its interactive nature.

According to Adeyeye and Nwaoboli (2024), the current trends show that businesses engage their customers through creating content and building relationships with them while also taking advantage of data analytics. This implies that apart from the one-way sharing of information through advertisements, businesses are now able to use social media to interact with customers directly and answer their queries. Through such interaction, the MSMEs can gain a competitive advantage by influencing the buying behavior of their customers thus improving their sales performance. However, the success of these benefits in improving sales performance will depend on how effective the MSMEs can utilize the opportunities available within the various social media platforms. Ajike et al. (2025) note that social media marketing entails designing marketing strategies with the aim of connecting businesses with their target audience rather than just focusing on being on social media. Similarly, Benjamin (2025) emphasizes the need for these enterprises to take advantage of the analytical tools in social media for tracking their performance. This implies that MSMEs must first identify their target audience and then develop appropriate marketing strategies while responding to the feedback provided by the audience in order to increase their sales through the use of social media.

Social Media Advertising

As a way of connecting with the audience, advertising has become a very important function of marketing, and social media has opened doors for more affordable and easily customizable options. Solomon et al. (2024) note that social media advertising involves promoting products and services by targeting specific groups of potential customers through the various social media platforms. As a relatively cheap method of promoting products and services, social media advertising has become a critical component of marketing strategies of Nigerian MSMEs. Given the limited budgets of these enterprises, they must focus on targeting those who are more likely to be their customers.

From the literature, it is evident that the main attraction of social media advertising is that it allows for targeting and measurement which are not always easy, especially for MSMEs using conventional methods of advertising. Ukoha et al. (2025) note that the various advertising options on these platforms allow businesses to experiment with different options of reaching out to their target audience while also measuring their impact on the audience in terms of engagement. This implies that MSMEs can make use of the analytical tools available on these platforms in order to determine the best advertising options for promoting their products and services. However, it is

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important that these enterprises do not mistake extensive reach for effective advertising. Although social media advertising provides these businesses with multiple affordable options for reaching thousands of people, it is essential that they take care when designing advertisements targeting their potential customers. In the case of unsuitable information or targeting, MSMEs can end up with expensive yet ineffective advertisements.

Review of Empirical Studies

Recent studies have shown that digital and social media marketing are critical factors which determine the performance of small and medium-sized enterprises (MSMEs) in Nigeria. At the same time, most researchers agree that their impact goes beyond the mere use of these tools as a marketing channel. Rather, specific aspects of such social media use as advertising, content marketing, and general customer relationship management, as well as particular qualities of implementation, have an impact on the level and degree of MSME performance. For example, Ajede et al. (2025) found that the application of digital advertising, content marketing, and relationship management practices improved the performance of small and medium enterprises in Kwara State. Similarly, Akpede et al. (2025) showed that the frequency of advertising, its targetness, and general quality improved the sales of MSMEs in Nigeria. Thus, the reviewed piece of research highlights not only the importance of using social media for business but also the idea that the relationship between such use and performance is not linear. Indeed, according to Afolayan and Babarinde (2025), who studied phone accessory businesses in Ibadan, different aspects of online marketing correlate with sales, profitability, and customer base in different ways.

In combination with the results of Ajede et al. (2025), this allows concluding that the performance of MSMEs is multi-dimensional and that different dimensions may be related to different aspects of social media use. performance evaluation tools used to measure the effectiveness of digital marketing campaigns have a positive impact on the sales of small businesses. Notably, the findings of Benjamin (2025) complement the previous results by providing additional details on the ways social media marketing affects MSME performance. In particular, the results show that such use affects not only the size of a business's customer base and sales volume but also its general performance by increasing the possibility of its existing clients continuing to support the brand. This finding is particularly notable in combination with the results of Akpede et al. (2025), who reported that not only the frequency of advertising but also its targetness plays an essential role in sales improvement. Indeed, the findings highlight the importance of small business owners not only promoting their products and services but also engaging in relationship management with their customers and measuring the results of their marketing efforts to ensure their continual improvement. Thus, the results of Benjamin (2025) complement the findings of other researchers, adding to the general understanding of the topic. Finally, George et al. (2025) found that the use of digital marketing practices, including search engine optimization, social media marketing, and email marketing, improved various aspects of small business performance. In particular, according to George et al. (2025), social media marketing correlates with the ability to attract new customers, which, in turn, improves the sales volume of small businesses. However, since the reviewed article highlights the importance of social media use for both attracting new customers and retaining the existing ones in combination with Ajede et al. (2025) and Afolayan and Babarinde (2025), it allows concluding that MSME owners should adopt a comprehensive

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approach to online marketing. This way, the findings of George et al. (2025) contribute to the general understanding of the relationship between small business performance and social media use in yet another way

Theoretical Framework

The current study is guided by Technological Determinism Theory (TDT) and Resource-Based View Theory (RBV). Technological Determinism Theory was pioneered by Marshall McLuhan in 1964. According to the theory, technology has a significant impact on social and cultural trends and patterns. In other words, changes in communication technology drive the ways in which people interact and engage. Notably, Marshall argued that "medium is the message," which helped him to explain how the rise of television as a communication medium influenced social interaction and business practices. Undoubtedly, social media technology has transformed how individuals connect and engage. It also affects how firms operate and market their products and services. With respect to the current study, the application of WhatsApp, Instagram, Facebook, and Tik-tok in various ways has significantly influenced how business owners communicate with their customers and market their commodities. For instance, social media has enabled the MSMEs to advertise their products online, listen directly to their customers' opinions, and respond to their needs. In addition, the visual and interactive nature of social media platforms has enhanced the process of sharing and capturing the attention of target customers in Abuja. As a result, issues such as the presence and presentation of products, interaction, and the use of visual content to attract customers have become significant factors in social media marketing.

The relevance of TDT to the current study is in its ability to explicate the role of the technological component of social media. As social media technology becomes more advanced, business owners and managers are constantly facing the need to rethink their approaches to marketing their products. With the addition of innovative tools, features, and technology, social media marketing becomes a powerful tool for creating value and driving sales among MSMEs. However, it is important to acknowledge the fact that success in exploiting social media marketing is dependent on a firm's ability to apply the relevant technology. Therefore, TDT helps the researcher to explain how the advancement of digital technology has impacted the social media marketing and sales performance of MSMEs in Abuja.

Resource-Based View Theory was pioneered by Wernerfelt (1984) and later developed by Barney (1991). According to RBV, a firm's capacity to gain a sustainable competitive advantage and superior performance over others is determined by its resources and capabilities. Some of the key resources that contribute to organizational performance include tangible resources such as finances and equipment and intangible resources such as customer networks, brand image, and managerial skills. It is important for managers to consider both the internal and external forces that affect the sales performance of MSMEs. In the context of the current study, social media technology is widely available, and most MSMEs have adopted it as part of their marketing strategy. However, it is not sufficient for an MSME to just have access to a platform such as Facebook, Instagram, WhatsApp, or Tik-tok; they must also have the appropriate skills and capabilities to apply the tool in marketing their products. For example, an MSME may have superior skills in social media marketing such as creating informative and captivating content,

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understanding their target market, responding swiftly to queries, developing attractive digital content, and leveraging customer feedback to improve sales performance.

Methodology

The study adopted a quantitative survey research design to examine the influence of social media marketing strategies on MSMEs' sales performance in Abuja Municipal Area Council (AMAC). The population comprised MSME owners and customers across sectors such as fashion, food, beauty, retail and accessories. The study population was based on the 613,492 MSMEs reported by the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN, 2024)**.** Using Taro Yamane's formula at a 5% margin of error, a sample size of 399 respondents was determined. Stratified and simple random sampling techniques were employed to ensure adequate representation of the different business sectors. Data were collected using a structured questionnaire covering social media marketing strategies, customer engagement, awareness and sales performance. The instrument was subjected to expert review and pilot testing to establish its validity and reliability, while Cronbach's Alpha was used to assess internal consistency. Data collected were analysed using SPSS**,** with frequencies, percentages and mean scores used for descriptive analysis, while appropriate inferential statistics were applied to examine the relationship between social media marketing strategies and MSMEs' sales performance.

Data Presentation

Table 1: Showing Social Media Platforms Mostly Used

Platform	Frequency	Percentage (%)
Facebook	70	18.1
WhatsApp	120	31.0
Instagram	90	23.3
Twitter/X	30	7.8
TikTok	60	15.5
LinkedIn	10	2.6
Others	7	1.8
Total	387	100

Source: Field Survey, 2026

The findings indicate that WhatsApp (31.0%) and Instagram (23.3%) were the most commonly used platforms for SME advertising. The relatively lower use of other platforms suggests that SMEs tend to favour platforms that support direct customer interaction and visual product promotion.

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Table 2: Multiple Regression Analysis of the Effect of Social Media Marketing on MSMEs' Sales Performance

Predictor	β	Std. Error	t-value	Sig. (p)	VIF
Constant	0.847	0.234	3.618	0.000	—
Social Media Advertising	0.687	0.056	12.268	0.000	1.423
Content Marketing	0.721	0.051	14.137	0.000	1.287
Customer Engagement	0.594	0.047	12.638	0.000	1.315
Platform Utilisation	0.463	0.052	8.904	0.000	1.204

Model Summary: $R = 0.812$, $R^2 = 0.659$, Adjusted $R^2 = 0.655$, $F = 184.726$, $p < 0.001$

The regression results indicate that social media marketing strategies have a significant positive influence on MSMEs' sales performance. Content marketing recorded the strongest contribution ($\beta = 0.721$, $p < 0.001$), followed by social media advertising ($\beta = 0.687$, $p < 0.001$), customer engagement ($\beta = 0.594$, $p < 0.001$), and platform utilisation ($\beta = 0.463$, $p < 0.001$). The model explains 65.9% of the variation in sales performance**,** while the significant F-value (184.726, $p < 0.001$) indicates that the regression model is statistically significant. This suggests that MSMEs that strategically use social media advertising, quality content, customer engagement and appropriate platforms are more likely to experience improved sales performance.

Table 3: Showing Customer Engagement with Social Media Posts

Response	Frequency	Percentage (%)
Very often	110	28.4
Often	130	33.6
Occasionally	90	23.3
Rarely	40	10.3
Never	17	4.4
Total	387	100

Source: Field Survey, 2026

The findings indicate that customers generally engage actively with SME social media content**,** with engagement occurring frequently among a large proportion of respondents. This suggests that social media provides MSMEs with an effective channel for maintaining customer interaction and strengthening relationships with their target market.

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Table 4: Showing Major Challenges Faced by MSMEs

Challenge	Frequency	Percentage (%)
High internet/data cost	120	31.0
Poor internet connectivity	90	23.3
Limited digital skills	70	18.1
Lack of customer trust	55	14.2
Difficulty creating content	52	13.4
Total	387	100

Source: Field Survey, 2026

The findings indicate that high data costs and poor internet connectivity are the major challenges affecting SMEs' use of social media advertising, while limited digital skills, customer trust and content-creation difficulties also constrain effective use. Overall, these challenges may limit the ability of MSMEs to sustain consistent and effective social media marketing activities.

Discussion of Findings

The first objective sought to establish how MSMEs in Abuja Municipal Area Council use social media to advertise their products and services. The results revealed that MSMEs use WhatsApp, Instagram and Facebook to advertise their products and services using photos, videos, special offers and direct connection with customers to create awareness and attract buyers. This finding is consistent with the study conducted by Ayokunmi, Abu Seman and Rashid (2024) on the influence of social media marketing on SME performance in Nigeria which revealed that informative and interactive use of social media has a positive influence on SME performance in Nigeria. The finding is also consistent with the study conducted by Okechukwu, Jibril and Nuhu (2025) on the role of digital marketing in promoting SME performance in Abuja which established that advertising and marketing through social media and engaging customers directly have a positive influence on the performance of SMEs. This finding is also consistent with Technological Determinism Theory which states that the characteristics of technology determine the ways in which people communicate and interact with each other. These characteristics therefore determine how firms advertise their products and services as well as connect with their customers. MSMEs do not just use social media as a medium of communication but also take advantage of the opportunities offered by the platforms to market their goods and services.

The second objective sought to determine the extent to which social media marketing boosts the sales level of MSMEs in Abuja Municipal Area Council. The results revealed that social media marketing has a great positive effect on the sales level of MSMEs as evidenced by the fact that a large percentage of respondents revealed that social media marketing boosted sales to a great and very great extent. This finding is consistent with the study conducted by Okechukwu et al. (2025) on the role of digital marketing in promoting SME performance in Abuja which established that social media advertising has a positive effect on the sales growth of SMEs in Abuja ($\beta = 0.687$, $p<.001$). The finding is also consistent with the study conducted by Akinrinade and Adeleke

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(2026) on the impact of Instagram marketing on the sales performance of SMEs in Southwest Nigeria which established that Instagram marketing has a positive effect on the sales performance of SMEs. The finding is also consistent with Resource-Based View (RBV) Theory which states that social media marketing is a key contributor to organisational performance and sustainability depending on how it is reources and capabilities are used to achieve the organisational objectives. Sales growth is therefore determined by how effectively MSMEs are able to utilise social media to market their products and services.

The third objective sought to assess the level of customer engagement with the social media marketing efforts of MSMEs in Abuja Municipal Area Council. The results revealed that customers are highly engaged with the social media marketing efforts of MSMEs as evidenced by the high percentage of customers that interact directly with MSMEs through likes, comments, shares and direct messages. This implies that social media marketing facilitates direct interaction between MSMEs and their customers. This finding is consistent with the study conducted by Anukwe, Anzor and Chukwuka (2025) on the impact of social media marketing on customer engagement and loyalty of Nigerian SMEs which established that social media marketing has a great impact on the engagement and hence customer loyalty of Nigerian SMEs. This finding is also consistent with the study conducted by Ayokunmi et al. (2024) on the influence of social media marketing on SME performance in Nigeria which established that informativeness and interactivity of social media marketing are positively related to the performance of SMEs. This finding is also consistent with Technological Determinism Theory which states that the features of a technology such as social media dictate how it will be used by organisations to achieve their objectives. In this case, features such as engagement options on social media dictate how MSMEs will utilise the technology to connect with their customers and consequently boost sales and profitability.

The fourth objective sought to identify the challenges affecting the use of social media marketing by MSMEs in Abuja Municipal Area Council. The results revealed that the major challenges affecting the use of social media marketing by MSMEs include high internet subscription costs, limited access to the internet, lack of skills and knowledge on how to utilise social media, low trust from customers and challenges creating interesting content. This finding is consistent with the study conducted by Okechukwu et al. (2025) on the role of digital marketing in promoting SME performance in Abuja which established that lack of skills and knowledge, poor access to reliable internet connection and limited funds to subscribe to data plans hinder effective use of social media among MSMEs. This finding is also consistent with the study conducted by Ayokunmi, Abu Seman and Rashid (2026) on the challenges of social media marketing in enhancing the performance of Nigerian SMEs which established that low digital skills, inadequate infrastructure and insufficient marketing budgets continue to challenge the use of social media marketing by Nigerian SMEs. This finding is also consistent with Resource-Based View (RBV) Theory which states that organisations have varied levels of resources and capabilities which determine how they will utilise available opportunities to achieve their objectives. Differences in individual abilities, financial resources, knowledge and skills therefore dictate how MSMEs will utilise social media marketing to achieve their objectives.

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Conclusion

Based on the findings of this study, it can be concluded that social media marketing is a valuable tool for improving the performance of small and medium enterprises (SMEs) in Abuja Municipal Area Council. Abuja Municipal SMEs are using social media platforms like WhatsApp, Instagram and Facebook to advertise their products and services, inform customers, reach new customers and connect with their existing customers. The study revealed that through social media, Abuja Municipal SMEs are able to effectively engage customers and drive sales of their products and services. It is for this reason that social media marketing is becoming more popular amongst Abuja Municipal SMEs. On the other hand, this study also established that several challenges including high cost of internet, data challenges, lack of relevant skills and lack of good quality content hinder effective use of social media by these SMEs. To begin with, internet connection is not always reliable and accessible in Abuja Municipal Area. Secondly, most of the Abuja municipal SMEs lack the skills required to utilise social media effectively. In conclusion, it is evident that social media marketing has the potential to boost the sales performance of SMEs in Abuja Municipal Area Council, provided that they adopt social media marketing properly.

Recommendations

Arising from the findings, the following recommendations are being prescribed:

1. MSMEs should strategically utilise social media platforms such as WhatsApp, Instagram and Facebook by regularly posting relevant product information, promotions, images and videos.
2. MSMEs should focus on using social media marketing to improve sales performance by adopting promotional offers, product demonstrations, customer testimonials and clear calls-to-action that encourage online enquiries and purchases.
3. MSMEs should strengthen customer engagement by responding promptly to comments, messages and enquiries and by creating interactive and attractive content.
4. Business owners should seek affordable digital marketing training and adopt cost-effective platforms and content formats, while relevant government agencies and telecommunications providers should support MSMEs through improved digital infrastructure and affordable internet access.

References

Adeyeye, O. A., & Nwaoboli, E. P. (2024). Social media marketing and digital transformation of small and medium enterprises in Nigeria. *International Journal of Marketing and Communication, 10*(2), 45–58.

Afolayan, A. O., & Babarinde, O. A. (2025). Social media marketing and business performance of phone accessory enterprises in Ibadan, Nigeria. *Journal of Business and Management Research, 12*(1), 66–79.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Ajede, O. A., Akinola, A. A., & Ibrahim, M. A. (2025). Internet marketing and the performance of small and medium enterprises in Kwara State, Nigeria. *Journal of Entrepreneurship and Business Innovation, 8*(1), 22–37.

Ajike, O. A., Eze, S. C., & Nwankwo, C. A. (2025). Social media migration and growth-inhibiting mitigation strategies among small businesses in Nigeria. *International Journal of Business and Digital Innovation, 6*(2), 101–116.

Akinrinade, O. A., & Adeleke, A. O. (2026). Instagram marketing and sales performance of small and medium enterprises in Southwest Nigeria. *Journal of Digital Marketing and Entrepreneurship, 7*(1), 45–59.

Akpede, M. O., Okafor, C. N., & Yusuf, A. T. (2025). Social media advertising and sales improvement among small and medium enterprises in Nigeria. *African Journal of Marketing Management, 17*(2), 34–49.

Anukwe, C. N., Anzor, S. N., & Chukwuka, E. O. (2025). Social media marketing, customer engagement and loyalty of Nigerian small and medium enterprises. *International Journal of Business and Management Studies, 13*(2), 71–86.

Ayokunmi, A. O., Abu Seman, S. A., & Rashid, U. K. (2026). Challenges of social media marketing in enhancing the performance of Nigerian small and medium enterprises. *African Journal of Business and Economic Research, 21*(1), 101–117.

Ayokunmi, L. A., Abu Seman, N. A., & Rashid, U. K. (2024). Social media marketing and SME performance in Ibadan City. *Selangor Business Review, 9*(2), 62–75.

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120. **HTTPS://DOI.ORG/10.1177/014920639101700108**

Benjamin, A. O. (2025). Online marketing and sales performance of small and medium enterprises in Nigeria. *Journal of Digital Business and Entrepreneurship, 9*(1), 55–70.

George, E. O., Nwosu, C. C., & Amadi, I. E. (2025). Digital marketing and growth of small and medium enterprises in Port Harcourt metropolis, Rivers State. *International Journal of Business and Management Studies, 14*(2), 88–103.

Hindu, R. (2021). Measuring small and medium enterprise performance: Financial and non-financial dimensions. *Journal of Entrepreneurship and Business Development, 5*(2), 41–53.

Lawal, L. O., & Adejuwon, J. A. (2023). Social media marketing and sales performance of selected small and medium enterprises in South-West Nigeria. *Journal of Management, Economics, and Industrial Organization, 7*(1), 48–64.

McLuhan, M. (1964). *Understanding media: The extensions of man*. McGraw-Hill.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Morah, D. N., & Omojola, O. (2018). Social media use and the changing patterns of communication among Nigerian consumers. *Journal of Media and Communication Studies, 10*(5), 54–63.

National Bureau of Statistics. (2023). *Micro, small and medium enterprises survey report*. National Bureau of Statistics.

Okechukwu, C. E., Jibril, A. B., & Nuhu, M. A. (2025). Digital marketing and small and medium enterprise performance in Abuja, Nigeria. *Journal of Business and Management Research, 10*(2), 88–103.

Ozoemelam, O. C., Okafor, C. N., & Eze, S. G. (2025). Social media marketing and the performance of small and medium-sized enterprises in Nigeria. *International Journal of Business and Management Studies, 7*(1), 112–126.

PricewaterhouseCoopers. (2024). *Nigeria economic outlook: Digital transformation and the future of businesses*. PwC Nigeria.

Solomon, O. O., Eze, C. C., & Okoro, J. A. (2024). Social media advertising and consumer engagement among small and medium enterprises. *Journal of Digital Marketing and Communication, 9*(2), 73–87.

Udeogu, C. N., & Oparah, C. C. (2025). Social media marketing and performance of small and medium enterprises in Nigeria. *Nigerian Journal of Management Sciences, 26*(1), 112–126.

Udom, A. J., & Ekpouko, J. C. (2024). Navigating success: The impact of social media strategies on small and medium-scale businesses in Ikot Ekpene, Akwa Ibom State, Nigeria. *International Journal of Innovation in Marketing Elements, 4*(1), 39–58. https://doi.org/10.59615/ijime.4.1.39

Ukoha, U. N., Okeke, C. I., & Nwafor, J. C. (2025). Social media advertising, targeting and customer engagement among Nigerian small businesses. *Journal of Marketing and Consumer Research, 15*(1), 29–44.

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal, 5*(2), 171–180. **HTTPS://DOI.ORG/10.1002/SMJ.4250050207**

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Print and Digital Material Preferences and its Influence on Reading Habits amongst Selected Undergraduates in Kwara State

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DOI: https://doi.org/10.5281/zenodo.22894352

Abstract

Reading is a complex process that involves cognitive, physical, intellectual, cultural and linguistic processes. Numerous theoretical frameworks have been developed to explain the gap between the academic excellence and reading. This study, narrowing on the format of reading materials, fills the gap as to the correspondence between the format preference and reading. A cross-sectional survey of 398 students, using an e-questionnaire was conducted to gather the preference in reading materials. The data was used to test five research questions that were raised based on theoretical postulations. Findings show that majority of students sampled in this study prefer digital to print resources. However, recalling information is faster with print than digital materials. Students sampled in this study do not see the preference type as a source of motivation to reading. Theoretically, this study suggests that more studies should be done on reading resources and readership behaviour. Practically, recommendations suggest that further studies should check the influence of digital resource and print materials preference on academic performance of undergraduates. For policy making purpose, this study suggests that the media and educational institutes should educate readers on how to use both materials based on their needs. The paper promotes the goal 4 of sustainable development goals (SDGS) which aims to ensure inclusive and equitable quality education, promoting lifelong opportunities for all, with emphasis on primary education, tertiary education, and access to education facilities.

Keywords: *Digital resource, Influence, Preference, Print materials, Reading habits*

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1.1 Introduction

According to Reiber-Kuijpers, Kral, and Meijer (2021), reading is the purposeful decoding and comprehension of print and online texts for enjoyment, engagement, and action. According to Muhammad, Azmi, and Hassan (2020), reading encompasses not only the recognition of letters or words and their proper pronunciation or arrangement, but also the understanding of their meanings. According to Eijansantos-Remanente (2017), who cited Abidin, Pour-Mohammadi, and Jesmin (2011), reading is a crucial lifelong learning activity that develops intelligence, personality, and one's ability to understand the world and beyond. According to Celik's (2019) research, reading habits are regular activities carried out by people who recognize reading as a source of need and desire. In order to achieve successful learning outcomes, reading habits are important. Students that read a lot are likely to perform well academically, according to research (Mwangi & Bwire, 2020; Petrus & Shah, 2020). Reading habits are therefore important, especially in the realm of education (Endris, 2018; Krashen, 2004; Makotsi, 2005). The National Reading Panel (2000) asserts that reading habits play a crucial role in the growth of students' reading skills, which in turn enables them to receive a comprehensive education. According to Suhana and Haryudin (2017), reading habits are purposeful, well-planned study patterns that help pupils absorb academic material and pass tests. In a broader sense, Olawumi and Yusuf (2016) define reading habit as the cultivation of an attitude and the possession of skills that make reading a pleasurable, regular, and constant activity. This means that reading habit is developed over time through repeated interaction with print or other literacy activities and materials. Loh and Sun (2019) define reading habit as a pattern of behavior that demonstrates a person's preference for specific genres and reading styles.

However, undergraduates' reading preferences are changing from print to digital sources due to technical improvement and the increasing growth of digital resources (Yusof, 2021). Readers' habits have been greatly affected by the ease of access to digital information and the amount of time spent reading digital media (Hakemulder & Mangen, 2024; Pardede, Rafli, & Iskandar 2023; Ogunbodede & Sawyerr-George; 2023; Spjeldnaes & Karlsen 2022; Krish & Hamat; 2022; Oktavianto; 2022). Ambrose, Ogunbodede, and Idubor (2021) added that digital resources are those that are only accessible through Internet-connected devices. These documents are also accessible in digital format. Websites, databases, e-books, e-reports, instructional films, and online course materials are a few examples. (Sawyerr-George & Ogunbodede, 2023). Ebijuwa (2018) opined that digital resources on a variety of subjects are easily accessible thanks to computers and mobile devices. According to Ngugi and Mberia (2014), the growing quantity of digital resources available today is causing people, particularly young adults, to spend more time reading digital materials. Students are depending increasingly on the Internet to locate reading resources since it is quicker, less expensive, and easier to use (Shariza & Amelia, 2006). Students can access and read library materials in a variety of digital formats (eBooks, audiobooks, and movies on demand) at any time and from any location using the devices of their choice. The majority of university libraries worldwide have devoted a significant amount of their budgets to offering Internet services and digital resources in order to better support students' studying and research needs due to the advantages and rising demand for these resources. (Sawyerr-George & Ogunbodede, 2023) In order to improve their learning capacities and general academic performance, students must make effective use of these resources. (Sawyerr-George & Ogunbodede, 2023).

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1.2 Statement of the Problem

Despite the advantages of using digital resource materials, such as simple access, students in developing nations still underutilize it (Kodua-Ntim & Fombad, 2020). Students' poor reading habits, which have resulted in low academic success, may be the cause of the low use. According to Nkordeh, Oni, Olowononi, & Bob-Manuel (2017) and Olukemi (2010), the value of graduates generated has been significantly impacted by the sharp decline in Nigerian students' reading habits at all educational levels. Students' use of the university library increases significantly during exam periods, according to statistics. This indicates that students only read when they are preparing for tests. (Sawyerr-George & Ogunbodede, 2023).

Much of the reduction in reading and reading engagement has been attributed to competing media, such as easy access to social media, games, and online websites. (Loh and Sun, 2022). Nowadays, a lot of kids think reading is a waste of time. Schleicher (2018). The internet is seen as the most important source of information for people who spend the most of their time on the internet, as opposed to academic reading, recreational reading, and watching television for amusement. (Coiro, 2020; Vyas and Tandel, 2020; Adeyemi, 2020). According to Adnan, Akram and Akram (2016), who referenced Hopper (2005), young reading habits are declining as a result of the arrival of information communication technology, and the Internet has made matters worse. With the broad availability of digital technology and resources, it is critical to investigate if a preference for digital resources or print materials influences students' reading habits at Nigerian universities. Thus, the purpose of this study is to investigate how Kwara State undergraduates' reading habits are affected by their preference for print versus digital resources.

1.3 Objectives of the study

1. To examine undergraduates preference between print materials and digital resources for academic and non-academic reading
2. To investigate the extent to which undergraduates prefer digital resources over print materials for academic and personal reading
3. To examine the relationship between digital resource preference and the frequency, duration and consistency of reading habits amongst undergraduates
4. To determine the influence of digital resource preference on undergraduates motivation and attitude towards reading

Research Questions

1. Is there a preference for undergraduates between print materials and digital resources for academic and non-academic reading?
2. To what extent do undergraduates prefer digital resources over print materials for academic and personal reading?
3. Is there a relationship between digital resource preference, frequency, duration and consistency of reading habits amongst undergraduates?
4. To what extent does the digital resource preference of undergraduates influence motivation and attitude towards reading?

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1.4 Literature (Conceptual and Theoretical Review)

1.4.1 Reading

According to Reiber-Kuijpers, Kral, and Meijer (2021), reading is the purposeful decoding and comprehension of print and online texts for enjoyment, engagement, and action. According to Hoover and Tunmer (2020), reading is a complex cognitive process that requires the recognition of printed symbols as meaningful units and their comprehension as thought units in order to correctly interpret a printed message. In addition to helping students thrive academically and professionally, reading well can help them develop their critical thinking, writing, communication, and intuitive knowledge all of which are vital for the development of human capital (Heineke & Vera, 2022). Reading does not only encompass recognising letters or words and uttering or arranging them correctly, but also more importantly, includes the ability to understand the meanings of these arrangements (Muhamad, Azmi, & Hassan, 2020).

Reading habits are often measured in terms of the quantity of books read, the frequency of reading and the amount of time spent reading on average. (Balan, Katenga & Simon, 2019). Loh and Sun (2019) referred reading habit as a pattern of behaviour that demonstrates a person's preference for certain genres and reading styles. Reading habits are the methods in which people structure their reading (Davidovitch, Yavich, & Druckman, 2016; Abang Yusof, 2021). Reading habits have been identified as having a major impact on students' intellectual performance. According to Tus, Lubo, Rayo, and Cruz (2020), it is an important part of greater academic accomplishment, a method of acquiring information, and it influences how well students perform globally. According to Costa and Kallick (2019), broad reading habits support students' nurturing skills like thinking, valuing, flexibility, and creativity. Reading habits have been found to affect learners' worldviews, English speaking and writing abilities, and retention of knowledge.

1.4.2 Print Materials

According to Baron (2021), printed reading materials are tangible documents or publications like books, newspapers, magazines, and pamphlets that are created using conventional printing techniques. With benefits including mobility, durability, and simplicity of inscription, printed materials have been the main means of sharing information and knowledge for centuries (Ghafar, 2024). Print resources, according to Zha Zhang and Yan (2014), are conventional sources of knowledge like printed books and print periodicals. Unlike any other medium of communication, print was a pioneer in the widespread delivery of information. (Bastek, 2012).

1.4.3 Digital Resources

Digital reading materials comprise of electronic texts that can be accessed and consumed through digital gadgets like computers, tablets, e-readers, and smartphones (Baron, 2020). Digital resources are those that can only be accessed through internet-connected devices (Ambrose, S.E., Ogunbodede, K.F., & Idubor, I., 2021). Digital resources are those that require computer access, whether through a personal computer, desktop computer, or handheld mobile device. They can be accessed locally or remotely via the Internet.

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1.4.4 Relationship between Reading Habits and Preference of Resources

Undergraduates' reading habits and preferences for print or digital resources are becoming more impacted by each format's ratings for academic engagement, accessibility and convenience (Ogunbodede, K. F., & Sawyerr-George, O. E. 2023). Reading habits are determined not just by students' motivation to read, but also by the materials they choose and regularly access, as chosen resources frequently dictate the frequency, duration, and depth of their reading. (Asika, I. E., & Akabuike, I. G. 2012). Preference for print resources has continuously been linked to concentrated, in-depth and prolonged reading habits, especially for academic reasons like studying, taking notes and preparing for exams (Safna, R., Amin, M., Thohir, L., & Elmiana, D. 2024). Printed materials promote linear reading and deeper cognitive engagement, which aids understanding and retention, encouraging disciplined and intentional reading habits in students. On the other hand, because students may readily access materials through internet-enabled devices at any time and from any location, their choice for digital resources is strongly associated with flexible, frequent, and situational reading habits. (Ogunbodede, K. F., & Sawyerr-George, O. E. 2023). Students frequently multitask or transition between academic and non-academic information while reading on digital platforms, which tends to promote shorter and more fragmented reading sessions (Spjeldnæs, K., & Karlsen, F. 2022). However, digital resources positively influence reading habits by increasing reading frequency and exposure to a wider range of texts, especially when students rely on online journals, e-books, and web-based academic materials (Ogunbodede, K. F., & Sawyerr-George, O. E. 2023).

Studies on Nigerian university students indicate a significant relationship between the use of digital resources and reading habits, showing that regular use of online materials can enhance students' reading engagement when properly guided (Ogunbodede, K. F., & Sawyerr-George, O. E. 2023). Despite the growing availability of digital resources, many undergraduates still demonstrate a stronger preference for print materials when deep understanding and concentration are required, suggesting that reading habits vary according to academic task demands (Safna, R., Thohir, L., Amin, M., & Elmiana, D. 2024). The coexistence of print and digital preferences implies that students strategically combine both formats, using print resources for intensive academic reading and digital resources for quick reference, information search, and convenience-based reading (Spjeldnæs, K., & Karlsen, F. 2022).

2. Theoretical Framework

2.1 Uses and Gratification Theory (Niche Gratification Theory)

Uses and Gratification theory is a communication theory that explains why and how people seek out media to suit specific needs. The theory holds that media is a widely available product, that audiences are its consumers, and that audiences choose media to satisfy specific demands as well as social and psychological needs such as information, relaxation, social interactions, and diversion.

Niche Gratification Theory is informed by the Uses and Gratifications approach. The Uses and Gratifications approach comes out of classical effects research. The creation of Uses and Gratifications answered a need to explain motivations for use, and functions of, the mass media. It was thought that media's limited effects on audiences could be better discerned by more thoroughly understanding the purposes individuals had in using media (McQuail, 2011). Most

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relevant to Niche Gratification Theory, the Uses and Gratifications approach suggests that people purposefully search out certain types of media to fulfill specific needs. Uses and Gratifications researchers also analyze what people do with different media formats (Pietilä, 2005), and the results of studies using this approach explain how media can be better used for public understanding. Like Uses and Gratifications, Niche Gratification media formats can address a variety of demands, and studies on niche gratifications make an effort to identify the features that best fulfil particular objectives. According to the notion, which is founded on the concept of distinct and overlapping ecological "niches," users are more likely to use e-book formats for purposes other than those for which they use printed books. The reasons why customers select different book formats can be explained by the Niche Gratification Theory. It also looks at how each format satisfies user needs. The theory states that newer and older media forms are in rivalry with one another. Formats that employ older technology compete for market share, while newer formats pose a threat to well-established products. Each format struggles to satisfy a certain customer need or desire and to stay in use due to a small audience (Ramirez, Dimmick, Feaster, & Shu-Fang, 2008). Rather than assessing a single media format, the theory is frequently applied as a comparison approach of analysis among two or more media types.

3. Methodology

This study used a quantitative research approach to collect data from undergraduate students at both Kwara State University, Malete, and the University of Ilorin, Ilorin. The study population was arrived at after a total sum of undergraduates in both Kwara State University (20,000) and University of Ilorin (49,471) = (69,471). The sample size was 398 using the Taro Yamane formula, ensuring a 95% confidence level. Stratified sampling technique was employed dividing the population of each institution into stratas (Faculties Departments, and Levels). Questionnaire was used as the primary instrument for data collection. Data was analysed descriptively and inferentially.

4. Data Presentation

RQ1. Is there a preference for undergraduates between print materials and digital resources for academic and non-academic reading?

Table 1: Preference between print materials and digital resources

Preference Between Print Materials Vs Digital Resources	F	%
I remember information from my readings when I read them from printed pages		
Strongly Agree	124	31.2%
Agree	85	21.3%
Disagree	69	17.3%
Strongly Disagree	120	30.2%
Total	**398**	**100**
(M=2.4, SD=1.2, Min= 1 , Max= 4)		

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It is more convenient to read my assigned readings electronically than to read them in print		
Strongly Agree	167	42%
Agree	69	17.3%
Disagree	83	20.9%
Strongly Disagree	79	19.8%
Total	**398**	**100**
(M=2.4, SD=1.2, Min= 1, Max= 4)		
I prefer to print out my course readings rather than read them electronically		
Strongly Agree	135	33.9%
Agree	68	17.1%
Disagree	67	16.8%
Strongly Disagree	128	32.2%
Total	**398**	**100**
(M=2.4, SD=1.2, Min= 1 , Max= 4)		
I like to make digital copies of my printed materials		
Strongly Agree	134	33.7%
Agree	69	17.3%
Disagree	65	16.3%
Strongly Disagree	130	32.7%
Total	**398**	**100**
(M=2.4, SD=1.2, Min= 1 , Max= 4)		
I can focus on the material better when I read it in print		
Strongly Agree	156	39.2%
Agree	68	17.1%
Disagree	61	15.3%
Strongly Disagree	113	28.4%
Total	**398**	**100**
(M= 2.3, SD=1.2, Min= 1 , Max= 4)		
I prefer electronic materials over print materials		
Strongly Agree	115	28.9%
Agree	61	15.3%
Disagree	79	19.8%
Strongly Disagree	143	36%
Total	**398**	**100**
(M=2.6, SD=1.2, Min= 1 , Max=4)		

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When preparing for exams, I often choose printed materials as my primary learning source		
Strongly Agree	137	34.4%
Agree	71	17.8%
Disagree	72	18.1%
Strongly Disagree	118	29.7%
Total	**398**	**100**
(M=2.4, SD=1.2, Min= 1 , Max= 4)		

Source: Researcher's fieldwork (2025)
Note: 2 is the cut-off point between strongly agree and disagree on this table, M=Mean, SD; Standard Deviation, Min=Minimum, Max=Maximum

Overall, respondents show that they remember information from when they read from printed pages (M=2.4, S.D=1.2). The implication of this is that remembering details from reading stick longer when it is from printed pages. This corroborates Safna, R., Thohir, L., Amin, M., & Elmiana, D. 2024 assertion that despite the growing availability of digital resources, many undergraduates still demonstrate a stronger preference for print materials when deep understanding and concentration are required, suggesting that reading habits vary according to academic task demands.

RQ2: To what extent do undergraduates prefer digital resources over print materials for academic and personal reading?

Table 2: Extent of preference of digital resources over print materials

Extent of Preference of Digital Resources Over Print Materials	Frequency	Percentage
For academic readings, I prefer digital resources over print materials		
Strongly Agree	144	36.2%
Agree	82	20.6%
Disagree	80	20.1%
Strongly Disagree	92	23.1%
Total (M=2.3, SD=1.1, Min=1 , Max=4)	**398**	**100**
I find digital resources more convenient for academic reading than print materials		
Strongly Agree	131	33%
Agree	73	18.3%
Disagree	67	16.8%
Strongly Disagree	127	31.9%
Total (M=2.4, SD=1.2, Min= 1, Max=4)	**398**	**100**

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Digital resources help me better understand academic concepts compared to print materials		
Strongly Agree	170	42.7%
Agree	77	19.3%
Disagree	87	21.9%
Strongly Disagree	64	16.1%
Total	**398**	**100**
(M=2.3, SD=1.1, Min= 1, Max=4)		
I enjoy reading digital content for pleasure more than print materials		
Strongly Agree	133	33.4%
Agree	75	18.8%
Disagree	77	19.4%
Strongly Disagree	113	28.4%
Total	**398**	**100**
(M=2.4, SD=1.2, Min= 1 , Max=4)		
Digital resources provide more engaging content than print materials		
Strongly Agree	189	47.5%
Agree	65	16.3%
Disagree	82	20.6%
Strongly Disagree	62	15.6%
Total	**398**	**100**
(M=2.3, SD=1.1, Min=1 , Max=4)		

Source: Researcher's fieldwork (2025)

Note: 2 is the cut-off point between strongly agree and disagree on this table, M=Mean, SD; Standard Deviation, Min=Minimum, Max=Maximum

Respondents show that they prefer digital resources over print materials for academic readings (M=2.3, S.D=1.1). This shows extent of preference between both materials for academic reading. Respondents also show that digital resources are more convenient for academic reading then print materials (M=2.4, S.D=1.2).This corroborates the fact the digital resources are convenient in nature because of its dynamism. Results from respondents also show that they enjoy reading digital content for pleasure more than print materials (M=2.4, S.D=1.2) because digital resources are versatile in engagement and content. Respondents also show that digital resources provide more engaging content than print materials (M=2.3, S.D=1.1). Respondents also show that digital resources help in better understanding of academic concepts (M=2.3, S.D=1.1).

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RQ3: Is there a relationship between digital resource preference, frequency, duration and consistency of reading habits amongst undergraduates?

Table 3: Influence of digital resource preference on frequency, duration, and consistency of reading habits.

Model		B	(SE)	β	t	P
	(Constant)	.849	.078		10.937	.000
	Frequency	.115	.029	.173	4.003	.000
	Duration	.012	.024	.021	.489	.625
	Consistency1	.428	.022	.670	19.273	.000
	Consistency2	.061	.023	.108	2.677	.008
F = 108.811, R2 = .524, Adj,R2 = .519, p= 000 *Dependent Variable: DRP= (Digital resource preference)* *Independent Variable: F=(Frequency),* *D= (Duration), C=(Consistency)*						

Source: Researcher's fieldwork (2025)

In order to examine the influence of digital resource preference on frequency, duration, and consistency of reading habits of undergraduates in Kwara State, a multiple regression analysis was conducted. The finding reveals that digital resource preference contributes 5.19% variance on frequency, duration, and consistency of reading habits. (R^2 =.524, p=.000), as digital resource preference do not indicate significant implication on frequency of reading habits (β =.173, t=4.003 p= .000) likewise, duration (β = .021, t= .489, p= .625), consistency1 (β = .670, t= 19.273, p= .000) and consistency2 (β = .108, t= 2.677, p= .008). These findings therefore shows that digital resource preference does not have any implication on the frequency, duration and consistency of reading habits of undergraduates in Kwara State.

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RQ4: To what extent does the digital resource preference of undergraduates' influence motivation and attitude towards reading?

Table 4: Influence of digital resource preference on motivation and attitude towards reading

Digital Resource Preference on Motivation and Attitude To Reading						
					t	P
Model		B	(SE)	B		
	(Constant)	1.587	.208		7.623	.000
	Motivation	.089	.055	.080	1.613	.108
	Attitude	.188	.067	.140	2.814	.005
F =5.606, R2 = .027, Adj,R2 = .023, p= 000 *Dependent Variable: DRP=(Digital Resource Preference)* Independent Variable: M=(Motivation) , A=(Attitude)						

Source: Researcher's fieldwork (2025)

In order to examine the implication of digital resource preference on motivation and attitude towards reading of undergraduates in Kwara State, a multiple regression analysis was conducted. The finding reveals that digital resource preference contribute 0.27% variance on motivation and attitude towards reading (R^2 =.027, p=.000), as digital resource preference do not indicate significant implication on motivation towards reading (β = .080, t= 1.613, p= .108) likewise, attitude towards reading (β = .140, t= 2.814, p= .005). These findings therefore shows that digital resource preference does not have any implication on motivation and attitude towards reading of undergraduates in Kwara State.

5. Discussion of Findings

Based on the objectives of this study, the findings indicate that undergraduates in Kwara State prefer print materials for academic reading. With an overall mean score of (M = 2.4 SD = 1.2), the results suggests that print materials help undergraduates to retain information better and to aid full concentration and focus while reading. Regarding the extent to which undergraduates prefer digital resources over print materials acknowledges that undergraduates prefer digital resource materials over print materials because it is convenient and consists of more engaging content that aids better understanding of readings (M=2.3, S.D=1.1). This supports previous research that owing to the benefits and growing demand for Digital resources, most university libraries around the globe have invested a large portion of their budgets in providing the Internet services and Digital resources to better serve students' learning and research needs. (Ogunbodede & Sawyerr-George,2023) Thus, students are required to make good use of these resources to enhance their learning abilities and overall academic performance. (Ogunbodede & Sawyerr-George,2023). In terms of relationship between digital resource preference of undergraduates and frequency, duration, and consistency of

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reading habits, there is no significant relationship between them. This means that just because undergraduates prefer digital resource materials, it does not influence the frequency, duration and consistency of the reading habits of undergraduates in Kwara State (R^2 =.524, p=.000). Additionally, digital resource preference does not have an influence on motivation and attitude towards reading of undergraduates (R^2 =.027, p=.000). This implies that undergraduates choosing digital materials for both academic and non-academic reading does not motivate or influence the attitudes of undergraduates towards reading in general.

6. Conclusion and Recommendation

This study shows that Kwara State undergraduates significantly prefer print and digital reading materials, either for convenience and interesting content or for knowledge retention and complete focus. Although the frequency, duration, and consistency of reading habits, as well as motivation and attitude toward reading, do not significantly correlate with the preference for digital resources, undergraduates are expected to use these resources to enhance their reading habits rather than merely pass exams because reading should be a lifelong process. According to Eijansantos-Remanente (2017), who cited Abidin, Pour-Mohammadi, and Jesmin (2011), reading is a crucial lifelong learning activity that develops intelligence, personality and one's ability to understand the world and beyond. Future research should look into the impact of digital resource versus print material preferences on academic performance. The efficient use of digital resource materials by undergraduates in the face of competing digital content on the internet could also be investigated. Additional research could examine the dependability of data obtained from digital versus print sources.

References

Abang Yusof, D. A. (2021). *Reading Habits among Students in the Digital Era: Changes of Trends and Behaviours*. Journal of Academic Library Management (AcLiM), 1(1). Available at: https://ir.uitm.edu.my/49630/1/49630.pdf (accessed 22 July 2023)

Adeyemi,I.AO.(2020a). Influence of Covid-19 Lockdown on Reading Habit of Nigerians: A Case Study of Lagos State Inhabitants. *Reading and Writing Quarterly*. https://doi.org/10.1080/10573569.2020.1857891

Adnan,A., Akram,F., & Akram,A. (2016).*Identification of Factors Promoting Reading Habits of Students: A Case Study on Pakistan*. Research on Humanities and Social Sciences ,6(17), 56 61.

Akabuike, I. G., & Asika, I. E. (2012). Reading habits of undergraduates and their academic performances: Issues and perspectives. *African Research Review, 6*(2), 246–257. https://doi.org/10.4314/afrrev.v6i2.22

Ambrose, S. E., Ogunbodede, K. F., & Idubor, I. (2021). Undergraduate students' use of electronic resources amid the COVID-19 pandemic lockdown. Library Philosophy and Practice, 6434.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Balan, S., Katenga, J. E., & Simon, A. (2019, December). Reading habits and their influence on academic achievement among students at Asia Pacific International University. In Abstract Proceedings International Scholars Conference (Vol. 7, No. 1, pp. 1490-1516). https://doi.org/10.35974/isc.v7i1.928

Baron, N. S. (2020). *Digital reading: A research assessment*. In Handbook of Reading Research, Volume V (pp. 116-136). Routledge.

Baron, N. (2021). *How we read now: Strategic choices for print, screen, and audio.* Oxford University Press.

Bastek, N (1994-2012). Online VS Publishing. Writing@ CSU. Colorado State University available at http:Writing.colostate.edu/guides/guide-cfm guided=37 access September,9,2018.

Celik, B. (2019). A study on using the university library and reading habits of students: A study on Tishk International University students in Erbil, Iraq. International Journal of English Linguistics, 9(4), 224-240. doi:10.5539/ijel.v9n4p224

Coiro, J. (2020). Toward a Multifaceted Heuristic of Digital Reading to Inform Assessment,Research, Practice, and Policy. *Reading Research Quarterly*. https://doi.org/10.1002/rrq.302

Costa, A. L., & Kallick, B. (2019*). Nurturing habits of mind in early childhood*: Success stories from classrooms around the world. ASCD.

Cull, B. (2011). Reading revolution: Online digital texts and implications for reading in academics. First Monday Peer reviewed Journal on the Internet volume16 Number 6-6. June 2011. Retrieved 17/2/2013

D. K. Appiah, C. O. Kwaah, & F. A. Yebowaah International Journal of Knowledge Content Development & Technology Vol.13, No.1 (March, 2023)

Ebijuwa, A. S. (2018). *Gender differentiation and perceived ease of usage of electronic resources by university students in selected private universities in Nigeria.* SRELS Journal of Information Management, 55(3), 117-127. https://doi.org/10.17821/srels/2018/v55i3/123059

Eijansantos-Remanente, M. C. (2015). *Factors affecting the academic reading habits of hospitality management students*. Retrieved from https://www.researchgate.net/profile/Maria_Cecilia_Remanente/publication/316599851_Factors_affecting_academic_reading_among_students/links/5906b65b0f7e9bc0d590fd70/Factors-affecting-academic-reading-among-students.pdf

Endris, A. A. (2018). *Effects of extensive reading on EFL learners' reading comprehension and attitudes.* International Journal of Research in English Education, 3(4), 1-11.doi:10.29252/ijree.3.4.1

Ghafar, Z. (2024). *The Impact of Electronic Books on Learning English Language in the Digital Era: An Overview*. Journal Of Digital Learning and Distance Education, 2(7), 635 644.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Hakemulder, F., & Mangen, A. (2024*). Literary Reading on Paper and Screens: Associations Between Reading Habits and Preferences and Experiencing Meaningfulness.* Reading Research Quarterly.

Heineke, A. J., & Vera, E. M. (2022). *Beyond language and academics: Investigating teachers' preparation to promote the social-emotional well-being of emergent bilingual learners.* Journal of Teacher Education, 73(2), 145-158. https://doi.org/10.1177/00224871211027573

Hoover, W. A., & Tunmer, W. E. (2020). *The cognitive foundations of reading and its acquisition.* Springer International Publishing. https://doi.org/10.1007/978-3-030-44195-1

Hopper, R. (2005). *What are teenagers reading? Adolescent fiction reading habits and reading choices*. Literacy, 39(3), 113-120.

Kodua-Ntim, K., & Fombad, M. C. (2020). *Strategies for the use of open access institutional repositories at universities in Ghana.* Library Management, 41(6/7), 515- 530. https://doi.org/10.1108/lm-02-2020-0023

Krashen. (2004). The power of reading: Insights from the research: Insights from the research:ABC-CLIO

Kumar, R. (2020). *Research methodology: A step-by-step guide for beginners.* Sage Publications.

Lemanski, C. (2011). *Access and assessment? Incentives for independent study. Assessment & Evaluation in Higher Education,* 36(5), 565-581. doi:10.1080/02602930903541031

Liasu, J. A., & Bakrin, S. F. (2022). *The impact of electronic information resources on the reading habits of library users at Osun State University, Nigeria*. Library Philosophy and Practice, 7055.

Loh, C. E., & Sun, B. (2019). *"I'd Still Prefer to Read the Hard Copy": Adolescents' Print and Digital Reading Habits*. Journal of Adolescent & Adult Literacy, 62(6), 663-672. https://doi.org/10.1002/jaal.904

Makotsi, R. L. (2005). *Sharing resources: How library networks can help reach education goals.* London: Book Aid International

McQuail, D. (2011). McQuail's Mass Communication Theory. London: Sage.

Muhamad, S. N., Latiff Azmi, M. N., & Hassan, I. (2020). *Reading interest and its relationship with reading performance:* A study of English as Second Language learners in Malaysia. Humanities & Social Sciences Reviews, 7(6), 154-1161. doi:10.18510/hssr.2019.76165

Mwangi, F. G., & Bwire, A. M. (2020). *Role of extensive reading habits in students' acquisition of composition writing skills in English in Kenya*. Journal of Education and Practice, 11(30), 62-68.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation

Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - *E*- ISSN: 3156-5492 | *P*- ISSN: 3156-5514

National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction.* Retrieved from: https://eric.ed.gov/?id=ED444126

Ngugi, M. N., & Mberia, H. K. (2014). *The influence of the Internet surfing on the reading culture of secondary school teachers: A case study of newspaper readership in Kigumo Sub County, Kenya.* International Journal of Academic Research in Business and Social Sciences, 4(11), 96-110. https://doi.org/10.6007/IJARBSS/v4-i11/1275

Nkordeh, N., Oni, O., Olowononi, F., & Bob-Manuel, I. (2017). *Impact of social media on the reading culture of Nigerian youths: Is the social media platform providing an alternative source of education*? http://www.iaeng.org/publication/WCECS2017/WCECS2017_pp223-226.pdf

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
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Resource Nationalism and the Global Capitalist System: Implications for Economic Sovereignty and Development in Nigeria

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DOI : https://doi.org/10.5281/zenodo.22894663

Abstract
This study examined the relationship between resource nationalism and the global capitalist system in Nigeria, focusing on its implications for economic sovereignty and national development. The study sought to understand how Nigeria's participation in the global economy has shaped its ability to control its natural resources and translate resource wealth into meaningful national development. A qualitative research design was adopted, relying mainly on secondary data obtained from scholarly publications, government documents, reports of international organisations, regulatory agencies and credible media sources. The data were analysed through thematic and qualitative content analysis. Dependency Theory provided the theoretical framework for understanding the unequal relationships that often exist between resource-rich developing countries and advanced capitalist economies. The findings showed that Nigeria's engagement with the global economy has brought both opportunities and challenges. Foreign investment, technology, specialised expertise and access to international markets have supported activities in the petroleum and solid-minerals sectors, creating opportunities for revenue generation, investment and employment. However, the country's continued reliance on commodity exports, foreign technology, external finance and changing global market conditions has limited its practical economic autonomy. The study further found that legal ownership of natural resources does not always translate into effective control over their exploitation, processing and value creation. In addition, weaknesses in domestic productive capacity, infrastructure, governance and revenue management have reduced the extent to which resource wealth contributes to broad-based development. The study concluded that Nigeria's participation in the global capitalist system has expanded economic opportunities while also sustaining forms of dependence that continue to limit economic sovereignty and the effective transformation of natural-resource wealth into sustainable national development.

Keywords: Resource Nationalism; Global Capitalist System; Economic Sovereignty; Natural Resources; National Development; Nigeria.

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Introduction

Natural resources have long occupied an important place in the economic and political life of states. Beyond their material value, resources such as petroleum, natural gas and minerals often shape relations between governments, foreign investors and international markets. As national economies have become increasingly connected through trade, investment, technology and production networks, decisions about the ownership and exploitation of natural resources have also acquired wider international significance. Global capitalism has created opportunities for resource-rich countries to attract capital, access technology and participate in international markets; at the same time, it has raised persistent concerns about external influence, unequal economic relationships and the ability of states to retain meaningful control over their natural wealth (Held et al., 1999; Scholte, 2008). The question of natural-resource governance has therefore become closely associated with broader debates about sovereignty, state autonomy and development.

Resource nationalism has emerged as one of the approaches through which states seek to protect or strengthen their authority over strategically important resources. Broadly understood, it reflects policies and political efforts aimed at increasing national influence over the ownership, extraction and distribution of benefits from natural wealth (Wilson, 2015). Its expression differs across countries and historical periods, ranging from state participation and stronger regulation to local-content policies, taxation and efforts to promote domestic value addition. However, the pursuit of greater control does not necessarily imply economic isolation or the rejection of foreign participation. Many resource-rich states remain dependent, to varying degrees, on international finance, technical expertise, technology and access to external markets. This produces an inherent tension between the aspiration for greater economic independence and the realities of operating within a global capitalist system (Koch & Perreault, 2019).

The issue is particularly significant for developing countries whose economies have historically been linked to global markets through the extraction and export of primary commodities. Dependency scholars, including Amin (1976) and Frank (1967), drew attention to the unequal structures that could emerge from this form of integration, especially where less industrialised economies remained largely producers of raw materials while processing, technological advancement and higher-value activities were concentrated elsewhere. Although the contemporary global economy is more complex than the structures originally examined by classical dependency theorists, questions surrounding ownership, value retention and external influence continue to feature prominently in discussions of resource governance. Resource nationalism may therefore be understood as part of a broader effort by states to renegotiate their relationship with international capital and secure greater national benefits from participation in the global economy.

Nigeria provides a relevant context for examining these issues because of its extensive endowment of petroleum, natural gas and solid minerals, as well as its long-standing engagement with international economic forces. The governance of these resources lies at the intersection of domestic policy, foreign investment, multinational corporate activity and international commodity markets. Nigeria's position within the global capitalist system consequently presents a complex policy environment in which the desire to maximise national benefits from natural wealth must coexist with the need for investment, technology and market access. This raises

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important questions about the extent to which resource-rich states can pursue greater economic sovereignty while remaining integrated into global systems of production, finance and exchange.

Against this background, this study examined **Resource Nationalism and the Global Capitalist System: Implications for Economic Sovereignty and Development in Nigeria**. The study proceeded from the premise that the relationship between national resource control and global economic integration presents important questions for state autonomy and development. It therefore explored how resource nationalism operates within Nigeria's engagement with the global capitalist system and considered its implications for the country's capacity to exercise economic sovereignty and pursue broader developmental objectives. By placing Nigeria's resource governance within this wider political-economic context, the study provided a basis for analysing the relationship among state authority, global capital and national development.

Statement of the Problem

Nigeria is richly endowed with petroleum, natural gas and a wide range of solid minerals, yet the relationship between its natural wealth and national development has remained a major concern. The problem has not simply been the availability of resources, but the manner in which they are owned, exploited and integrated into the broader economy. Within the global capitalist system, resource extraction often involves foreign capital, multinational corporations, international markets and transnational production networks. While these relationships can provide access to investment, technology and expertise, they may also generate concerns about external influence and the extent to which resource-rich states retain meaningful control over their natural wealth (Amin, 1976; Frank, 1967; Wilson, 2015). This situation raises an important question for Nigeria: how can the country benefit from global economic integration without weakening its authority over strategic resources and the value derived from them?

This challenge is closely connected to the question of economic sovereignty. Nigeria requires external capital, technology and access to international markets to develop important sectors of its economy. However, dependence on foreign investment and externally driven production systems may limit domestic value creation and weaken the country's ability to determine the terms under which its resources are exploited. Resource nationalism has consequently gained attention as a means through which states seek greater influence over the ownership, management and distribution of benefits from natural resources (Koch & Perreault, 2019; Wilson, 2015). Yet, greater state involvement does not automatically resolve the underlying tension between national control and participation in a global economy that is deeply shaped by transnational capital and unequal economic relations (Amin, 1976).

The central problem, therefore, lies in the tension between Nigeria's pursuit of greater control over its natural resources and its continued integration into the global capitalist system. Existing discussions have largely addressed resource nationalism in relation to state control, foreign investment or particular extractive sectors, while debates on global capitalism have often focused on dependency and unequal economic relations. Less attention has been given to how these two dimensions intersect and what their interaction means for Nigeria's economic sovereignty and broader development. This study therefore examined resource nationalism and the global capitalist system to interrogate how the relationship between national resource control and global

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economic integration shaped the prospects for economic sovereignty and development in Nigeria.

Research Questions

The study raised the following research questions:

I. How has resource nationalism shaped Nigeria's control and management of its natural resources within the global capitalist system?

II. What are the implications of the relationship between resource nationalism and the global capitalist system for economic sovereignty and development in Nigeria?

Objectives of the Study

The broad objective of the study is to examine resource nationalism and the global capitalist system and their implications for economic sovereignty and development in Nigeria. Specifically, the study seeks to:

I. Examine how resource nationalism has shaped Nigeria's control and management of its natural resources within the global capitalist system.

II. Assess the implications of the relationship between resource nationalism and the global capitalist system for economic sovereignty and development in Nigeria.

Conceptual Review

Resource nationalism

Resource nationalism refers to the efforts of a state to exercise greater control over the ownership, exploitation and benefits derived from its natural resources. It extends beyond formal state ownership to include policies aimed at regulating foreign participation, increasing domestic involvement and retaining a greater share of resource benefits within the national economy. The concept may also be understood as a political discourse through which states and other actors negotiate questions of sovereignty, territory, national identity and control over natural wealth (Koch & Perreault, 2019). In resource-rich developing countries, resource nationalism commonly emerges from tensions between national control and dependence on external capital, technology and markets (Andreasson, 2015; Wilson, 2015). In Nigeria, it is reflected in policies and regulatory frameworks designed to increase indigenous participation and strengthen national control over petroleum and mineral resources.

Global Capitalist System

The global capitalist system refers to the interconnected economic structure through which states, corporations, financial institutions and markets are linked by trade, investment, production and the movement of capital. Globalisation has intensified these transnational connections, making economic processes increasingly shaped by interactions that extend beyond territorial boundaries (Held et al., 1999; Scholte, 2008). Within this system, countries occupy different positions depending on their productive, financial and technological capacities. Developing economies such as Nigeria have often participated largely as exporters of primary commodities while depending on industrialised economies for technology, manufactured goods and finance. This pattern of unequal integration is consistent with the dependency perspective, which emphasises the structural relationship between capitalist centres and peripheral economies (Amin, 1976;

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Frank, 1967). It has important implications for economic independence and development, particularly where significant portions of resource processing and value creation occur outside the producing country.

Economic sovereignty

Economic sovereignty refers to the capacity of a state to exercise meaningful control over its economic resources, policies and development priorities. It involves more than legal ownership of natural resources; it also concerns the practical ability to determine how resources are exploited, financed, processed and distributed. The exercise of economic sovereignty may therefore be constrained where domestic policy choices are significantly shaped by external capital, international financial institutions, foreign investment conditions or other transnational economic pressures (Held et al., 1999; Rodrik, 2011). A country may possess formal sovereignty over its resources while remaining dependent on foreign capital, technology or international markets. In the Nigerian context, economic sovereignty is therefore closely connected to the extent to which the country can retain control over the value generated from its petroleum, gas and mineral resources.

National development

National development refers to the broad improvement of a country's economic, social and institutional conditions. It encompasses economic growth and structural transformation, but also includes industrialisation, employment, technological advancement, improved institutions and wider human welfare (Sen, 1999; Todaro & Smith, 2020). Development is therefore not limited to increases in national income; it also concerns the expansion of human capabilities and improvements in the conditions under which people live. Within this study, national development is considered in relation to the extent to which Nigeria's natural resources and participation in the global economy have contributed to wider domestic transformation. The concept is therefore not limited to increased revenue or foreign investment but also concerns whether economic activities generate sustainable and broadly distributed benefits.

Theoretical Framework

This study was anchored on **Dependency Theory**, associated with scholars such as André Gunder Frank and Samir Amin. The theory explains the unequal relationship between developed and developing economies within the global capitalist system, where less-developed countries often depend on advanced economies for capital, technology, manufactured goods and markets. The theory is relevant to this study because Nigeria's integration into the global capitalist system has largely occurred through the export of natural resources, particularly petroleum and solid minerals, alongside continued dependence on foreign capital, technology and international markets. It therefore provides a useful framework for examining how this relationship affects Nigeria's **economic sovereignty and national development**, particularly the contradiction between formal ownership of natural resources and continued dependence on external actors for their exploitation and value creation

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Methodology

This study adopted a **qualitative research design** and relied mainly on secondary data drawn from scholarly publications, government documents, reports of international organisations, regulatory agencies and credible media sources. Data were analysed through **thematic and qualitative content analysis**, with attention to Nigeria's integration into the global capitalist system, economic sovereignty, natural-resource control and national development.

Resource Nationalism and the Changing Architecture of Natural Resource Control in Nigeria

Nigeria's relationship with its natural resources has been shaped by a persistent contradiction. The country possesses extensive reserves of petroleum and natural gas, alongside commercially important deposits of gold, lithium, tin, limestone, coal and other minerals, yet the development of these resources has remained closely connected to foreign investment, technology and international markets. Resource nationalism has emerged within this context as an attempt by states to exercise greater influence over the ownership, exploitation and distribution of benefits derived from natural wealth (Wilson, 2015; Andreasson, 2015). In Nigeria, this orientation has taken different forms across the extractive economy, including state regulation, local-content requirements, institutional reforms, indigenous participation and policies encouraging domestic processing. The objective has generally not been to exclude external investors, but to ensure that the exploitation of Nigerian resources produces wider domestic benefits. Nigeria's experience must therefore be understood as an effort to renegotiate its position within global capitalism rather than a withdrawal from it.

The legal framework provides the starting point for understanding this approach. The Nigerian state exercises substantial authority over petroleum and mineral resources through constitutional provisions and sector-specific legislation, including the Nigerian Minerals and Mining Act and the Petroleum Industry Act (Federal Republic of Nigeria, 2007, 2021). However, legal ownership does not automatically guarantee effective economic control. Resource development requires finance, infrastructure, technical knowledge and access to markets, and these requirements have historically created relationships between Nigeria and external investors. This distinction between ownership and practical control is central to the country's resource-nationalist project. The challenge has been to maintain sovereign authority over natural wealth while creating conditions capable of attracting the capital and expertise required for exploration, extraction and processing.

The solid-minerals sector further demonstrates how resource nationalism is being extended beyond oil and gas. The growing global demand for lithium, gold, rare earths and other strategic minerals has created a new opportunity for Nigeria, but it has also revived concerns about the country remaining primarily a supplier of unprocessed raw materials. The Federal Government responded by linking new mining licences to commitments on local value addition and mineral processing, while still offering incentives intended to attract investment into the sector (Reuters, 2024; State House, 2024). President Bola Tinubu similarly acknowledged the economic losses associated with exporting crude mineral commodities and directed that new licences should be connected to domestic value creation (State House, 2024). This policy represents an important shift in the management of Nigeria's mineral resources. The focus is gradually moving from

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simply granting access to mineral deposits towards determining the conditions under which such access should contribute to employment, industrial development and domestic production.

This position has also been strongly articulated by the Minister of Solid Minerals Development, Dele Alake. Speaking at the Future Minerals Forum in Riyadh, Alake argued that African countries needed to move away from the long-standing practice of exporting raw minerals and place greater emphasis on processing, technology transfer, knowledge sharing and local value addition (Federal Ministry of Information and National Orientation, 2024). Nigerian print and broadcast media have similarly documented this policy direction. The Guardian reported Alake's declaration that value addition had become a central standard for mining operations, while Kapital FM reported his position that companies seeking mining licences should demonstrate plans for beneficiation and processing within Nigeria (The Guardian, 2024; Kapital FM, 2024). These statements are important because they show that the emerging policy is not directed against foreign investment itself. Rather, the government is attempting to make investment conditional on a stronger domestic contribution to the mineral value chain.

The National Gold Purchase Programme provides another illustration of this changing approach. In June 2024, Channels Television reported that refined gold produced under the programme had been linked to efforts to strengthen Nigeria's foreign reserves and support the naira, while the Federal Ministry of Information and National Orientation described the initiative as the first commercial transaction under a centralised gold-offtake arrangement involving artisanal and small-scale miners (Channels Television, 2024; Federal Ministry of Information and National Orientation, 2024). The programme reflects an attempt to treat mineral resources not merely as export commodities but as assets capable of supporting wider national economic objectives. Nevertheless, this ambition must be viewed alongside persistent weaknesses within the mining sector, including limited geological information, inadequate infrastructure, illegal mining and the financial constraints associated with large-scale exploration and processing. These challenges make it difficult for the state to translate policy intentions into complete economic control, particularly where foreign finance and technology remain essential to resource development.

Recent reforms have therefore produced a mixed but evolving picture. The Federal Government reported that its new mining policies and licensing reforms attracted significant investor interest, including processing projects and growing attention from international actors (Channels Television, 2025). This demonstrates that resource nationalism and foreign investment do not necessarily operate as opposites. Nigeria's current approach appears to be based on attracting external capital while using licensing, regulation and local-value requirements to secure greater domestic benefits. The same balancing logic is visible in the petroleum sector, where the government has continued to strengthen local participation while also introducing reforms intended to improve investment conditions. The **Nigerian Upstream Petroleum Regulatory Commission** (NUPRC's) regulatory framework, for example, includes recent executive directives on petroleum cost efficiency, oil and gas revenue protection and local-content compliance, indicating the continuing effort to combine national interests with investment and production objectives (NUPRC, 2025).

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Natural-resource control, however, cannot be reduced to the relationship between the state and investors. It also involves transparency, revenue management and the distribution of benefits among the wider population. Nigeria's participation in the Extractive Industries Transparency Initiative (EITI), has drawn attention to continuing governance challenges across the oil, gas and mining sectors, particularly regarding revenue flows, beneficial ownership and public accountability (EITI, 2023; NEITI, 2024). These concerns are central to the meaning of resource nationalism. A state may possess legal authority over natural wealth and still fail to convert that authority into broad-based development if resource revenues are poorly managed or captured by narrow political and economic interests. Consequently, stronger national control must be accompanied by institutions capable of ensuring transparency, accountability and effective public management.

The position of resource-bearing communities is equally important. The Nigerian Minerals and Mining Act provides for Community Development Agreements between mining operators and host communities, while the Petroleum Industry Act established the Host Communities Development Trust for petroleum-producing communities (Federal Republic of Nigeria, 2007, 2021). These arrangements recognise that communities located around extractive activities bear many of the environmental and social consequences associated with resource development. As Abe (2022) argues, local-content and extractive-sector policies are more likely to contribute to sustainable development when they are supported by effective implementation, local participation and meaningful benefit sharing. Resource nationalism must therefore be assessed at more than one level. It concerns the state's relationship with foreign capital, but it also raises questions about whether workers, indigenous firms and host communities share meaningfully in the wealth generated from nationally owned resources.

The pattern across Nigeria's extractive sectors consequently reveals a broader transformation in the meaning of resource control. In petroleum and natural gas, local-content legislation, regulatory restructuring and domestic refining have sought to expand Nigerian participation and retain more economic value within the country (Federal Republic of Nigeria, 2010, 2021). In the mining sector, recent policies have placed greater emphasis on beneficiation, processing and the strategic use of critical minerals rather than the continued export of raw commodities (Reuters, 2024; State House, 2024). International institutions and development partners remain relevant because Nigeria still requires capital, technology, technical expertise and access to global markets. The country's approach has therefore not followed a path of economic isolation; instead, it has involved attempts to engage international actors under conditions considered more favourable to domestic industrialisation and national development.

Taken together, resource nationalism has reshaped the management of Nigeria's natural resources by broadening the idea of control beyond formal state ownership. Increasing attention is now being given to who participates in extraction, where resources are processed, how value is retained, how revenues are managed and whether host communities benefit from resource development. This shift is visible across petroleum, natural gas, gold, lithium and other solid minerals. Nevertheless, the pursuit of greater national influence remains constrained by technological dependence, infrastructure gaps, institutional weaknesses and the continuing importance of foreign investment and international markets. Nigeria's experience therefore reflects an ongoing attempt to exercise stronger authority over its natural wealth while navigating

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the realities of a global capitalist system in which resources, finance, technology and markets remain deeply interconnected.

Nigeria in the Global Capitalist System: Economic Sovereignty and National Development

Nigeria's integration into the global capitalist system has had a considerable but uneven influence on its economic sovereignty and national development. Through international trade, foreign investment, multinational corporations, global financial institutions and cross-border production networks, the country has become closely connected to the wider world economy. These relationships have created access to capital, technology, technical expertise and international markets, particularly in the extractive sector. At the same time, they have exposed the economy to external pressures and sustained certain forms of dependence associated with commodity exports, foreign technology and international finance. The outcome has therefore been neither entirely positive nor wholly restrictive. Rather, Nigeria's experience reflects a complex relationship in which participation in the global economy has created important opportunities while also limiting the country's practical control over some aspects of its economic direction (Ovadia, 2013, 2014; Wilson, 2015).

One of the most visible consequences has been Nigeria's vulnerability to changes in international commodity markets. Petroleum and natural gas have remained major sources of export earnings and public revenue, making the domestic economy particularly sensitive to fluctuations in global oil prices and production conditions (EITI, 2023; World Bank, 2024). When oil prices rise, government revenue and foreign-exchange earnings tend to improve, whereas periods of decline often generate fiscal pressure and wider economic difficulties. This reveals an important distinction between legal ownership and practical economic control. Nigeria possesses sovereign authority over its petroleum resources, yet the income generated from those resources is strongly influenced by international demand and price movements. As a result, developments outside the country can affect public spending, exchange-rate stability and the general direction of economic planning.

Nigeria's place within global production and trade networks has also shaped the nature of its national development. For several decades, the country earned substantial income from the export of crude petroleum and other primary commodities while relying heavily on imports for refined products, industrial machinery, technology and manufactured goods. This arrangement has limited the proportion of value retained within the domestic economy. Ovadia (2013) observed that Nigeria's local-content policy emerged partly from concerns that many profitable activities connected with petroleum production were carried out outside the country. Similarly, Abe (2022) argued that local-content requirements could stimulate employment, indigenous participation and domestic value creation where implementation is effective. These policies demonstrate that participation in global production networks may generate investment and revenue without necessarily ensuring that the most profitable stages of production take place within the national economy.

The involvement of multinational corporations in Nigeria's petroleum industry further illustrates this mixed outcome. International oil companies provided capital, specialised technology and access to global markets, thereby contributing significantly to the development of an industry that became central to Nigeria's economy. Their dominant position, however, also reflected the

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country's dependence on external technical and financial capacity. De Vita et al. (2016) found that international oil companies continued to occupy strategically important positions within Nigeria's petroleum network despite the expansion of indigenous participation. Ovadia (2014) likewise demonstrated that local-content policies in resource-dependent African states emerged partly from attempts to secure wider benefits from foreign investment. International participation, therefore, facilitated production and revenue generation, but it also meant that important technological and commercial aspects of the industry remained substantially connected to external actors.

The Petroleum Industry Act of 2021 reflects the continuing interaction between national authority and international economic interests. The Act restructured the governance and regulation of the petroleum sector, established new regulatory institutions and redefined the commercial framework of the national oil company (Federal Republic of Nigeria, 2021). These changes did not remove Nigeria from the international petroleum economy; instead, they altered the institutional setting through which the country relates with investors and other commercial actors. The sector has remained dependent on investment, specialised technology and international markets, meaning that the exercise of national authority continues to operate within a broader system of economic interdependence. In this sense, Nigeria's sovereignty over petroleum has remained formally strong, while its practical exercise has continued to be influenced by global commercial realities.

A similar pattern is emerging in the solid-minerals sector. The growing international demand for lithium and other minerals associated with electric vehicles, renewable energy and technological production has increased global interest in Nigeria's mineral deposits. This development has created new economic opportunities by connecting previously underdeveloped resources to expanding international industries. Reuters (2024) reported that the Nigerian government moved to link new mining licences to commitments towards local processing. The development reflects the growing influence of international demand on domestic resource policy. As global interest in critical minerals has expanded, mining has become more prominent within discussions about industrialisation, employment and economic diversification.

Yet, the benefits associated with this renewed international interest have remained uneven. Foreign participation has created opportunities for exploration and investment, but Nigeria's ability to derive extensive benefits from the sector continues to be affected by infrastructure shortages, insecurity, limited geological information and technological constraints (NEITI, 2024). These conditions have influenced the country's position within global value chains. Although Nigeria possesses commercially valuable minerals, much of the advanced technology, capital and industrial capacity required for large-scale processing remain concentrated outside the country. Consequently, ownership of mineral deposits has not automatically translated into control over the wider processes through which those minerals acquire greater economic value. Nigeria's participation in the growing critical-minerals economy has therefore widened its economic opportunities without necessarily producing corresponding technological or industrial independence.

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Nigeria's connection with the international financial system has produced a similar combination of opportunities and constraints. Foreign investment, multilateral lending and development partnerships have provided financial resources for infrastructure, energy and other sectors of the economy. Institutions such as the World Bank and International Monetary Fund have also remained influential in debates surrounding Nigeria's fiscal management, macroeconomic stability and structural reforms (IMF, 2024; World Bank, 2024). Their involvement has expanded the country's access to international finance and technical assistance, particularly during periods of economic difficulty. At the same time, dependence on external finance has placed domestic policy within a wider framework shaped by debt obligations, fiscal expectations and investor confidence. National authorities retain the power to make economic decisions, but the range of available choices is often influenced by conditions within the international financial environment.

The foreign-exchange situation further demonstrates this relationship. Nigeria's earnings from petroleum exports have linked the availability of foreign exchange closely to developments in international commodity markets. At the same time, dependence on imported machinery, industrial inputs and consumer goods has created a sustained demand for foreign currencies. Fluctuations in oil prices, capital movements and wider global financial conditions can consequently affect the value of the naira and increase production costs across the economy. The reforms undertaken by the Central Bank of Nigeria, alongside the broader macroeconomic assessments of the IMF, reflect the extent to which domestic economic stability is connected to conditions beyond Nigeria's borders (CBN, 2023; IMF, 2024). The implications extend beyond financial institutions, affecting inflation, household purchasing power, business operations and the overall cost of economic activity.

The developmental implications of Nigeria's global economic connections have also depended heavily on the management of revenues generated from natural resources. Petroleum exports have produced substantial income over several decades, yet this wealth has not always translated into equivalent improvements in infrastructure, industrial capacity or social welfare. Reports by the EITI and NEITI have continued to draw attention to issues surrounding transparency, accountability and revenue management within the extractive sector (EITI, 2023; NEITI, 2024). This suggests that the developmental outcome of international economic participation cannot be measured simply by the volume of revenue or investment entering the country. The institutions responsible for managing those resources also shape the extent to which economic gains reach the wider society. Where revenue leakages, corruption and weak administration persist, the benefits derived from international economic activity may remain limited or unevenly distributed.

The consequences are equally apparent in resource-bearing communities. International demand for petroleum and minerals has encouraged extraction across different parts of Nigeria, generating revenue and commercial activity while also producing environmental and social pressures. The Nigerian Minerals and Mining Act provides for Community Development Agreements between mining operators and host communities, while the Petroleum Industry Act established the Host Communities Development Trust in petroleum-producing areas (Federal Republic of Nigeria, 2007, 2021). These provisions recognise that the gains and burdens associated with resource extraction are not equally shared. While the national economy derives

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income from exports, communities located around extractive sites may experience environmental degradation, disruption of livelihoods and disputes over access to benefits. The impact on national development must therefore be assessed beyond aggregate revenue figures and include the conditions experienced by communities directly affected by resource extraction.

Nigeria's growing interaction with international markets has also influenced the structure of the national economy by drawing attention to sectors beyond petroleum. Rising global demand for critical minerals has renewed interest in mining, while technological changes associated with the global energy transition have increased the strategic importance of resources such as lithium. This has broadened Nigeria's engagement with international production and created new opportunities for investment and employment. Nevertheless, the country's position within these emerging industries remains constrained by the limited extent of domestic processing and manufacturing. Where extraction takes place locally but advanced production occurs elsewhere, a considerable share of the economic value continues to accrue outside Nigeria. The expansion of international connections has therefore not completely altered the country's long-standing position as a major supplier of primary commodities.

Overall, Nigeria's incorporation into the global capitalist system has had a **substantial but contradictory impact** on economic sovereignty and national development. International economic relations have opened access to investment, technology, technical expertise and markets, contributing to activities in petroleum, natural gas and, increasingly, solid minerals. These connections have generated revenue and employment while expanding the country's participation in international commerce. At the same time, they have exposed Nigeria to commodity-price volatility, foreign-exchange pressures, technological dependence and unequal positions within global production networks. Formal control over natural resources has consequently existed alongside practical constraints arising from dependence on external capital, expertise and markets.

The impact on national development has been similarly uneven. Nigeria's participation in the global economy has created substantial opportunities, but the translation of these opportunities into sustained and widely distributed development has been constrained by governance weaknesses, infrastructural limitations, unequal distribution of benefits and the continued export of largely unprocessed resources. The extent of the influence can therefore be described as **significant but ambivalent**. Integration has expanded Nigeria's economic reach and connected its resources to wider systems of production and exchange, yet it has also exposed the limits of formal sovereignty where technological and productive capacities remain externally dependent. Nigeria's experience consequently shows that global capitalism has simultaneously contributed to economic activity and national development while constraining the full exercise of economic autonomy, with outcomes differing across sectors, institutions and resource-bearing communities.

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Discussion of Findings

The study established that Nigeria's integration into the global capitalist system has had a **significant but ambivalent effect** on economic sovereignty and national development. On one hand, integration has provided access to foreign capital, technology, specialised expertise and international markets, particularly in the petroleum and emerging solid-minerals sectors. These connections have supported resource extraction, generated export earnings and created new opportunities for investment and employment. On the other hand, Nigeria's continued dependence on commodity exports, foreign technology, external finance and international markets has constrained the practical exercise of economic sovereignty. The findings therefore revealed a clear distinction between formal ownership of natural resources and effective control over the wider processes through which those resources generate value.

The study further found that the developmental gains arising from global economic integration have remained uneven. While petroleum and mineral resources have generated substantial revenues and attracted international investment, weaknesses in domestic productive capacity, infrastructure, technology, revenue management and governance have limited the translation of these gains into sustained national development. The continued export of largely unprocessed resources also means that significant portions of value creation often occur outside Nigeria. Consequently, the findings suggest that Nigeria's participation in global capitalism has expanded economic opportunities without completely altering its structurally dependent position within international production and value networks.

The findings also demonstrated that the consequences extend beyond the national economy to resource-bearing communities, where the benefits of extraction have often coexisted with environmental pressures, livelihood disruptions and contestations over benefit distribution. Overall, the study established that Nigeria's integration into the global capitalist system has neither eliminated economic sovereignty nor guaranteed national development. Rather, it has produced **a contradictory relationship in which access to global opportunities exists alongside continuing forms of economic dependence**, resulting in developmental outcomes that remain uneven across sectors, institutions and communities.

Conclusion and Recommendations

This study concluded that Nigeria's integration into the global capitalist system has produced **both opportunities and limitations** for economic sovereignty and national development. While engagement with the global economy has opened access to capital, technology, expertise and wider markets, Nigeria has continued to depend heavily on commodity exports, foreign finance and external technology. As a result, the benefits have not always translated into broad-based national development. Overall, Nigeria's experience shows that participation in the global capitalist system has expanded economic opportunities while also sustaining forms of dependence that limit full economic autonomy and the effective conversion of natural-resource wealth into wider development.

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In view of the findings of this study, the following recommendations are proposed:

1. **Promote domestic value addition:** Nigeria should strengthen the processing and utilisation of its petroleum, gas and mineral resources to reduce dependence on the export of largely unprocessed commodities and retain more value within the domestic economy.
2. **Strengthen domestic productive and technological capacity:** Greater investment in infrastructure, technical skills and industrial capacity is necessary to reduce continued reliance on foreign technology and external expertise.
3. **Improve governance and revenue management:** Stronger transparency, accountability and effective management of resource revenues are required to ensure that the benefits of Nigeria's participation in the global economy translate into broader national development.
4. **Ensure wider distribution of resource benefits:** Greater attention should be given to linking resource wealth to infrastructure, employment and improved welfare, particularly in communities directly affected by extractive activities.

References

Abe, M. (2022). Local content policies and economic development in resource-rich countries. *Resources Policy, 76*, Article 102572.

Amin, S. (1976). *Unequal development: An essay on the social formations of peripheral capitalism*. Monthly Review Press.

Andreasson, S. (2015). Varieties of resource nationalism in sub-Saharan Africa's energy and minerals markets. *The Extractive Industries and Society, 2*(2), 310–319.

Central Bank of Nigeria. (2023). *Foreign exchange market reforms*. Central Bank of Nigeria.

De Vita, G., Endresen, K., & Hunt, L. C. (2016). An empirical analysis of the determinants of gas demand in Nigeria. *Energy Policy, 92*, 181–190.

Extractive Industries Transparency Initiative. (2023). *EITI report: Nigeria*. EITI.

Federal Ministry of Information and National Orientation. (2024). *Local value addition essential for mining sector development – Alake.* Federal Ministry of Information and National Orientation.

Federal Republic of Nigeria. (2007). *Nigerian Minerals and Mining Act, 2007*.

Federal Republic of Nigeria. (2010). *Nigerian Oil and Gas Industry Content Development Act, 2010*.

Federal Republic of Nigeria. (2021). *Petroleum Industry Act, 2021*.

Frank, A. G. (1967). *Capitalism and underdevelopment in Latin America*. Monthly Review Press.

Held, D., McGrew, A., Goldblatt, D., & Perraton, J. (1999). *Global transformations: Politics, economics and culture*. Stanford University Press.

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International Monetary Fund. (2024). *Nigeria: Article IV consultation*. International Monetary Fund.

Kapital FM. (2024). *Value addition, standard for mining operations-Alake.* Kapital FM.

Koch, N., & Perreault, T. (2019). Resource nationalism. *Progress in Human Geography, 43*(4), 611–631. https://doi.org/10.1177/0309132518781497

Nigeria Extractive Industries Transparency Initiative. (2024). *NEITI reports and publications*. NEITI.

Nigerian Upstream Petroleum Regulatory Commission. (2025). ***Executive*** *orders.* NUPRC.

Ovadia, J. S. (2013). The Nigerian "local content" policy: A strategy for economic development? *Journal of Contemporary African Studies, 31*(2), 297–313.

Ovadia, J. S. (2014). Local content and natural resource governance: The cases of Angola and Nigeria. *The Extractive Industries and Society, 1*(2), 137–146.

Reuters. (2024). *Nigeria moves to boost local processing of minerals and attract investment in the mining sector*.

Rodrik, D. (2011). *The globalization paradox: Democracy and the future of the world economy*. W. W. Norton & Company.

Scholte, J. A. (2008). Defining globalisation. *The World Economy, 31*(11), 1471–1502. https://doi.org/10.1111/j.1467-9701.2007.01019.x

Sen, A. (1999). *Development as freedom*. Oxford University Press.

State House. (2024). *President Tinubu: All new mining licenses must have local value.* State House, Abuja.

The Guardian Nigeria News. (2024). *No mining license without mineral value addition plans-Alake warns.* The Guardian.

Todaro, M. P., & Smith, S. C. (2020). *Economic development* (13th ed.). Pearson.

Wilson, E. (2015). What is resource nationalism? *Global Policy, 6*(4), 399–401.

World Bank. (2024). *Nigeria development update*. World Bank.

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The Political Economy of Individualism and Public Welfare in Nigeria: A Case Study of Kwara State's 2027 Electoral Transition

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DOI : https://doi.org/10.5281/zenodo.22898549

Abstract
This paper examines the interplay between political individualism, public welfare deprivation, and electoral behaviour in Nigeria, using Kwara State's emerging 2027 electoral transition as its primary empirical lens. The Nigeria's Fourth Republic has been characterised by the monetisation of democratic participation, the instrumentalisation of social welfare, and the entrenchment of clientelist networks that subordinate collective public interests to the private calculations of political elites. Drawing on political economy theory, clientelism frameworks, and political clientelism literature, the study interrogates how individual politicians deploy welfare resources or their absence as electoral currency, how voters navigate welfare deprivation under conditions of political vulnerability, and how the transitional dynamics in Kwara State illuminate broader national contradictions. The study employs a qualitative research design, relying on documentary analysis, secondary data, and thematic synthesis of peer-reviewed scholarship. The findings reveal that the politicisation of social welfare, vote-buying, ethnic and partisan targeting, and the dominance of money politics consistently undermine electoral integrity and policy responsiveness in Nigeria. In Kwara State, the collapse of the Saraki political dynasty after the 2019 *Ó Tò Gé* movement and the subsequent consolidation of APC governance under Governor AbdulRahman AbdulRazaq have created new competitive pressures ahead of 2027. The study concluded that unless structural reforms in campaign financing, social protection delivery, and electoral regulation are institutionalised, Kwara State and Nigeria more broadly risk reproducing the same cycles of individualist elite competition at the expense of genuine public welfare. The

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study recommends policy interventions targeting electoral finance transparency, social protection de-politicisation, and civic education.

Keywords: *Political Economy, Individualism, Public Welfare, Clientelism, Kwara State.*

Introduction

Since 1999, Nigeria has been in a democratic experiment that has resulted in a paradox: a republic with a constitution that stipulates the welfare of its citizens, but whose structure is built around the competitive accumulation and use of private political resources. Since its establishment, the Fourth Republic, which has been in existence for more than 20 years now, has been characterised by a growing fusion of money politics, ethnic mobilisation with transactional exchanges between candidates and voters, rather than by programmatic competition between ideologically divided parties. The paradox was enmeshed in the conflict between the political individualism, defined by the political actors' focus on personal electoral survival and the interests of elites, and the normative political expectation of public welfare, which democratic governance is supposed to provide.

Political financing is at the heart of this tension. As has been demonstrated by Nwangwu (2025), in Nigeria social protection programmes are prone to being captured and weaponised by election campaigns, and welfare is less a right of citizenship as gift of electoral patronage. This is a politicisation of social policy, but the systemic displacement of the interests of politicians is a facet of the wider political economy. The ramifications are far reaching, for the welfare-dependent vote becomes politically vulnerable, and the democratic process itself becomes a marketplace for the exchange of material benefits for votes (Awoyemi, 2025; Stockemer & Amaechi, 2024).

The Kwara State in North-Central Nigeria is a very instructive case study of these dynamic. The State which saw one of the most remarkable political changes in the country in 2019 when grassroots citizens' movement known as *Ó Tò Gé* ("Enough is Enough") toppled the Saraki political dynasty which had been in existence for a long time (Ogundare, Seriki & Jimoh, 2023). This change brought in the All-Progressives Congress (APC) under the leadership of Governor AbdulRahman AbdulRazaq, who was re-elected with a massive margin in 2023. With the nearing electoral cycle of 2027, new competition has emerged and old issues of welfare, money and loyalty to the party are all coming back in new languages (Agboga, 2024).

In this study, the politics of individualism and public welfare in Nigeria in the electoral transition of Kwara State in the year 2027 have been discussed. It asks this question: How do patterns of political individualism and the instrumentalisation of welfare state look in Kwara State's electoral politics? What are the structural changes that must take place to move away from the cycle of transactional democracy and in its place to put in place real democracy for welfare delivery in the state and the country as a whole?

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Literature Review

Money Politics and Electoral Behaviour in Nigeria

Politics in Nigeria has been monetised for a while now, but the level of monetisation and institutionalisation has increased since it returned to civilian rule in 1999. Okeke and Nwali (2020) offer an exhaustive analysis of how campaign financing laws, despite their intentions of controlling the overwhelming influence of money in the Nigerian election, have been ineffective. Their basic issue is not that there are no rules, but that rules are not enforced consistently and small-town godfathers and the rich control the election. The emerging political economy is one that depends on financial ability rather than programmatic success to gain access to state power.

Nwagwu, Uwaechia, Udegbunam and Nnamani (2022) noted that vote buying during the 2015 and 2019 general elections was not an exception to the rule, as material inducements ranging from cash, foodstuffs, and other goods were freely given by candidates on an inter-party basis. In a subsequent study they argue that vote-buying is an inherent fault of the political system in Nigeria's Fourth Republic which contributes to the lack of quality and the perception that votes are a commodity, and not a reflection of civic agency.

This is a two-way relationship that has its demand side just as significant. The study by Stockemer and Amaechi (2024) on Edo State indicates that material deprivation, low levels of trust in institutions, and social normalization of clientelist exchange are all factors influencing the acceptance of electoral bribes. These results are consistent with the results of Gherghina, Saikkonen and Bankova (2022), who conclude that low levels of democratic satisfaction and limited political knowledge are strong determinants of the acceptance of clientelism in transitional democracies in Africa.

Clientelism, Social Welfare, and Democratic Accountability

Clientelism (the delivery of goods, services or benefits in exchange for political support) plays a complex role in the discussion of democracy in Africa. Klaus et al. (2023) offer a new paradigm for political clientelism in Africa, focusing on the two types of demands: material and recognition and social belonging. This subtlety is significant for the Nigeria context where clientelist networks are interwoven into ethnic, religious and community interests that makes it difficult to find an easy economic explanation of vote buying and patron-client relationships.

In his chapter on political clientelism in democracies, Mariana Borges Martins da Silva (2024) offers a systematic overview of the concept and the nature of the difference between programmatic and non-programmatic clientelism, and the contexts in which they flourish. Clientelism often replaces, and not complements, formal social protection systems in weak institutional contexts, which refer to underdeveloped welfare states, weak rule of law and high inequality. In this sense, clientelism is not just about the failure of democracy but it can be a way of political incorporation of marginalised groups at the expense of the responsiveness and accountability of policies (Trantdis, 2025).

The evocative term “infrastructure of the stomach” is introduced by Busari (2020) to describe Nigeria's transactional politics, which describes a style of political engagement where politicians provide basic material needs food, cash, small goods, etc. instead of long-lasting infrastructural development. This idea reflects a basic paradox of the Nigerian democracy: the inability of the

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state to provide developmental welfare services, which politicians exploit through targeted welfare services. McPherson-Smith (2022) builds on this work, and he and his colleagues investigate the role of professional interest groups as brokers in between political elites and citizens, occasionally as links in clientelist networks, and not as representatives of structural welfare reform.

Ethnic, Partisan, and Demographic Targeting in Nigerian Elections

Targeting electoral benefits is not necessarily ad hoc; it is organised by ethnic, partisan and socioeconomic lines. Awoyemi (2025) offers strong empirical support for the idea that political decision makers deliberately direct their attention to co-ethnic and co-partisan constituencies, in the service of a decision-making process that is both cost-benefit and risk-management oriented. Such patterns exacerbate ethnic divisions and create structural disincentives for politicians who are concerned with their own survival in elections to engage in programmatic welfare politics that would compromise their ethnic politics.

In Lagos State, Ajayi (2023) looks at the urban poor as a targeted and vulnerable population, finding that electoral manipulation tends to be clustered in poorer urban areas where transactional incentives are more effective on voters because of material lack. Indeed, Olaniyan (2020) makes a similar case that vote-buying flourishes in poor and weak electoral institutions, and that it remains to be better reformed through overarching institutional changes and not through individual enforcement.

Kwara State's Political Economy

The Kwara State's political development is inseparable from the dynamics of political dynasticism and its disruption. For nearly two decades, the state's politics were dominated by the Saraki family first by Olusola Saraki and later by his son, Senate President Bukola Saraki. The Saraki dynasty exemplified political individualism at its most entrenched: a personalised political machine sustained through patronage networks, ethnic loyalties, and the strategic deployment of public resources for private political ends. When the *Ó Tò Gé* movement dismantled this structure in 2019, it represented a popular assertion of civic agency against individualised elite rule a rare instance of collective public welfare interests disrupting entrenched private political ones.

Ogundare, Seriki and Jimoh (2023) analyse the 2023 presidential election in Kwara State and find that the APC's consolidation of power was shaped by the lingering anti-Saraki sentiment, the mobilisation of federal resources, and the continuing absence of strong programmatic opposition. Agboga (2024), examining party switching and political loyalty in Nigeria, provides a useful analytical lens for understanding the fluid allegiances that are likely to characterise Kwara State's 2027 electoral landscape, as former members of opposition formations recalculate their positions ahead of the electoral cycle.

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Theoretical Framework

This paper is draws on two complementary theoretical traditions to frame its analysis: political economy theory and clientelism theory.

Political Economy Theory

Political Economy Theory, in its application to electoral politics, focuses on the relationship between political power, economic resources, institutions, and the distribution of public benefits. The modern political economy tradition has been developed through the contributions of scholars such as Adam Smith, Karl Marx, and Anthony Downs, with Downs (1957) providing an important rational-choice foundation for understanding political behaviour. The central argument of the theory is that political actors and other participants in the political process respond to material interests and incentives within particular institutional and economic conditions. In electoral settings, politicians may therefore act as self-interested maximisers seeking to acquire and retain political power, while voters may respond to the economic benefits associated with competing political choices. In the Nigerian context, the political economy framework reveals how electoral competition under conditions of weak state capacity, high informality, and unequal resource distribution generates systematic incentives for politicians to invest in private patronage networks rather than public goods provision. The formal-institutional rules of electoral democracy, including campaign finance regulations, social welfare mandates, and voter protection laws, coexist with and are frequently subordinated to informal political economy logics that reward those who can mobilise private resources most effectively (Okeke & Nwali, 2020; Nwangwu, 2025).

Applied to Kwara State, Political Economy Theory directs attention to how the structural conditions of the state, including its fiscal dependence on federal allocations, socioeconomic inequalities, and history of patronage politics, shape the incentives of politicians approaching the 2027 electoral transition. The theory also illuminates how voters' welfare deprivation, rather than necessarily serving as a driver of accountability politics, may paradoxically make them more susceptible to clientelist capture by better-resourced candidates. From this perspective, individualism in the political sphere can emerge where political actors prioritise private accumulation, electoral survival, and narrow networks of political support over collective welfare, while economically vulnerable citizens may prioritise immediate individual benefits over demands for universal public goods. The theory is therefore useful for examining whether the political and economic conditions surrounding Kwara State's 2027 electoral transition are likely to reinforce patronage-based exchanges and individualistic political behaviour or encourage a stronger orientation towards collective welfare, public accountability, and equitable distribution of state resources.

Clientelism Theory

Clientelism theory, as synthesised by Mariana Borges Martins da Silva (2024) and elaborated by Trantidis (2025), provides the conceptual tools to analyse the specific mechanisms through which political individualism displaces public welfare. The core insight is that clientelism involves a particularistic, non-programmatic distribution of benefits targeted at specific individuals or groups in exchange for political support as distinct from universalistic welfare provision. In contexts where formal social protection institutions are weak or captured by political interests

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(Nwangwu, 2025), clientelism fills the welfare vacuum but in ways that reproduce political dependency rather than citizenship rights.

Klaus, Paller and Wilfahrt's (2023) "recognition framework" adds an important dimension by arguing that clientelist demands are not merely material but also involve claims to social visibility and political acknowledgement. In the Kwara State context, this framework helps explain why voters in marginalised communities may respond positively to politicians who "see" them through targeted patronage, even when such gestures fall far short of structural welfare improvement. Together, these theories frame the 2027 electoral transition as a site where individualist political logics and public welfare deficits interact to shape political outcomes.

Methodology

This study adopts a **qualitative research design** because it seeks to explain the political and economic processes shaping individualism, electoral behaviour, patronage, clientelism, and public welfare in Kwara State. These issues involve political interests, institutional practices, and informal relationships that require contextual interpretation rather than numerical measurement. **Documentary analysis** is appropriate because relevant evidence is available in scholarly literature, INEC reports, government documents, civil society publications, and credible media sources. Using these sources also allows the study to examine electoral developments and welfare-related policies while triangulating information from different sources.

Kwara State is selected purposively because its recent political transition, particularly the shift from the Saraki-era political structure, provides a useful setting for examining changing patterns of political mobilisation, electoral competition, and resource distribution. The **case study approach** allows these developments to be examined within their specific political and socioeconomic context while drawing implications for wider Nigerian electoral politics. **Thematic synthesis** is used to organise the documentary evidence around key issues, including campaign financing, vote-buying and clientelism, social welfare, electoral targeting, and the post-Saraki political landscape. Combining inductive and deductive coding ensures that important patterns emerging from the evidence are captured while remaining connected to the political economy framework. Triangulation across multiple sources further strengthens the credibility of the findings and reduces dependence on any single source.

The Political Economy of Campaign Financing and Welfare Instrumentalisation

Campaign financing is closely linked to the use of public welfare as an electoral resource. Nwangwu (2025) shows that social protection programmes, including cash transfers, food support, and other welfare interventions, can be redirected towards electoral objectives. From a political economy perspective, this occurs when political actors treat public resources as instruments for securing electoral support. Welfare allocation then becomes selective and politically calculated, rather than guided primarily by citizens' needs. The analytical concern is therefore not simply whether welfare is provided, but **who receives it, when it is provided, and whether its distribution is influenced by electoral considerations.**

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This pattern is relevant to Kwara State, where palliatives, constituency projects, road interventions, and welfare announcements can acquire electoral significance when concentrated around politically strategic periods or constituencies. Such practices may produce short-term political loyalty without addressing the structural causes of poverty and welfare deprivation. Busari's (2020) concept of the **"infrastructure of the stomach"** captures this dynamic, where limited material benefits can sustain political dependence while broader institutional welfare capacity remains weak. The problem is therefore one of sustainability and accountability: welfare becomes a means of securing political support rather than a consistent public entitlement.

Campaign finance further reinforces this relationship. Okeke and Nwali (2020) argue that weaknesses in the enforcement of Nigeria's campaign finance regulations have allowed substantial private resources to influence electoral competition. In Kwara State, access to state and federal political networks may therefore give incumbent actors greater capacity to finance mobilisation and distribute selective benefits. As the 2027 election approaches, the central analytical question is whether these resource advantages will strengthen welfare-oriented governance or deepen the use of public resources for electoral mobilisation. This makes campaign financing an important mechanism through which individual political interests can influence the distribution and character of public welfare.

Vote-Buying, Clientelism, and Democratic Deficits

Vote-buying represents a major expression of clientelist politics in Nigeria, where material benefits are exchanged for electoral support. Nwagwu et al. (2022; 2023) document its prevalence during the 2015 and 2019 elections, demonstrating that vote-buying cuts across political parties and geographical areas. In Kwara State, reports surrounding the 2019 and 2023 elections indicate similar practices, including the distribution of cash, food items, and other material benefits to voters. From a political economy perspective, this practice reflects an exchange relationship in which politicians seek electoral support while economically vulnerable voters seek immediate material benefits. The persistence of this exchange can weaken democratic accountability because voters may evaluate political actors according to short-term benefits rather than policy performance and long-term welfare outcomes.

The effectiveness of vote-buying is influenced by **material deprivation, weak institutional trust, and the normalisation of political exchange.** Stockemer and Amaechi (2024) identify these conditions as important factors influencing voters' acceptance of electoral bribes. These conditions are relevant to Kwara State, particularly where unemployment, inadequate social services, and established patronage networks may increase voters' vulnerability to clientelist strategies. However, voter behaviour is not determined by economic hardship alone. Gherghina, Saikkonen and Bankova (2022) show that greater democratic knowledge and satisfaction can reduce acceptance of clientelism, suggesting that civic education and institutional trust may weaken transactional politics. Klaus, Paller and Wilfahrt (2023) add an important dimension by showing that clientelism can also provide voters with a sense of recognition and political inclusion. Thus, addressing vote-buying in Kwara requires attention to both material deprivation and the broader problem of citizens' exclusion from meaningful political participation.

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Emerging evidence suggests that these dynamics are already shaping the approach to the 2027 elections. In June 2026, the Chairman of Nigeria's Economic and Financial Crimes Commission (EFCC), speaking in Ilorin, warned that vote-buying schemes ahead of the 2027 elections had become more sophisticated, noting that transactions are increasingly conducted well before election day and outside official electoral frameworks, which makes them more difficult to detect (Businessday NG, 2026a). In response, civil society actors in Kwara State have begun mobilising against the practice: the International Women Communication Center launched a community advocacy campaign across five local government areas in the state, in partnership with the Independent National Electoral Commission, to discourage vote buying, voter apathy, and political violence ahead of the polls (Radio Kwara News, 2026). These developments suggest that, far from receding, the political economy of vote-buying identified in the 2015, 2019, and 2023 election cycles is adapting to new tactics as the 2027 contest approaches.

Ethnic and Partisan Targeting in Electoral Mobilisation

Nigeria's ethnic diversity makes identity an important factor in electoral mobilisation, particularly where political actors use selective distribution of resources to secure loyal constituencies. Awoyemi (2025) provides evidence that politicians may direct vote-buying resources towards co-ethnic and co-partisan groups as a strategy for reducing electoral uncertainty and securing political support. This is relevant to Kwara State, where Yoruba, Nupe, Bariba, Fulani, and other communities form part of the state's political landscape. However, the experience of the **Ó Tò Gé movement in 2019** demonstrates that ethnic identity can be temporarily subordinated when different groups share a broader political objective. The movement brought together diverse constituencies around opposition to the dominance of the Saraki political structure. Its success suggests that shared political grievances can create cross-ethnic mobilisation, although such alliances may become less cohesive once their immediate objective has been achieved.

The post-Saraki political environment also demonstrates the limits of such coalitions. Agboga (2024) shows that party switching in Nigeria is often influenced by politicians' strategic calculations and political survival. This suggests that alliances formed around opposition to a dominant political actor may weaken when individual interests begin to diverge. In the approach to 2027, this may encourage new political alignments based on personal, partisan, ethnic, or constituency interests. The class dimension further complicates electoral targeting. Ajayi (2023) finds that politically vulnerable urban populations are particularly exposed to targeted electoral inducements. This is relevant to low-income communities in Ilorin, where economic vulnerability may increase susceptibility to clientelist mobilisation. The interaction between **ethnicity, partisanship, and socioeconomic status** therefore produces a layered form of electoral targeting in which political actors appeal to different aspects of voters' identities and material circumstances to secure electoral support.

These dynamics are visible in the early positioning for the 2027 governorship race. Zonal balancing has become an explicit feature of candidate selection: the ruling APC's eventual flagbearer, Assembly Speaker Yakubu Danladi-Salihu, was presented partly to satisfy long-standing calls for a Kwara North governor, while opposition figures associated with the PDP have drawn on Ilorin Emirate identity and the legacy of the Saraki-era coalition in Kwara Central

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(Shuaib, 2026). Traditional rulers in Kwara North have organised prayer sessions calling for a "power shift" to the zone, while stakeholders in Kwara South have separately cautioned monarchs in their district against overt partisanship amid disputes over senatorial zoning (Businessday NG, 2026b; FreshInsightNewsTv, 2025). Such contestation illustrates how ethnic, zonal, and dynastic identities continue to structure elite competition ahead of 2027, even as parties formally compete on programmatic grounds.

Professional Interest Groups, Political Mediation, and the 2027 Competitive Landscape

Professional and organised interest groups play an important role in mediating relationships between political actors and voters. McPherson-Smith (2022) shows that civil society organisations, trade associations, religious bodies, and professional groups can serve as intermediaries through which political interests and resources are exchanged. In Kwara State, institutions such as the Ilorin Emirate Council, trade and market associations, farmer cooperatives, and religious organisations can influence electoral mobilisation by connecting political candidates with organised constituencies. From a political economy perspective, these groups reduce the cost of reaching dispersed voters and can facilitate the distribution of patronage in return for political support. Their importance therefore extends beyond representation because they can also shape who gains access to political resources and whose interests receive political attention.

The approach to the **2027 election** is likely to increase competition among political actors for the support of these intermediary structures. Governor AbdulRazaq's administration has sought to maintain relationships with important social, business, and religious constituencies, while opposition actors and emerging political groups seek alternative networks of mobilisation. Trantidis (2025) explains this process through **clientelism as a form of political incorporation,** in which political actors integrate organised groups into networks of exchange and support. In Kwara, control or influence over such intermediary organisations could therefore provide candidates with access to established voter networks and collective political support. The analytical implication is that electoral competition is shaped not only by direct politician-voter relationships, but also by struggles over the intermediary institutions that connect political resources to organised communities.

The Ilorin Emirate Political Advisory Council (IEPAC) offers a clear illustration of this intermediary role in the 2027 cycle. The council, comprising elders, technocrats, professionals, and other stakeholders within the Emirate, has issued public endorsements of preferred governorship candidates, distanced the Emirate from endorsements it considered insufficiently consultative, and convened reconciliation meetings at the Emir's palace between rival APC- and PDP-aligned politicians (Guardian Nigeria, 2026; Legit.ng, 2026a, 2026b). The APC leadership has similarly conducted formal "thank you visits" to traditional rulers across Kwara's senatorial districts, securing pledges of support from kingmakers ahead of the polls (Leadership, 2026). These episodes demonstrate how professional and traditional intermediary institutions in Kwara State do not merely represent constituent interests but actively broker access to political resources and voter blocs in the run-up to 2027.

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Public Welfare Deficits and the Demand for Accountability

Public welfare deficits provide an important foundation for understanding the political economy of electoral competition in Kwara State. Persistent weaknesses in education, healthcare, roads, water, electricity, and social protection create conditions in which citizens may depend on politicians for individual assistance rather than demand universal and institutionalised welfare provision. From the political economy perspective, this dependence can reinforce clientelism because politicians may gain greater electoral leverage when access to basic resources is mediated through political networks. Busari (2020) therefore links welfare deficiencies to a broader system in which individual political interests can take precedence over the development of durable public institutions. The analytical issue is whether welfare deficits merely reflect limited state capacity or whether they are also sustained by political incentives that make citizens' dependence electorally useful.

At the same time, growing demands for accountability provide a potential challenge to this pattern. Olaniyan (2020) argues that electoral institutions, civil society organisations, and the courts have created additional opportunities for citizens to challenge electoral manipulation. The **Ó Tò Gé movement** demonstrated how collective mobilisation could temporarily weaken an established political structure and redirect electoral competition towards demands for political change. Its experience raises an important question for 2027: whether such demands can develop into sustained institutional accountability beyond opposition to a particular political elite. Nwangwu (2025) further argues that social protection should be insulated from electoral manipulation through professional delivery institutions, independent transfer mechanisms, and community-based verification. Thus, strengthening public welfare in Kwara requires reducing the extent to which access to essential resources depends on individual political connections and establishing systems through which welfare is treated as a public entitlement rather than an electoral instrument.

Conclusion

This study has argued that the political economy of individualism in Nigeria can weaken public welfare by encouraging money politics, welfare instrumentalisation, ethnic and partisan targeting, and clientelist mobilisation. The Kwara State experience shows both the potential for democratic change, as demonstrated by the 2019 *Ó Tò Gé* movement, and the persistence of structural incentives that reproduce patronage and welfare dependence after political transitions. As the 2027 elections approach, poverty, institutional weaknesses, political fragmentation, and limited civic engagement continue to create conditions for vote-buying and clientelism. Without reforms in campaign finance, welfare delivery, electoral regulation, and civic education, electoral competition may continue without producing meaningful welfare accountability. The study contributes to political economy scholarship by applying political economy and clientelism perspectives to a sub-national electoral transition and by highlighting the recognition dimension of clientelism identified by Klaus, Paller and Wilfahrt (2023), particularly in explaining why marginalised voters may participate in clientelist exchanges beyond immediate material needs.

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Recommendations

i. The Independent National Electoral Commission (INEC) should be empowered with adequate funding, legal authority, and political independence to enforce campaign finance regulations rigorously. This includes mandatory financial disclosure by candidates, independent auditing of campaign expenditures, and meaningful sanctions for violations. The Constituency and Campaign Finance Act should be amended to close existing loopholes and provide for real-time reporting of campaign contributions.

ii. Social protection programmes in Kwara State and at the federal level should be governed by independent, professionally managed delivery mechanisms insulated from electoral capture. This requires the separation of welfare programme administration from political offices, the use of community-based beneficiary verification, and robust transparency in the targeting and distribution of welfare resources. Digital cash transfer systems with independent verification can significantly reduce opportunities for welfare instrumentalisation.

iii. INEC's institutional capacity should be further strengthened through adequate resource allocation, professional training of electoral officers, and the adoption of evidence-based anti-vote-buying enforcement strategies. Civil society organisations with track records in electoral monitoring such as the Transition Monitoring Group, Athena Centre for Policy and Leadership and Yiaga Africa should be formally integrated into the monitoring architecture of the 2027 elections in Kwara State.

iv. Civic education programmes targeting youth and low-income urban communities in Kwara State should be prioritised. These programmes should address not only voter rights but also the structural consequences of vote-buying for long-term welfare helping voters understand the connection between electoral choices and policy outcomes.

v. Political parties in Kwara State should be incentivised through INEC's party registration and funding criteria to demonstrate genuine programmatic platforms and cross-ethnic inclusivity in their leadership and candidate selection processes. This could gradually shift electoral competition from the terrain of money and identity to one of policy ideas and governance records.

References

Agboga, V. (2024). Testing political loyalties in Nigeria: What factors influence support for party switchers? *The Round Table*, 113(2), 117–130. https://doi.org/10.1080/00358533.2024.2333199

Ajayi, T. (2023). Vote buying and the urban poor: Examining electoral manipulation in Lagos State. *Pan African Journal of Governance and Development*, 4(2), 15–32.

Awoyemi, A. (2025). Who do politicians target? Ethnicity, partisanship and vote-buying in Nigeria. *The Round Table*, 114(3), 247–265. https://doi.org/10.1080/00358533.2025.2499237

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Businessday NG. (2026a, June 10). EFCC raises alarm over sophisticated vote-buying schemes ahead of 2027 elections. https://businessday.ng/news/article/efcc-raises-alarm-over-sophisticated-vote-buying-schemes-ahead-of-2027-elections/

Businessday NG. (2026b, June 7). 2027 race: Kwara South stakeholders appeal to monarchs to remain non-partisan. https://businessday.ng/life/article/2027-race-kwara-south-stakeholders-appeal-to-monarchs-to-remain-non-partisan/

Busari, D. A. (2020). Transactional politics: The manifestations of the challenges of 'infrastructure of the stomach' and 'infrastructure for the stomach' in Nigeria. *Journal of Contemporary African Studies*, 38(3), 366–380. https://doi.org/10.1080/02589001.2020.1798364

Downs, A. (1957). *An economic theory of democracy*. Harper & Brothers.

FreshInsightNewsTv. (2025, February 20). Kwara North traditional rulers intensify prayer for 2027 governorship. https://freshinsightnewstv.com/kwara-north-traditional-rulers-intensify-prayer-for-2027-governorship/

Gherghina, S., Saikkonen, I., & Bankova, P. (2022). Dissatisfied, uninformed or both? Democratic satisfaction, political knowledge and the acceptance of clientelism in a new democracy. *Democratization*, 29(2). https://doi.org/10.1080/13510347.2021.1947250

Guardian Nigeria. (2026, May 20). Ilorin Emirate stakeholders fault Kwara governor over successor. https://guardian.ng/news/ilorin-emirate-stakeholders-fault-kwara-governor-over-successor/

Klaus, K., Paller, J. W., & Wilfahrt, M. (2023). Demanding recognition: A new framework for the study of political clientelism. *African Affairs*, 122(487), 185–203. https://doi.org/10.1093/afraf/adad014

Leadership. (2026). Kingmakers: Why APC deserves Ilorin Emirate's massive votes. https://leadership.ng/kingmakers-why-apc-deserves-ilorin-emirates-massive-votes/

Legit.ng. (2026a, May 15). 2027 elections: Ilorin Emirate moves to reconcile Gov Abdulrazak, Saliu Mustapha, gives reasons. https://www.legit.ng/politics/1710282-2027-elections-ilorin-emirate-moves-reconcile-abdulrazak-saliu-mustapha/

Legit.ng. (2026b, June 7). Kwara 2027: Ilorin Emirate declares support for governorship aspirant. https://www.legit.ng/politics/1713426-kwara-2027-ilorin-emirate-renews-backing-saliu-mustapha/

Mariana Borges Martins da Silva. (2024). Political clientelism in democracies. *Oxford Bibliographies in Political Science*. https://doi.org/10.1093/obo/9780199756223-0371

McPherson-Smith, O. (2022). A theory of professional interest groups in Nigerian politics. The *Journal of the Middle East and Africa*, 14(2), 165–187. https://doi.org/10.1080/21520844.2022.2152302

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Nwagwu, E. J., Uwaechia, O. G., Udegbunam, K. C., & Nnamani, R. (2022). Vote buying during 2015 and 2019 general elections: Manifestation and implications on democratic development in Nigeria. *Cogent Social Sciences*, 8(1). https://doi.org/10.1080/23311886.2021.1995237

Nwagwu, E. J., Uwaechia, O. G., Udegbunam, K. C., & Nnamani, R. (2023). Vote buying and electoral integrity in Nigeria's Fourth Republic. *Journal of Contemporary African Studies*, 41(2), 215–233.

Nwangwu, C. (2025). Political financing and vulnerability: Social protection and election campaign financing in Nigeria. *Society*, 62(6), 878–891. https://doi.org/10.1007/s12115-025-01074-z

Ogundare, Y. D., Seriki, A. I., & Jimoh, E. A. (2023). An assessment of the 2023 presidential election in Nigeria: A study of Kwara State. *Hasanuddin Journal of Strategic and International Studies*, 1(2). https://doi.org/10.20956/hjsis.v1i2.27379

Okeke, G. S. M., & Nwali, U. (2020). Campaign funding laws and the political economy of money politics in Nigeria. *Review of African Political Economy*, 47(164), 238–255. https://doi.org/10.1080/03056244.2019.169904

Olaniyan, K. (2020). Vote buying and the challenges of electoral governance in Nigeria.

Radio Kwara News. (2026). Group kicks against voter apathy, vote buying, political violence ahead of 2027 polls. https://radiokwara.com/news/politics/group-kicks-against-voter-apathy-vote-buying-political-violence-ahead-of-2027-polls/

Shuaib, Y. A. (2026, May 27). Kwara 2027: The chess game of Saraki's PDP and AbdulRazaq's APC. Premium Times Nigeria. https://www.premiumtimesng.com/opinion/882876-kwara-2027-the-chess-game-of-sarakis-pdp-and-abdulrazaqs-apc-by-yushau-a-shuaib.html

Stockemer, D., & Amaechi, O. C. (2024). Why do voters accept bribes? Evidence from Edo State in Nigeria. *Representation*, 60(2), 303–323. https://doi.org/10.1080/00344893.2023.2213722

Trantidis, A. (2025). *Clientelism*. Cambridge University Press.

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Assessment of Community Relations Strategies Adopted by Select NGOs in the Management of Peace in Nasarawa State

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DOI : https://doi.org/10.5281/zenodo.22899018

Abstract
This study assessed the community relations strategies adopted by selected non-governmental organisations (NGOs), specifically Search for Common Ground (SFCG) and ActionAid Nigeria, in the management of peace in Nasarawa State, Nigeria. The study was anchored on the Participatory Development Theory. The study used a sample of 400 respondents selected from six Local Government Areas in Nasarawa State, while six key informants comprising NGO officials, community leaders, and security stakeholders were purposively selected for in-depth interviews. Data were collected using structured questionnaires and interview guides. Quantitative data were analysed using frequency counts, percentages, and One-Way Analysis of Variance (ANOVA), while qualitative data were analysed thematically. The findings revealed that the major community relations strategies adopted by the selected NGOs include community dialogue, mediation, peace education, youth engagement, and stakeholder consultation, with dialogue emerging as the most frequently used strategy. The ANOVA results showed a statistically significant difference in respondents' perceptions of the effectiveness of NGO community relations strategies across the selected Local Government Areas *($F = 4.127$, $p = .001$)*. It also found out that their effectiveness is constrained by inadequate funding, insecurity, poor access to remote communities, and limited participation of women and youths. The study concludes that participatory community relations strategies have made meaningful contributions to peacebuilding in Nasarawa State. The study recommends increased funding for peacebuilding programmes, enhanced collaboration among NGOs, government agencies, and traditional institutions, as well as greater inclusion of women and youths in peacebuilding initiatives.

Keywords: Community Relations, Non-Governmental Organisations (NGOs), Peacebuilding, Conflict Management; Nasarawa State**.**

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Introduction

Conflict is a common feature of every society because individuals and groups often have different interests, needs, and values. When these differences are not properly managed, they can lead to violence, insecurity, and social instability (Al-Rawashdeh & Al-Majali, 2021; Ishaku, 2021). Across Africa, conflicts over land, political interests, ethnicity, religion, and access to natural resources have continued to threaten peace, destroy livelihoods, and slow socio-economic development (Matsinhe, 2022; Adeyanju *et al.*, 2025). This is why peacebuilding has become an important approach for preventing violence and promoting sustainable development. In Nigeria, insecurity remains a major challenge due to persistent farmer-herder conflicts, communal clashes, kidnapping, banditry, and other forms of violent conflict. These security challenges have resulted in the loss of lives, destruction of property, displacement of communities, and disruption of economic activities (Imhonopi & Urim, 2022). Although government security agencies are responsible for maintaining law and order, their efforts are often constrained by inadequate resources, limited personnel, and weak community trust. This has created opportunities for non-governmental organisations (NGOs) to complement government efforts through community-based peacebuilding initiatives.

Many NGOs now adopt community relations strategies such as dialogue, mediation, peace education, stakeholder engagement, public sensitisation, youth and women empowerment, and early warning systems to promote peaceful coexistence and prevent conflicts (Kolagara & Anaei, 2022). These strategies encourage community participation, strengthen trust among stakeholders, and provide peaceful means of resolving disputes before they escalate into violence. Among the NGOs actively involved in peacebuilding in Nigeria are Search for Common Ground (SFCG) and ActionAid Nigeria. Search for Common Ground has implemented peacebuilding programmes in several conflict-affected states, including Nasarawa State, through initiatives such as community dialogue, peace committees, farmer-herder mediation, and Early Warning and Early Response (EWER) systems aimed at preventing violent conflicts and strengthening local peace structures (Search for Common Ground, 2023). Similarly, ActionAid Nigeria has implemented peacebuilding interventions through projects such as the System and Structure Strengthening Approach against Radicalisation to Violent Extremism (SARVE II**)**, which was introduced in Nasarawa State to strengthen community resilience, promote dialogue between communities and security agencies, empower vulnerable youths and women, and reduce the risk of violent extremism (ActionAid Nigeria, 2019).

The relevance of these interventions is particularly evident in Nasarawa State, North-Central Nigeria, where recurring farmer-herder clashes, communal conflicts, kidnapping, and other forms of insecurity have continued to threaten peace and development. Conflicts in Local Government Areas such as Toto, Nasarawa, Akwanga, Nasarawa Eggon, Lafia, and Doma have resulted in the destruction of lives and property, displacement of residents, and weakened relationships among communities (International Crisis Group, 2018; Best, 2017). Although NGOs have implemented several community-based peacebuilding programmes in these areas, there is limited empirical evidence on how effective their community relations strategies have been in promoting sustainable peace and reducing insecurity. It is against this background that this study assesses the community relations strategies adopted by selected NGOs, specifically

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Search for Common Ground and ActionAid Nigeria, in the management of peace in Nasarawa State, Nigeria.

Statement of the Problem

Nasarawa State has been particularly affected by recurring communal violence, disputes over land and natural resources, and insecurity in several communities. These conflicts have resulted in loss of lives, destruction of property, displacement of people, and disruption of economic and social activities (International Crisis Group, 2018; Okoli & Atelhe, 2019). To address these challenges, several non-governmental organisations (NGOs), including Search for Common Ground, the West Africa Network for Peacebuilding (WANEP), Mercy Corps, ActionAid Nigeria, and the CLEEN Foundation, have implemented peacebuilding programmes using community relations strategies such as dialogue, mediation, peace education, stakeholder engagement, and community participation. These interventions are intended to strengthen trust, promote peaceful coexistence, and prevent conflicts from escalating (Mercy Corps, 2021; ActionAid Nigeria, 2019). Despite these efforts, violent conflicts and insecurity continue to occur in many communities in Nasarawa State. This raises concerns about the effectiveness of the community relations strategies adopted by NGOs in promoting and sustaining peace. Although several studies have examined conflict management and peacebuilding in Nigeria, most have focused on the general activities of NGOs or national peacebuilding efforts, with limited attention given to how community relations strategies influence peace management at the community level, particularly in Nasarawa State (Adebayo, 2020; Ibrahim, 2020). This gap in knowledge makes it difficult to determine which community relations strategies are effective, the challenges affecting their implementation, and how they can be improved to support sustainable peace. Therefore, this study seeks to fill these gaps by examining the effectiveness of the community relations strategies adopted by selected NGOs in the management of peace in Nasarawa State.

Objective of the Study

This study is guided by the following objectives:

1. Examine the community relations strategies adopted by selected NGOs in the management of peace in Nasarawa State.
2. Assess the effectiveness of the community relations strategies adopted by select NGOs in promoting peace and reducing insecurity in Nasarawa State.
3. Determine the roles played by select NGOs in promoting peace and resolving conflicts through community relations strategies in Nasarawa State.
4. Identify the challenges faced by select NGOs in implementing community relations strategies for peace management in Nasarawa State.

Literature Review

Concept of Community Relations Strategies

Community relations strategies are widely recognised as an important approach to promoting peaceful coexistence because they strengthen trust, communication, and collaboration between organisations and the communities they serve. Paul et al. (2012) describes a community as a

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group of people connected by shared values, identity, social relationships, or geographical location, while ATSDR (2023) argues that communities are characterised by social ties, common interests, and collective action towards shared goals. These views suggest that peaceful and sustainable communities depend largely on cooperation, mutual understanding, and active participation among their members. Community relations, therefore, involves deliberate efforts to build and sustain positive relationships between organisations and host communities. Cheryl (2021) defines community relations as the outcome of organisational practices that promote goodwill, trust, and mutual support, while Adeyemi and Ojo (2021) view it as a participatory approach that encourages community involvement in decision-making and development programmes. These perspectives indicate that effective community relations extend beyond maintaining a positive organisational image to creating long-term partnerships that encourage dialogue, participation, and shared responsibility in solving community problems.

Within the context of peacebuilding, community relations strategies have become essential tools for conflict prevention and management. Olowu (2013) argues that community relations focus on sustained engagement and collaboration rather than one-way communication, while Nwolise (2016) maintains that they improve trust, information sharing, and early conflict resolution between institutions and local communities. Similarly, Okoli and Atelhe (2022) observe that many communal conflicts, particularly in rural Nigeria, are better managed through dialogue, mediation, stakeholder engagement, and community participation than through coercive security measures alone. These strategies enable communities to identify the causes of conflict, build consensus, and resolve disputes before they escalate into violence.

Review of Empirical Studies

Benard (2025) examined the role of public relations in peacebuilding between Bayero University, Kano, and its host communities. The study was anchored on the Excellence Theory. A survey research design was adopted using both quantitative and qualitative approaches. Data were collected through structured questionnaires and face-to-face in-depth interviews from a sample of 400 respondents selected through cluster sampling, while quantitative data were analysed using the Statistical Package for Social Sciences (SPSS). The findings revealed that regular meetings between the university management and host communities were the major community relations strategy adopted for peacebuilding. The study further found that these community relations activities contributed significantly to conflict resolution and improved relationships between the university and its host communities. The study concluded that public relations is an effective tool for promoting peace because it encourages communication, mutual understanding, and positive relationships among stakeholders. It recommended sustained dialogue and continuous stakeholder participation to strengthen long-term peacebuilding efforts. Although the mixed-method approach enhanced the credibility of the findings, the study focused on a university-community relationship rather than NGO-led peacebuilding interventions. In addition, it was conducted in Kano State, making its findings difficult to generalise to Nasarawa State. These contextual and geographical gaps are addressed by the present study, which examines the community relations strategies adopted by selected NGOs in the management of peace in Nasarawa State.

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Bentu, Best, and Bulus (2025) investigated the peacebuilding interventions of Search for Common Ground (SFCG) in North-Central Nigeria. The study was anchored on John Paul Lederach's Conflict Transformation Theory. A qualitative case study design was adopted, and data were collected through 29 key informant interviews and 12 focus group discussions conducted across selected communities in Plateau, Benue, and Nasarawa States. The findings revealed that SFCG adopted dialogue facilitation, mediation, youth empowerment, media engagement, and capacity-building programmes to strengthen peace within conflict-affected communities. The study further found that these interventions improved trust among community members, strengthened intergroup relationships, and reduced communal tensions. However, inadequate funding, weak government collaboration, and limited institutional support affected the sustainability of the interventions. The study concluded that NGOs complement government efforts in promoting sustainable peace and recommended stronger partnerships between NGOs and public institutions. Although the qualitative design provided detailed insights into SFCG's peacebuilding activities, the study focused on only one NGO and did not assess the effectiveness of community relations strategies across different NGOs. Furthermore, the study covered the North-Central region generally rather than focusing specifically on Nasarawa State. The present study addresses these empirical and geographical gaps by assessing the community relations strategies adopted by selected NGOs in the management of peace in Nasarawa State.

Grady et al (2023) examined the effectiveness of intergroup contact in promoting peace between farming and pastoralist communities in Nigeria under Mercy Corps' Engaging Communities for Peace in Nigeria (ECPN) programme. The study was guided by Intergroup Contact Theory and adopted a field experimental research design. Data were collected through household surveys, interviews, behavioural observations, and experimental games involving communities in Benue and Nasarawa States. The findings revealed that communities that participated in the intervention demonstrated higher levels of trust, cooperation, positive attitudes towards opposing groups, and improved feelings of security compared to communities that did not participate. The study concluded that sustained dialogue and community engagement significantly promote peaceful coexistence in conflict-prone communities. It recommended expanding community-based peacebuilding programmes to other parts of Nigeria. Although the experimental design provided strong evidence of programme effectiveness, the study concentrated mainly on intergroup contact interventions and did not examine the broader community relations strategies adopted by NGOs for peace management. The present study therefore fills this conceptual gap by assessing various community relations strategies adopted by selected NGOs in Nasarawa State.

Ugondo and Andetur (2025) investigated public relations strategies for promoting peacebuilding in multi-ethnic communities in Takum Local Government Area of Taraba State. The study adopted a qualitative research design, while data were collected through in-depth interviews and focus group discussions involving community leaders, traditional rulers, religious leaders, youth and women leaders, and civil society representatives. The findings showed that community dialogue, stakeholder engagement, media sensitisation, and relationship management significantly improved communication, strengthened trust, and reduced ethnic tensions within the communities. However, ethnic mistrust, political interference, inadequate funding, and limited youth participation constrained the effectiveness of these strategies. The study concluded that public relations strategies are vital for sustainable peacebuilding and recommended

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continuous stakeholder engagement and stronger institutional support. Although the qualitative approach provided an in-depth understanding of public relations strategies in conflict management, the study focused on community peacebuilding in Taraba State rather than NGO-led community relations strategies in Nasarawa State. Consequently, the present study fills both the contextual and geographical gaps by assessing the community relations strategies adopted by selected NGOs in the management of peace in Nasarawa State.

Theoretical Framework

This study is anchored on the Participatory Development Theory, propounded by Robert Chambers (1994). The theory argues that development programmes are more effective and sustainable when the people who are directly affected actively participate in identifying problems, making decisions, implementing interventions, and evaluating outcomes. Rather than adopting a top-down approach where decisions are made solely by external actors, the theory promotes a bottom-up approach that recognises local communities as partners in the development process. It assumes that community members possess valuable indigenous knowledge, experiences, and capacities that should be integrated into development and peacebuilding initiatives (Chambers, 1994; Cornwall, 2008).

The theory is applicable to this study because the community relations strategies adopted by selected NGOs such as Search for Common Ground (SFCG) and ActionAid Nigeria are largely participatory in nature. These organisations promote peace through community dialogue, mediation, stakeholder consultations, peace education, youth and women empowerment, and the establishment of community peace committees. By involving traditional rulers, religious leaders, women, youths, security agencies, and other community stakeholders in conflict prevention and resolution, the NGOs encourage shared ownership of peacebuilding initiatives. According to Chambers (1994), development interventions are more effective when local people actively participate in decisions that affect their lives. Similarly, Mansuri and Rao (2013) argue that participatory approaches improve accountability, strengthen local ownership, and enhance the sustainability of development programmes. This participatory approach therefore strengthens trust, improves communication, promotes peaceful coexistence, and enhances the sustainability of peace interventions within communities in Nasarawa State.

Methodology

This study adopted a mixed-methods research design**,** combining quantitative and qualitative approaches. The study population comprised the projected population of the six LGAs (934,900), based on the National Bureau of Statistics (2025) population estimates. A sample size of 400 respondents was determined using Taro Yamane's formula and proportionately distributed across the selected LGAs using Bourley's proportional allocation technique. Community respondents were selected through simple random sampling, while purposive sampling was used to select six key informants comprising officials of Search for Common Ground (SFCG)**,** ActionAid Nigeria, a community leader, and a security stakeholder. Data were collected through structured questionnaires and semi-structured in-depth interviews. The questionnaire generated quantitative data on community awareness, perceptions, and assessment of NGO peacebuilding strategies, while the interviews provided detailed insights into the implementation, effectiveness, and challenges of these strategies. The research instruments were validated by experts, and a pilot

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study was conducted to ensure reliability using Cronbach's Alpha. Quantitative data were analysed using descriptive statistics (frequency counts and percentages) with SPSS version 27, while qualitative data were analysed thematically. The findings from both methods were triangulated to enhance the validity and credibility of the study.

Data Presentation

A total of 400 questionnaire was distributed to respondents for this study, out of which 393 were duly completed and returned, representing a response rate of 98.3%.

Table 1: Showing Community Relations Strategies Adopted by SFCG and WANEP

Response	Frequency	Percentage (%)
Community dialogue meetings	110	28.0
Mediation and reconciliation sessions	95	24.2
Peace education programmes	100	25.4
Youth engagement activities	88	22.4
Total	**393**	**100**

Source: Field Survey, 2026

Table 4.1.2 shows that community dialogue meetings (28.0%) and peace education programmes (25.4%) are the most commonly observed strategies used by SFCG and WANEP. This implies that NGOs rely heavily on interactive and educational approaches in promoting peace at the community level.

Table 2: One-Way ANOVA Showing the Effectiveness of Community Relations Strategies Adopted by Selected NGOs in Peace Management in Nasarawa State

Source of Variation	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	18.426	5	3.685	4.127	.001
Within Groups	345.672	387	0.893		
Total	**364.098**	**392**			

Source: ***Field Survey (2026), SPSS Version 27 Output.***

A one-way ANOVA was conducted to determine whether respondents from the six selected Local Government Areas differed in their perceptions of the effectiveness of NGO community relations strategies in promoting peace. The result shows a statistically significant difference among the LGAs, $F(5, 387) = 4.127$, $p = .001$. Since the p-value is less than 0.05, the null hypothesis is rejected. This implies that respondents' perceptions of the effectiveness of NGO community relations strategies vary significantly across the selected Local Government Areas in Nasarawa State.

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Table 3: Showing Roles of NGOs in Peacebuilding

Response	Frequency	Percentage (%)
Conflict mediation	115	29.3
Peace education	102	26.0
Advocacy for justice	90	22.9
Support for victims	86	21.8
Total	**393**	**100**

Source: Field Survey, 2026

Table 3 shows that conflict mediation (29.3%) is the most dominant role played by NGOs, followed by peace education (26.0%). This confirms that NGOs are actively involved in both preventive and responsive peacebuilding.

Table 4: Showing Challenges Facing NGO Peacebuilding Activities

Response	Frequency	Percentage (%)
Lack of funding	110	28.0
Community resistance	95	24.2
Insecurity/violence	100	25.4
Poor government support	88	22.4
Total	**393**	**100**

Source: Field Survey, 2026

Table 4 shows that lack of funding (28.0%) and insecurity (25.4%) are the major challenges facing NGOs. This implies that operational constraints significantly affect peacebuilding effectiveness.

Insight from Qualitative Data

The qualitative findings were obtained from in-depth interviews with six participants comprising officials of Search for Common Ground (SFCG), ActionAid Nigeria, community leaders, youth representatives, and women leaders. The interviews provided deeper insights into the community relations strategies adopted by NGOs for peacebuilding and conflict management in Nasarawa State.

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Theme 1: Community Relations Strategies Adopted by NGOs
Interview participants identified community dialogue, mediation, peace education, community sensitisation, and youth engagement as the major strategies adopted by SFCG and ActionAid Nigeria to manage conflicts and promote peaceful coexistence.

A community leader (P1) stated:

> "SFCG and ActionAid usually bring community members, traditional rulers, religious leaders, and youths together to discuss issues before conflicts become violent." Similarly, *an NGO official (P2) explained:* "When disputes arise, we organise mediation sessions and dialogue meetings to help both sides reach peaceful agreements."

The responses indicate that dialogue and mediation are the primary community relations strategies adopted by the selected NGOs. This finding supports the first research objective on the community relations strategies used for peace management.

Theme 2: Effectiveness of Community Relations Strategies
Most participants agreed that NGO interventions have helped reduce tensions and improve peaceful coexistence within their communities, although they acknowledged that some conflicts still reoccur.

A youth leader (P3) stated:

> "After the dialogue meetings, people now prefer discussing issues instead of fighting, although some disagreements still return after some time."*Another participant (P4)* added: "The programmes have reduced violence, but lasting peace requires continuous follow-up."

These findings suggest that NGO strategies are moderately effective in reducing conflict and promoting peace but require sustained engagement to achieve long-term peace. This addresses the second research objective.

Theme 3: Roles Played by NGOs in Peacebuilding
Participants agreed that SFCG and ActionAid Nigeria play important roles in mediation, peace education, reconciliation, trust-building, and conflict prevention.

An NGO official (P5) noted:

> "Our role is to bring conflicting groups together, build trust, and help communities resolve disputes peacefully."

The findings indicate that the NGOs serve as neutral facilitators that promote dialogue, reconciliation, and peaceful conflict resolution. This supports the third research objective.

Theme 4: Challenges Affecting NGO Peacebuilding Efforts
Participants identified inadequate funding, insecurity, poor access to remote communities, weak follow-up, and limited participation of women and youths as major challenges affecting NGO interventions.

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A community leader (P6) explained:

> "Sometimes NGOs cannot reach all communities because of insecurity and limited resources, and more women and youths should be involved in peace activities."

The responses suggest that although NGO interventions contribute to peacebuilding, their effectiveness is constrained by operational and structural challenges. These findings directly address the fourth research objective.

Discussion of Findings

This section discusses the findings of the study in relation to the research objectives. It also relates the findings to existing literature on community relations, peacebuilding, and conflict management by non-governmental organisations (NGOs). The discussion focuses on four key areas: the community relations strategies adopted by the selected NGOs; the effectiveness of these strategies in promoting peace and reducing insecurity; the roles played by the NGOs in peacebuilding and conflict resolution; and the challenges affecting the implementation of these strategies.

The first objective was to examine the community relations strategies adopted by Search for Common Ground (SFCG) and ActionAid Nigeria in managing peace in Nasarawa State. The study found that the NGOs employ several community relations strategies, including community dialogue meetings, mediation sessions, peace education, community sensitisation, and youth engagement programmes. Dialogue and mediation emerged as the most frequently used strategies, showing that both organisations rely mainly on participatory approaches to conflict management rather than coercive measures. The interview findings further showed that these strategies encourage communication between conflicting groups and involve traditional rulers, religious leaders, women, and youth in peacebuilding activities. These findings agree with Lederach (2017), who argues that sustainable peace is achieved through dialogue, relationship building, and community participation. Similarly, Search for Common Ground (2020) and ActionAid Nigeria (2025) report that dialogue and mediation remain central approaches for preventing violent conflict and strengthening peaceful coexistence in local communities.

The second objective assessed the effectiveness of the community relations strategies in promoting peace and reducing insecurity. The findings showed that NGO interventions have contributed to reducing conflict and improving peaceful coexistence in many communities. Most respondents acknowledged improvements in communication, trust, and conflict resolution following NGO interventions. However, a considerable number of respondents indicated that conflicts sometimes reoccur after peace interventions, suggesting that the impact of the programmes is moderate rather than absolute. These findings support Mercy Corps (2021), which notes that community-based peacebuilding programmes are effective in reducing immediate tensions but often struggle to achieve long-term peace because structural problems such as poverty, unemployment, and inequality remain unresolved. Likewise, Abimbola et al. (2023) argue that peacebuilding interventions become more sustainable when they are combined with broader socio-economic development programmes.

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The third objective was to determine the roles played by the selected NGOs in promoting peace and resolving conflicts through community relations strategies. The findings revealed that SFCG and ActionAid Nigeria play important roles in conflict mediation, peace education, trust-building, advocacy, reconciliation, and violence prevention. Participants described the NGOs as neutral facilitators that bring conflicting groups together and promote dialogue before disputes escalate into violence. These findings support the Functionalism Theory, which views NGOs as important institutions that complement government efforts in maintaining social stability when formal institutions face limitations (Parsons, 1951). The findings also agree with CLEEN Foundation (2022), which emphasises that civil society organisations strengthen local peacebuilding by improving cooperation between communities and government institutions.

The fourth objective identified the challenges faced by the selected NGOs in implementing community relations strategies. The study found that inadequate funding, insecurity in conflict-prone communities, poor access to remote areas, weak follow-up mechanisms, and limited participation of some community groups, especially women and youths, reduce the effectiveness of NGO peacebuilding programmes. These challenges affect the continuity and sustainability of peace interventions. Similar findings were reported by Mercy Corps (2021), ActionAid Nigeria (2025), and Oxfam International (2019), which identified insecurity, financial constraints, and weak institutional support as major barriers to effective community peacebuilding in fragile environments. The findings suggest that stronger collaboration among NGOs, government agencies, traditional institutions, and local communities is necessary to improve the long-term impact of peacebuilding interventions.

Conclusion

Based on the findings, the study concludes that Search for Common Ground (SFCG) and ActionAid Nigeria play important roles in promoting peace in Nasarawa State through community relations strategies. Their major strategies include community dialogue, conflict mediation, peace education, sensitisation programmes, and stakeholder engagement. These strategies have helped to improve communication, build trust among community members, and reduce tensions in conflict-prone communities. The study also concludes that the interventions of the selected NGOs have contributed to reducing violence and promoting peaceful coexistence. However, their effectiveness is limited by challenges such as inadequate funding, insecurity in some communities, limited access to remote areas, weak follow-up after peace programmes, and the exclusion of some groups from peacebuilding activities. As a result, some conflicts continue to reoccur despite the interventions. Thus, the study concludes that the community relations strategies adopted by the selected NGOs have made positive contributions to peacebuilding in Nasarawa State. However, achieving lasting peace will require stronger collaboration among NGOs, government agencies, traditional institutions, and community members, as well as sustained efforts to address the underlying causes of conflict.

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Recommendations

Based on the findings of this study, the following recommendations are made:

1. Selected NGOs should strengthen and expand their community relations strategies by increasing the use of community dialogue, peace education, mediation, stakeholder engagement, and public sensitization programmes.
2. To improve the effectiveness of community relations strategies, selected NGOs should establish regular monitoring and evaluation mechanisms to assess the impact of their peacebuilding programmes.
3. Selected NGOs should strengthen their peacebuilding roles through greater collaboration with government agencies, traditional rulers, religious leaders, women groups, youth associations, and other community stakeholders.
4. Government, donor agencies, and development partners should provide greater financial, technical, and logistical support to selected NGOs to enable them to overcome challenges such as inadequate funding, insecurity in conflict-prone communities, poor access to remote areas, and limited community participation.

References

Abimbola, S., Adeyemi, T., & Ibrahim, M. (2023). Socio-economic deprivation and peacebuilding outcomes in Nigeria. *Journal of Peace and Development Studies, 15(2), 45–61.*

ActionAid Nigeria. (2019). System and Structure Strengthening Approach against Radicalisation to Violent Extremism (SARVE II) project report. ActionAid Nigeria.

ActionAid Nigeria. (2025). Annual report on peacebuilding and community resilience in West Africa. ActionAid Nigeria.

Adeyanju, S., Ojo, A., & Bello, M. (2025). Conflict dynamics and sustainable peacebuilding in Africa. African Journal of Peace and Security Studies, 18(1), 30–48.

Adeyemi, T., & Ojo, S. (2021). Community relations strategies and rural development in Nigeria. Journal of Rural Development Studies, 9(2), 52–68.

Agency for Toxic Substances and Disease Registry. (2023). Principles of community engagement (2nd ed.). U.S. Department of Health and Human Services. https://www.atsdr.cdc.gov/communityengagement/

Al-Rawashdeh, M., & Al-Majali, S. (2021). Conflict management and peacebuilding in developing societies. International Journal of Social Sciences, 13(2), 88–101.

Best, S. G. (2017). Conflict and peacebuilding in central Nigeria. Centre for Conflict Management and Peace Studies.

Cheryl, M. (2021). Community relations and corporate social responsibility. Routledge.

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CLEEN Foundation. (2022). Civil society and community security in Nigeria. CLEEN Foundation.

Grady, C., et al. (2023). Intergroup contact and peacebuilding among farming and pastoralist communities in Nigeria. Journal of Peace Research, 60(4), 521–538.

Ibrahim, A. (2020). NGO interventions and peacebuilding in Nigeria. Nigerian Journal of Peace Studies, 7(1), 55–71.

Imhonopi, D., & Urim, U. M. (2022). Insecurity and national development in Nigeria: Challenges and prospects. Journal of African Security Studies, 11(1), 55–71.

International Crisis Group. (2018). Stopping Nigeria's spiralling farmer-herder violence (Africa Report No. 262). https://www.crisisgroup.org

Ishaku, J. (2021). Conflict management and community peace in Nigeria. Journal of Contemporary African Studies, 11(1), 65–80.

Kolagara, G., & Anaei, L. (2022). Community participation and peacebuilding in conflict-prone communities. Journal of Peace and Development Studies, 8(1), 34–48.

Lederach, J. P. (2017). Building peace: Sustainable reconciliation in divided societies. United States Institute of Peace Press. (Original work published 1997)

Mansuri, G., & Rao, V. (2013). Localizing development: Does participation work? World Bank.

Matsinhe, D. M. (2022). Conflict and human security in Africa. African Security Review, 31(2), 115–129.

Mercy Corps. (2021). Engaging communities for peace in Nigeria: Programme report. Mercy Corps.

National Bureau of Statistics. (2025). Population projections for states and local government areas in Nigeria. National Bureau of Statistics.

Nwolise, O. B. C. (2016). Security, peacebuilding and community participation in Nigeria. John Archers.

Okoli, A. C., & Atelhe, G. A. (2022). Community participation and conflict prevention in rural Nigeria. Conflict Trends, 2022(3), 33–44.

Olowu, D. (2013). Participatory governance and community relations in Africa. African Journal of Public Administration, 6(1), 15–29.

Oxfam International. (2019). Sustaining peace in fragile communities: Lessons from humanitarian interventions. Oxfam International.

Parsons, T. (1951). The social system. Free Press.

Paul, S., Whittam, G., & Wyper, J. (2012). Towards a definition of community. International Journal of Sociology and Social Policy, 32(9/10), 528–541.

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - *E*- ISSN: 3156-5492 | *P*- ISSN: 3156-5514

Search for Common Ground. (2020). Community dialogue and mediation for peaceful coexistence in Nigeria. Search for Common Ground.

Search for Common Ground. (2023). Nigeria country programme: Building peace through dialogue and community engagement. Search for Common Ground. https://www.sfcg.org

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Modernisation, Education, and Widowhood Practices among the Epie People of Bayelsa State, Nigeria

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DOI : https://doi.org/10.5281/zenodo.22899301

Abstract

The study is on educational attainment and attitude of Epie indigenes towards widowhood rites in Yenagoa, Bayelsa state. The study adopted survey research design with 370 structured questionnaires administered for data collection. 365 questionnaires were successfully retrieved and used for the analysis. The findings of the analysis confirmed that formal education influence attitude towards widowhood rites. It was also revealed that there is significant differences in attitude between indigenes with tertiary education and those without secondary education. The findings also confirm that significant differences exist in attitudes toward widowhood rites based on respondents' level of education, gender and age. Lastly, the study concluded that gender moderates the relationship between educational attainment and attitudes toward widowhood rites. Based on these findings, it was recommended that there should be proper scrutiny of the widowhood rites practices with necessary modifications or amendment made by the relevant authorities so as to expunge harmful parts of the practices. Secondly, workshops and enlightenment campaigns should be conducted mostly in rural communities where the level of education is low so as to reduce the harmful practices associated with widowhood rites.

Keywords: Modernization, Education, Widowhood Practice, Epie, Bayelsa

Introduction

Widowhood practices in African societies especially Nigeria reflect community identity and social control while balancing tradition and modernity, these practices vary widely among different communities but often impose rites and obligation on bereaved women linked to custom and social order, (Akinbi, 2011; Adeyemi, 2016; & Idialu,2012). In Bayelsa state, among the Ijaw people, these rites are life-cycle rituals, that show the resilience of indigenous beliefs despite foreign influence, (Adebayo, & Okoro,2023; Uche,2015).

Epie people a subgroup of Ijaw in Bayelsa state, in Yenagoa Local Government Area and have a distinct culture shown in their language and custom, (Ubodiom & Ifidi,2025; UKR, Publisher, 2024,). They follow widowhood rituals based on strong beliefs about death and spirits, which are slowly changing due to social factors, especially education. (Uche,2015) the link between

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cultural change and education has been widely studied. Increased investment in education, driven by oil revenue, has led to more educated individuals.

This paper examines how changes in educational levels, among Epie indigenes affects widowhood practices amid modernisation, it highlights the community response balancing tradition with change. This research therefore aims to explore the educational impact of widowhood practices gap among the Epie using primary survey data, it examines community reaction to modernisation and widowhood treatment, contributing to knowledge on culture, gender, and development in the Niger Delta. The study seeks to provide valuable findings for policies and community-based intervention to advance the dignity and rights of bereaved women in Bayelsa State and other areas.

The specific objectives are as follows:

i. To assess the extent to which formal education has influenced the attitudes of Epie indigenes toward traditional widowhood rites.

ii. To examine if difference exist in attitude towards widowhood rites between Epie indigenes who have attained tertiary education and those who have not completed secondary education.

iii. To determine whether differences exist in attitude toward widowhood rites based on respondents' level of education, gender, age, and community of origin.

iv. To contribute empirical evidence to the literature on cultural change, and whether educated women exhibit stronger opposition to oppressive widowhood rites than their male counterpart of equivalent educational level.

The study is guided by the following research questions:

i. How has improvement in formal educational attainment among Epie indigenes influence their attitude toward widowhood rites?

ii. Has there been any difference in attitude toward widowhood rites among Epie indigenes who have attained tertiary education and those who have not completed secondary education?

iii. Has there been any differences in attitude toward widowhood rites based on respondents' level of education, gender, age, and community of origin?

iv. Has gender moderated the relationship between educational attainment and attitudes toward widowhood rites, with educated women exhibiting stronger opposition to oppressive practices than their male counterpart of equivalent educational level.

Hypotheses

H_1: There is no significant positive relationship between the level of formal education attained by Epie indigenes and the likelihood of their rejecting or modifying oppressive widowhood rites.

H_2: There is no significant difference in attitude toward widowhood practices between Epie indigenes who have attained tertiary education and those who have not completed secondary education.

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H_3: There is no significant difference in attitude toward widowhood rites based on respondents' level of education, gender, age and community of origin.

H_4: Gender has not significantly moderated the relationship between educational attainment and attitudes toward widowhood rites, with educated women exhibiting stronger opposition to oppressive practices than their male counterparts of equivalent educational levels.

Concepts Clarifications

Widowhood and Widowhood Practices

Widowhood is the status a of a woman in patrilineal African societies, who has lost her husband by death and has thus been subject to various social, cultural, and legal redefinition of identity, rights, and responsibilities. The term widowhood practices in this context refer to the set of rites, restrictions, prescriptions and ceremonies that societies place on bereaved women during the mourning process, encompassing but not limited to seclusion, donning of prescribed clothing, dietary taboos, ritual bathing, hair shaving, disallowed to remarriage within a given time period. Nwosu (2018), more generally, refers to practices that are culturally approved by a community to address the social and spiritual implications of a married woman becoming a widow, in fact, these practices have social boundary-maintaining, spiritual protective, and communion-enhancing functions even when they cause a high burden on the women to which they are applied. Not every practice of widowhood is destructive; some societies have respectable grieving traditions which give grieving women social support.

The interest of this study is the particular practices which undermine the physical integrity, emotional wellbeing, economic security, dignity of widows, and the degree to which education and modernisation is altering such practices among the Epie people.

Modernisation

The multi-dimensional process by which societies experience structural, normative and institutional change that is linked to the dispersion of formal education and scientific rationality, market economies, democratic governance and openness to global cultural flows. Modernisation in the African context is not simply a process of replacing traditional forms with western forms, but rather a complex, contested, and incomplete process that generates hybrid social forms where modern and traditional aspects coexist and interact dynamically. Ogundele (2019) contends that the process of modernisation in sub-Saharan Africa has always generated what he calls modernity without rupture; a trend whereby communities internalise the institutional and technological aspects of modernity and experience a high degree of continuity in the cultural and normative structures, especially in the dimensions of gender relations, marriage and death rituals. The conceptualisation is very pertinent to the Epie case where the proliferation of the educational system has not led to the wholesale rejection of widowhood rituals but rather to the selective adaptation to suit the community itself in negotiating the conflicts between modernity and cultural identity.

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Social Change and Education

Social change is defined as a change of cultural norms, social structures, social institutions, and behaviour patterns over a period of time and education is generally known as one of the most effective agents of change in developing societies. Akinwale (2017) asserts in Nigerian that formal education is a process of cognitive liberation that gives individuals the resources to critically challenge accepted cultural practices, place local practices in larger normative contexts and express rights-based critiques of practices they view as oppressive or unjust. This emancipatory aspect of education is especially relevant to women, who are especially often the victims of the oppressing customary practices in the Nigerian societies and, when they have access to formal education, often start to develop a more conscious attitude toward their rights and entitlements. The education-social change relationship is however, not one-way in that educated people in Nigerian societies can also justify and legitimise traditional types of behaviour in more refined ways and the correlation between educational attainment and cultural attitudes is therefore mediated by a combination of factors such as the educational curriculum content, social contexts under which schooling is provided, the degree of community adherence to traditional practices.

Empirical Review

Widowhood Practices in Nigeria: An Overview

Empirical studies on widowhood in Nigeria are increasing, focusing on gender, cultures and human rights in Africa. Nzewi (2015) survey highlight the significant of widowhood amongst the southeastern Nigerian communities, such practices as forced seclusion, head shaving, wearing black or sackcloth clothing, ban on eating with other people, and even oaths of widowhood, where widows are made to swear before the elders of the community that they did not kill their husbands. Nzewi discovered that the younger and better educated women had a large proportion of expressing opposition to practices of enforcement such as the threat of social ostracism and spiritual condemnation, even educated women were often willing to perform rituals they disapproved privately. This result is significant to the current research as it indicates the difference between attitudinal change and behavioural change, where education might result in attitudinal change to widowhood rites before it leads to behaviour change in the actual practice of the rites.

A widowhood study among the Yoruba community of southwestern Nigeria, by Olatunji and Afolabi (2016) discovered a significant difference in attitudes between generations, which they attributed to the level of education. They found that women who had attained tertiary education were twice as likely to decline to comply with rites they found humiliating. This was more prevalent in urban settings where communal enforcement systems were less effective, like the Epie who are mainly found in urban, state capital.

Widowhood Practices in the Niger Delta and Ijaw Communities

The published literature on studies specifically targeting the Ijaw-speaking communities in the Niger Delta is rather sparse, but some valuable contributions can still be identified. Kpae and Igein (2017) explored widowhood customs in Ijaw communities in Rivers and Bayelsa States and reported a variety of rituals, including a three-month seclusion period during which the widow had to be kept in the inner part of the family compound, where she was forbidden to bathe,

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and had to be accompanied during visits. Kpae and Igein discovered that such practices had greatly diminished within the community where there was more educational attainment and exposure to Christian evangelical beliefs, which they consider two parallel yet different vectors of cultural change at work in the Ijaw communities. Notably, the authors observed that the weakening of traditional rites did not take place across all areas of widowhood practices; although physical ordeals had been eliminated in many societies, limitations on the right of widow regarding inheritance and remarriage still existed in many societies that had significantly altered other rites.

Okoro (2018) discussed the impact of the education of women in changing the norms of widowhood in the western Niger Delta and particularly in the Bayelsa State communities. In a survey conducted by Okoro on 240 people, it was observed that there was a statistically significant negative correlation between the level of education attainment and acceptance of dehumanising widowhood practices with women who had at least a secondary school certificate having a statistically significant lower likelihood of accepting the existence of dehumanising widowhood practices. Okoro also determined that educated widowed women were more prone to support provided by the church organisations and community women groups to resist or alter the rites implying that education interacts with organisational membership to create stronger resistance to harmful practices than either of the two. These results are directly used to make hypotheses of the current research that is expected to find the same tendencies in the Epie, as well as to test the mediation of gender and community sub-group difference.

The Role of Education in Transforming Harmful Traditional Practices in Nigeria

The concept of education and evil traditional practices in Nigeria has been described broadly in the literature, which introduces a valuable contextual background to the analysis of widowhood change among Epie. In a national survey of the linkage between female education and the acceptance of detrimental traditional rituals such as female genital cutting, child marriage and widowhood rituals, Madu and Afolabi (2019) utilized the national demographic and health survey data. Their discussion revealed that educational attainment was the best predictor of resistance to harmful traditional practices in Nigerian women compared to other variables such as urban residence, household income, and religious affiliation. According to the authors, this conclusion is a measure of the cognitive and normative change that comes with formal schooling, where women are enabled to construct the conceptual instruments to criticize the practices that contravene their rights as well as the social networks such as peer relationships with fellow educated women, which offer normative backing to resistance.

Egbe and Nwachukwu (2020) examined how cultural differences in minority ethnic groups in southern Nigeria were changing, particularly, the communities where the rate of educational growth had been higher than the national level because of the oil revenue-financed state investment. Their research established that the generation gap in attitude towards traditional practices in such communities was especially acute with the younger generations, who received more opportunities in terms of education, having a significantly more critical orientation towards practices that older generations could not challenge. The authors present this as a contemporary payoff of modernisation in the form of a cultural dividend of educational investment that emerges not in the homogenous abandonment of tradition but in the emergence of more reflexive, rights-conscious societies that can tell the difference between the practices they want to keep and those

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they are prepared to change or to drop. This framework is directly applicable to the Epie context and is used in the current study to explore the generational and educational difference in the attitudes to widowhood rites.

Community Responses to Modernity and Cultural Negotiation

Empirical literature recognizes the need to go beyond simple views of tradition and modernity in Nigerian communities. Eze (2021) studied how communities in Enugu State responded to legal pressures against traditional practices. He found that people adapt strategically, changing the visible part of their traditions while maintaining important symbolic and spiritual element intact. Eze findings align with the idea that modernisation is complex. Adeyemi and Olatunji (2022) study shows that educated women organisations in Edo and Delta state promote changes in widowhood practices by engaging with traditional rulers and community elders leading to formal changes.

Eteng and Akpan (2023) examined the topic of widowhood rites and human rights awareness among minority groups in the Akwa Ibom and Cross River States, particularly how the secondary and tertiary educational exposure can create rights awareness in bereaved women. In their survey, women who had received civic education programs, such as those on gender equality, customary law and constitutional rights, were much more aware of their rights than those who never received such programs and more inclined to seek institutional redress in cases where they were victims of harmful widowhood practices. The authors maintain that the content of education is equally important as its degree implying that the inclusion of rights-based and gender-sensitive content in school learning programs can significantly enhance the effects of educational growth on the transformation of culture. This observation leads to a significant policy implication on the context of Epie and introduces complexity to the conceptualisation of the education-widowhood relationship in the study.

Theoretical Framework

The paper is grounded on one complementary theory of modernisation.

Modernisation Theory

Parsons (1951), and later developed and perfected by development sociologists and Africanist scholars, modernisation theory is based on the belief that modernisation is a process of social development, a shift between traditional and modern versions of social organisation, values and behaviour. Contemporary applications of the modernisation theory have been criticised on the basis of its unilinear propensity to exalt Western forms of social organisation as the end-point of development; its fundamental claim that education, urbanisation, and economic change bring systematic demands to cultural change. The growth of formal education within the Epie setting is a major modernising agent that brings in fresh epistemological frameworks, legal consciousness and normative orientations that are in conflict with the traditional cultural practices such as those of widowhood. In the analysis of African development, Ocheni and Nwankw (2015) maintain that there has always been what they term as cultural dissonance within modernisation processes in Nigeria; the state of the community living simultaneous to both modern institutional structures and pre-modern cultural forms, resulting in hybrid forms of social behaviour. This paper builds on this observation to conceptualise the Epie experience of

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widowhood transformation as a cultural dissonance in the face of modernisation whereby education moderates, but does not entirely dictate the nature or speed of change.

Methodology

This research design is a quantitative survey research design, data analysis involved frequency, percentages, mean, and standard deviation, whereas hypotheses were analysed using Pearson Product Moment Correlation, ANOVA and Chi-Square test. The target population of the study was adult Epie indigenous people in Yenagoa Local Government Area in Bayelsa State, aged 18 years and above. The sample of 320 respondents was calculated by Taro Yamane sample size formular, from Epie adult population 12,000 with a confidence level of 95% and a margin error of 5%, drawn from 2006/2022 National Population Commission through stratified random sampling method. The study area was stratified into four Epie community clusters, respondent was randomly picked out of each cluster through systematic random sampling method where every household on community enumeration area were eligible to participate. Data were gathered through a structured questionnaire, consisted of four parts.

Section A (demographic details) such as age, gender, education level, community where they live, marital status and occupation category. Section B include questions that will assess respondent knowledge and personal experience of traditional Epie widowhood rites. Section C includes attitudinal items with five-point Likert scale (Strongly Agree to Strongly Disagree) that measures the perceptions of respondents about the suitability, and desirability of certain practices associated with widowhood, and respondent's perception of the relation between widowhood rites and the rights and dignity of women. Section D to understand the perception of respondents with reference to change over time, how they perceived widowhood practices in their community have changed in the past decades and what they attribute to this change. Face and content validity of the questionnaire was evaluated by three experts in sociology, gender studies, and cultural anthropology. The reliability of the items, was determined by Cronbachs alpha coefficient with the minimum acceptable coefficient of 0.70. The interpretation of the results was based on a significant level of p 0.05.

Analysis

Demography

Table1: Age Range as at Last Birthday

Age Range	Frequency	Percent	Valid Percent	Cumulative Percent
18-27	18	4.9	4.9	4.9
28-37	73	20.0	20.0	24.9
38-47	134	36.7	36.7	61.6
48-57	99	27.1	27.1	88.8
58andabove	41	11.2	11.2	100.0
Total	365	100.0	100.0	

Fieldwork, 2026

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Table1 shows that 18(4.9%) of the sampled respondents are within the age range of 18-27, 73(20.0%) are within the age range of 28-37, 134(36.7%) are within the age range of 38-47, 99(27.1%) are within the age range of 48-57 and 41(11.2%) are within the age range of 58 and above.

Table 2: Gender of Respondents

Gender	Frequency	Percent	ValidPercent	CumulativePercent
Female	180	49.3	49.3	49.3
Male	185	50.7	50.7	100.0
Total	365	100.0	100.0	

FieldWork,2026.

Table 2 shows that 180(49.3%) of the sampled respondents are female while 185(50.7%) are male.

Table 3: Marital Status

Marital Status	Frequency	Percent	ValidPercent	CumulativePercent
Single	90	24.7	24.7	24.7
Married	226	61.9	61.9	86.6
Widow/Widower	36	9.9	9.9	96.4
Separated/Divorced	13	3.6	3.6	100.0
Total	365	100.0	100.0	

Fieldwork, 2026

Table 3 shows that 90(24.7%) of the sampled respondents are single, 226(61.9%) are married, 36(9.9%) are widow/widower and13(3.6%) are divorced/separated.

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Table 4: Educational Level (Attain Tertiary education and not completed secondary education)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Masters/Higher Degree	57	15.6	15.6	15.6
	B.Sc./HND	94	25.8	25.8	41.4
	Primary/Secondary	214	58.6	58.6	100.0
	Total	365	100.0	100.0	

Fieldwork, 2026

Table 4 shows that 57(15.6%) of the sampled respondents has Masters/Higher Degree, 94(25.8%) has B.Sc./HND degree and 214(58.6%) has Primary/Secondary.

Analysis on Descriptive Statistical Outcome

To assess the extent to which formal education has influenced the attitudes of Epie indigenes toward traditional widowhood rites.

Table 5: Mean and Standard Deviation of Formal Education and Traditional Widowhood Rites

S/n	STATEMENT	SA (4)	A (3)	D (2)	SD (1)	Mean	SD	
1	People with formal education has increased awareness of the harmful hazard of practices of traditional widowhood rites	175	171	5	14	3.39	.705	Accept
2	People with formal education are more likely to recognise the harmful part of traditional widowhood rites	202	140	13	10	3.46	.697	Accept
3	People with formal education are more likely to recognize widowhood rites that violates human rights	145	115	69	36	3.01	.992	Accept
4	People with formal education are more likely to identify widowhood rites that cause psychological trauma	177	170	5	13	3.40	.695	Accept
5	Without formal education, most people will not question the harmful part of widowhood rites	201	143	11	10	3.47	.689	Accept
	Grand Mean					3.35		

Survey and Computation, 2026.

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The criterion value for taking decision is the summation of all the Likert scale ratings divided by the number of ratings: 4+3+2+1=10/4=2.5

The analysis of the data using mean and standard deviation from table 5 show that the grand mean score of responses from the statements on formal education and traditional widowhood rites related factors is 3.35 which is above the criterion mean of 2.5. This means that majority of respondents affirm that formal education has influenced the attitudes of Epie indigenes toward traditional widowhood rites in Bayelsa State Nigeria. Also, all the individual statements presented on formal education and traditional widowhood rites related factors were all confirmed to influence attitude of Epie indigenes on widowhood rites with mean values that are all above the criterion value of 2.5.

To examine if there is significant difference in attitudes toward widowhood practices between Epie indigenes who have attained tertiary education and those who have not completed secondary education.

Table 6: Mean and Standard Deviation of widowhood practices between Epie indigenes who have attained tertiary education and those who have not completed secondary education.

S/n	STATEMENT	SA(4)	A(3)	D(2)	SD(1)	Mean	SD	
6	Higher education influences how to Interpret traditional widowhood rites.	204	122	29	10	3.04	.941	Accept
7	My educational background helps me to critically evaluate widowhood rites.	219	118	7	21	3.01	.974	Accept
8	My level of education has exposed me to different cultural beliefs and practices.	145	107	84	29	3.47	.796	Accept
9	My educational background helps me critically evaluate widowhood rites.	94	73	160	38	2.61	.982	Accept
10	The more educated a person is, the less likely they are to fully support traditional widowhood rites.	145	111	8	23	3.42	.754	Accept
11	Education has changed my perception of harmful cultural practices.	92	74	169	30	2.62	.952	Accept
	Grand Mean					3.03		

Survey and Computation, 2026.

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The analysis of the data using mean and standard deviation from table 6 revealed that the grand mean score of responses from the statements on widowhood practices between Epie indigenes who have attained tertiary education and those who have not completed secondary education is 3.03 is above the criterion value of 2.5.

This affirms that majority of respondents are of the opinion that there is significant difference towards widowhood practices between Epie indigenes who have attained tertiary education and those who have not completed secondary education. Also, all the individual statements presented on the variables are all above the criterion value of 2.5 indicating significant differences.

To determine whether significant differences exist in attitudes toward widowhood rites based on respondents' level of education, gender and age

Table 7: Mean and Standard Deviation of attitudes toward widowhood rites based on respondents' level of education, gender and age

S/n	STATEMENT	SA (4)	A (3)	D (2)	SD (1)	Mean	SD	
12	Older people have better knowledge of the reasons behind widowhood rites than younger people	97	78	137	53	2.60	1.032	Accept
13	Education has changed my perception of harmful cultural practices.	184	136	21	24	3.32	.853	Accept
14	Being male or female shapes how education influences my view of widowhood rites.	219	118	7	21	3.47	.796	Accept
15	Educated people are less likely to support harmful widowhood rites	87	51	180	47	2.49	.993	Reject
16	Younger people should lead the movement to change harmful widowhood rites	198	126	19	22	3.37	.837	Accept
17	It is easier for younger people to reject widowhood rites than it is for older people	214	117	8	26	3.42	.847	Accept
	Grand Mean					3.11		

Computation, 2026.

The analysis of the data using mean and standard deviation from tables 7 revealed that the mean score of responses from the statements on attitudes toward widowhood rites based on respondents' level of education, gender and age 3.11 is above the criterion mean of 2.5. This is a confirmation that majority of respondents are of the opinion that the statements presented that respondents' level of education, gender and age influences attitudes toward widowhood rites. Also, all the statements presented on widowhood rites and respondents' level of education, gender and age were all confirmed to have mean values that are all above the criterion value of 2.5

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To assess whether gender moderates the relationship between educational attainment and attitudes toward widowhood rites.

Table 8: Mean and Standard Deviation of gender moderating the relationship between educational attainment and attitudes toward widowhood rites

S/n	STATEMENT	SA (4)	A (3)	D (2)	SD (1)	Mean	SD	
18	Men are more likely to support traditional widowhood rites than women.	149	112	80	24	3.06	.943	Accept
19	Gender influences how individuals perceive widowhood rites.	165	133	48	19	3.22	.864	Accept
20	Women are more likely than men to oppose harmful widowhood rites	198	126	19	22	3.37	.837	Accept
21	Cultural expectations based on gender affect attitudes toward widowhood practices.	211	120	7	27	3.41	.852	Accept
22	Men and women interpret widowhood rites differently in my community.	125	79	135	26	2.83	.985	Accept
	Grand Mean					3.178		

The result of the analysis of the data using mean and standard deviation from table 8 revealed that the mean score of responses from the statements on gender moderating the relationship between educational attainment and attitudes toward widowhood rites is 3.178 which is above the criterion mean of 2.5. This affirms that majority of respondents are of the opinion that gender moderates the relationship between educational attainment and attitudes toward widowhood rites. Also, all the individual statements presented on gender moderating the relationship between educational attainment and attitudes toward widowhood rites were all confirmed with mean values that are all above the criterion value of 2.5.

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Table 9. Test of Hypotheses

In order to structure the empirical investigation and render the study's findings testable, the following hypotheses are postulated:

Decision rule: In all statistical tools, reject null hypotheses if p-value is less than 0.05 significance level.

Hypothesis1

Ho1: There is no significant positive relationship between the level of formal education attained by Epie indigenes and the likelihood of their rejecting or modifying oppressive widowhood rites.

Table 9: Correlation between level of formal education attained and the likelihood of their rejecting or modifying oppressive widowhood rites.

		Formal education attained	Likelihood of their rejecting or modifying oppressive widowhood rites.
Formal education	Pearson Correlation	1	.790**
	Sig. (2-tailed)		.007
	N	365	365
Likelihood of their rejecting or modifying oppressive widowhood rites.	Pearson Correlation	.790**	1
	Sig. (2-tailed)	.007	
	N	365	365

**.Correlation is significant at the 0.05 level (2-tailed).

Source: Field Survey, 2026

The result of the Pearson's Product Moment Correlation Coefficient of .790 indicates that there is a significant positive relationship between the level of formal education attained by Epie indigenes and the likelihood of their rejecting or modifying oppressive widowhood rites. This implies that an improvement in the level of formal education result to the likelihood of their rejecting or modifying oppressive widowhood rites.

Ho2: There is no significant difference in attitude toward widowhood practices between Epie indigenes who have attained tertiary education and those who have not completed secondary education.

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Table10a: Educational Level and attitudes toward widowhood practices

Educational Level		Support the attitudes of Epie indigenes toward widowhood practices: Yes	No	Total
Attained tertiary education	Observed	27	158	185
	Expected	60.3	124.7	185.0
Have not completed secondary education.	Observed	92	88	180
	Expected	58.7	121.3	180.0
Total	Observed	119	246	365
	Expected	119.0	246.0	365.0

Table 10a shows the observed and expected frequencies of the responses of the relationship between those who had attained tertiary institution and those who have not completed secondary school with a yes or no response status. Out of a total of 185 respondents that have attained tertiary education, majority of 158 affirmed that there is significant difference in attitude toward widowhood practices between Epie indigenes who have attained tertiary education and those who have not completed secondary school while 27 said no to that hypothesis. Also, for respondent who have not completed secondary school, out of 180 total respondents, slight majority of 92 said yes to the hypothesis while 88 said no. Table 10b shows the Chi-square test of the table 10a above presenting the Chi-square calculated value and p-value that enables the researcher to draw conclusion based on the decision rule.

Table10b: Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	55.365[a]	1	.000
Likelihood Ratio	55.715	1	.000
Linear-by-Linear Association	.473	1	.000
Nof Valid Cases	365		

cells (0.0%) have expected count less than 5. The minimum expected count is 58.68. Computed only for a 2x2 table. The result of the Chi-Square test from table 10b above shows that the p-value = 0.000 is less than the level of significance (0.05), the null hypothesis was rejected and conclude that there is a relationship between educational level and attitude towards widowhood rites in Yenagoa, Bayelsa State.

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Ho_3: There is no significant differences in attitudes toward widowhood rites based on respondents' level of education, gender and age.

Table 11: ANOVAa

Model		Sum of Squares	df	MeanSquare	F	Sig.
1	Regression	19.981	3	6.660	39.926	.000[b]
	Residual	60.221	361	.167		
	Total	80.203	364			

a. Dependent Variable: No significant differences in attitudes toward widowhood rites

Predictors: (Constant), Age, Gender, Educational Level

The result of the ANOVA from Table 11 reveals that p-value 000 < 0.05 significance level. Therefore, based on the decision rule, the null hypothesis was rejected and the alternative hypothesis was accepted and conclude that there is significant differences in attitudes toward widowhood rites based on respondents' level of education, gender and age.

H_4: Gender has not significantly moderated the relationship between educational attainment and attitudes toward widowhood rites, with educated women exhibiting stronger opposition to oppressive practices than their male counterparts of equivalent educational level.

Table 12: Partial Correlation on the moderating effect of gender on the relationship between educational attainment and attitudes toward widowhood rites, with educated women exhibiting stronger opposition to oppressive practices than their male counterparts of equivalent educational level.

Control Variables			**Educational Attainment (EA)**	**Attitude (A)**	**Gender (G)**
-none-[a]	EA	Pearson's Correlation	1.000	.782**	.659**
		Significance (2-tailed)	.	.006	.006
		N	0	365	365
	A	Pearson's Correlation	.801**	1.000	.128**
		Significance (2-tailed)	.005	.	.005
		N	365	0	365
	G	Pearson's Correlation	.584**	.216**	1.000
		Significance (2-tailed)	.001	.001	.
		N	365	365	0
	EA	Pearson's Correlation	1.000	.584	
		Significance (2-tailed)	.	.005	
		N	0	365	365

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Gender (G)					
	A	Pearson's Correlation	.584***	1.000	
		Significance (2-tailed)	.005	.	
		N	365	**0**	365

a. Cells contain zero-order (Pearson) correlations
Source: Survey Data, 2026

Table 12 revealed from the result, the moderating influence of gender on the relationship between educational attainment and attitude toward widowhood rites, with educated women exhibiting stronger opposition to oppressive practices than their male counterparts of equivalent educational level.

The correlation between educational attainment, the predictor and attitude, criterion variables show a coefficient value of 0.782 where gender is not moderating which is a strong relationship. However, where gender is introduced, the correlation r value = 0.659 dropped slightly which is indication of the moderating effect of gender on the relationship between the variables which are also significant at P = 0.006 < 0.05. From the result the null hypothesis earlier stated is rejected. This means that gender has significant moderating effect on the relationship between educational attainment and attitude.

Cconclusion

The study shows that formal education has significant influence on traditional widowhood rites which is confirmed in the attitude differences toward widowhood practices. The study further confirmed that significant differences exist in attitudes toward widowhood rites based on respondents' level of education, gender and age with gender having a moderating effect on the relationship between educational attainment and attitudes toward widowhood rites. Tertiary education strongly influences attitude change towards widowhood practice. Educated women it was revealed among Epie indigene expressed strong disapproval towards harmful widowhood rites which necessitated rejection or modification of certain widowhood rites. The study affirm attitude change toward widowhood is outcome of the acquisition of formal education and modernization in Yenagoa.

Rrecommendations

Based on the findings of the study, the following are recommended

1. There should be proper scrutiny of the widowhood rites practices with necessary modifications or amendment made by the relevant authorities so as to expunge harmful parts of the practices.
2. Workshops and enlightenment campaigns should be conducted mostly in rural communities where the level of education is low so as to reduce the harmful practices associated with widowhood rites.
3. Traditional institution should accept the reality of formal education and modernity in Yenagoa to let go of harmful widowhood rites.

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4. Good accept of the widowhood rite should be retained, refined to be at per with modern realities

References

Adeyemi, K., & Olatunji, F. (2022). Women's organisations and the transformation of widowhood practices in Edo and Delta States. *Gender and Society in Africa*, 14(2), 88–107.

Adebayo, A. & Okoro, B. (2023). Advancement of the Ijaw ethnic nationality of Nigeria. *International Journal of Social Sciences and Management Research*. Wilberforce Island, Bayelsa State.

Akinwale, A. A. (2017). Education, cognitive liberation, and cultural change in Nigeria: A sociological analysis. *Journal of Nigerian Studies*, 6(1), 44–62.

Akinbi, J.O. (2011). Widowhood in some Nigerian societies: A retrospective examination. *International Journal of Humanities and Social Sciences.* 5(4),67-74

Adeyemi, C.W. (2016). Widowhood and its harmful practices: Causes, effects, and possible way out for widows and women folk. *World Journal of Educational Research,* 3 (2),380-387

Egbe, C., & Nwachukwu, P. (2020). Educational expansion and cultural modernisation in minority communities of southern Nigeria. *International Journal of Development Studies,* 9(3), 115–131.

Eteng, I., & Akpan, O. (2023). Human rights awareness, civic education, and widowhood rites in Akwa Ibom and Cross River States. *Nigerian Journal of Social Sciences,* 19(1), 55–74.

Eze, C. C. (2021). Strategic adaptation and the survival of traditional practices in southeastern Nigeria. *African Sociological Review,* 25(1), 31–50.

Kpae, G., & Igein, B. (2017). Widowhood rites and social change in Ijaw communities of Rivers and Bayelsa States. *Journal of Niger Delta Studies*, 3(2), 17–36.

Idialo, E.E. (2012). The inhuman treatment of widows in African communities. *Current Research Journal of Social Sciences*. 4 (1), 6-11

Madu, A., & Afolabi, K. (2019). Education and attitudes toward harmful traditional practices among Nigerian women: Evidence from the NDHS. *African Population Studies*, 33(2), 3440–3456.

Nwosu, C. O. (2018). Widowhood practices in Nigeria: Cultural function, social reproduction, and rights implications. *Journal of African Cultural Studies*, 30(3), 311–327.

Nzewi, E. N. (2015). Widowhood rites and gender oppression in southeastern Nigeria. *Journal of Women and Gender Studies*, 7(1), 63–79.

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Ocheni, S., & Nwankwo, B. C. (2015). Analysis of colonialism and its impacts in Africa. Cross-Cultural Communication, 8(3), 46–54.

Ubodiom, E., & Ifidi, B. E. (2025). The impact of widowhood practices on the social, psychological, and economic wellbeing of women in Epie-Land. International journal of African societies, culture and tradition. 13 (1), 133-143

Ogundele, K. (2019). Modernity without rupture: Cultural hybridisation and social change in sub-Saharan Africa. *Journal of African Studies*, 44(2), 198–216.

Okoro, S. N. (2018). Women's education and widowhood norms in the western Niger Delta: A survey study. *Bayelsa Journal of Social Sciences,* 2(1), 29–45.

Olatunji, B. A., & Afolabi, R. O. (2016). Education, generation, and widowhood practices among the Yoruba of southwestern Nigeria. *African Studies Review,* 59(3), 127–148.

Ugwu, C., & Ugwu, N. (2016). Social learning, cultural brokerage, and the transformation of harmful practices in southeastern Nigeria. *Journal of Culture and Development,* 4(2), 88–102.

UKR Publisher, (2024). Forgotten aspects of Epie culture. UKR Publisher, Bayelsa State.

Uche, R.D. (2015). Widowhood woes: The Bayelsa experience. *Journal Of Research in Education and Society.* 6(3), 45-56

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Islamic Appraisal of Contemporary Marriage Ceremony Practices and Innovations Among Muslims in Keffi LGA of Nasarawa State

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DOI : https://doi.org/10.5281/zenodo.22899848

Abstract
This study examines contemporary marriage ceremony practices and innovations among Muslims in Keffi Local Government Area (LGA) of Nasarawa State from an Islamic perspective. The research investigates the nature and extent of innovations introduced into marriage ceremonies by Muslims in the study area, evaluates these practices against the standard of Qur'anic injunctions and authentic Sunnah, and proposes Islamic-compliant recommendations for reforming marriage ceremonies. The study adopted a descriptive survey research design and conducted oral interviews with selected respondents in Keffi LGA. Findings revealed that contemporary Muslim marriage ceremonies in Keffi are increasingly characterized by extravagance, mixed-gender gatherings, musical entertainment, excessive bride price demands, and the importation of non-Islamic cultural practices. These innovations contradict the simplicity, modesty, and purity commanded by the Qur'an and Sunnah. The study concludes that many contemporary Muslim marriage practices in Keffi deviate significantly from Islamic standards and recommends urgent re-orientation through mosque-based education, community leadership engagement, and Islamic family counseling programs.

Keywords: *Marriage ceremony, Islamic marriage, walimah, bid'ah, Sunnah*

1.0 Introduction

Marriage in Islam is one of the most sacred institutions ordained by Allah as a means of establishing a righteous family, perpetuating the human race, and fostering love, mercy, and tranquility between spouses. The Qur'an describes this divine institution in profound terms:

وَمِنْ آيَاتِهِ أَنْ خَلَقَ لَكُم مِّنْ أَنفُسِكُمْ أَزْوَاجًا لِّتَسْكُنُوا إِلَيْهَا وَجَعَلَ بَيْنَكُم مَّوَدَّةً وَرَحْمَةً ۚ إِنَّ فِي ذَٰلِكَ لَآيَاتٍ لِّقَوْمٍ يَتَفَكَّرُونَ

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> And of His signs is that He created for you from yourselves mates that you may find tranquility in them; and He placed between you affection and mercy. Indeed, in that are signs for a people who give thought (Qur'an 30:21)

The Prophet Muhammad (peace be upon him) also emphasized the importance of marriage as a religious duty and a means of completing one's faith. Marriage in Islam, however, is not merely a social contract; it is a solemn covenant (mithaqan ghaliza) governed by clear Shari'ah principles that regulate its conditions, procedures, rights, and obligations. Central to these principles is the requirement that marriage ceremonies be conducted with simplicity, dignity, and adherence to Islamic ethics.

In contemporary Nigerian Muslim communities, however, particularly in Keffi LGA of Nasarawa State, marriage ceremonies have undergone significant transformation. Elaborate pre-wedding parties, extravagant bridal displays, mixed-gender celebrations, the integration of musical entertainment, and the imposition of excessive financial demands have become increasingly common practices. Many of these innovations lack any basis in Islamic law and may in fact contradict established Qur'anic injunctions and Prophetic guidance. Scholars have raised concerns that such practices represent a form of *bid'ah* (Deviation) and cultural infiltration that threaten the Islamic character of Muslim family life.

This study therefore appraises contemporary marriage ceremony practices and innovations among Muslims in Keffi LGA of Nasarawa State from an Islamic jurisprudential and ethical perspective. It seeks to identify specific deviant practices, evaluate them against Islamic standards, and propose practical recommendations for reform. The study contributes to the broader discourse on Islamic family law, cultural identity, and community-based religious reform in Muslim communities in central Nigeria.

2.0 Literature Review

2.1 Concept of Marriage (Nikah) in Islam

Islamic jurisprudence defines marriage (nikah) as a legal contract through which a man and woman become lawful spouses, establishing mutual rights and obligations under Shari'ah. The Qur'an refers to marriage as a solemn covenant: "How can you take it, while you have gone in unto each other, and they have taken from you a firm and strong covenant?" (Qur'an 4:21). Scholars such as Ibn Qudamah in his encyclopedic work Al-Mughni define nikah as a contract that legitimizes sexual relations and establishes the rights of both spouses, including nafaqah (maintenance), mahr (dower), and mutual respect (Ibn Qudamah, 3).

The pillars of valid Islamic marriage include: the offer (ijab) and acceptance (qabul), the presence of a guardian (wali), the presence of two Muslim witnesses, and the stipulation of a mahr (Bridal fee). The Prophet Muhammad emphasized simplicity in the marriage process:

> إِنَّ أَعْظَمَ النِّكَاحِ بَرَكَةً أَيْسَرُهُ مَؤُونَةً

> Verily, the most blessed marriage is the one with the least burden (expense) (Ahmad, Vol. 5, Hadith 24529)

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This hadith underscores the Islamic principle that marriage should be accessible, simple, and free from financial hardship. Excessive expenditure and elaborate ceremonies, unless conducted within the boundaries of permissibility, are therefore discouraged.

2.2 Concept of Walimah (Marriage Feast)

The walimah is the Islamic marriage feast held to publicize and celebrate a lawful marriage. It is regarded as a Sunnah mu'akkadah (confirmed prophetic practice) based on the following hadith:

أَوْلِمْ وَلَوْ بِشَاةٍ

> Hold a walimah feast, even if only with a single sheep. (Bukhari, vol. 7, Book 62, Hadith 97)

Classical scholars define the walimah as a meal served on the occasion of marriage, ideally within the first three days of the contract (Ibn Hajar, 199). While Islam encourages the walimah as a means of announcing the marriage and expressing gratitude, it sets clear boundaries: the food must be lawful (halal), the gathering must be free from prohibited entertainment, and gender mixing must be avoided. Extravagance in the walimah, to the point of showing off or burdening the family financially, is prohibited as it contradicts the Islamic principle of moderation (wasatiyyah).

2.3 Concept of Bid'ah (Blameworthy Innovation)

Bid'ah in Islamic jurisprudence refers to any introduced practice in religious or socially regulated matters that has no precedent in the Qur'an, Sunnah, or scholarly consensus. The Prophet Muhammad warned:

كُلَّ بِدْعَةٍ ضَلَالَةٌ وَكُلَّ ضَلَالَةٍ فِي النَّارِ

> Every innovation is misguidance, and every misguidance leads to the Fire. (Muslim, vol. 2, Book 4, Hadith 1885)

Scholars differentiate between bid'ah that corrupts acts of worship (bid'ah diniyyah) and social innovations (bid'ah 'urfiyyah or 'adiyyah). Contemporary marriage innovations that introduce prohibited elements such as mixing of sexes, musical instruments, or imitation of non-Islamic cultures fall within the category of blameworthy innovations that Muslim communities are obligated to address and eliminate (Al-Qaradawi, 276).

2.4 Review of Previous Studies

1. Islamic Marriage Customs and Cultural Practices in Nigeria

Ibrahim Aliyu Gusau, (2020), examines the tension between authentic Islamic marriage procedures and cultural practices in Sokoto, Kebbi, and Zamfara states. He observes that excessive dowry demands, extended pre-wedding ceremonies, and gender-mixed celebrations have become normalized in Muslim communities, in direct contradiction to Prophetic teachings on simplicity. He further argues that the absence of proper Islamic education has allowed cultural traditions to displace Sunnah-compliant practices (Gusau 44). This study is relevant because it

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establishes a pattern of cultural infiltration of Muslim marriage ceremonies in northern Nigeria, though it does not address central Nigeria or Nasarawa State specifically.

2. Walimah and Its Contemporary Deviations in Muslim Communities

Abubakar Sadiq Abdullahi, (2021), investigates specific prohibited innovations that have entered the walimah in Kaduna. He identifies the use of musical instruments, mixed-gender seating, the display of women for entertainment, and competitive ostentation as the most prevalent deviations. He concludes that many Muslims in Kaduna have lost sight of the Sunnah of walimah, replacing it with a culturally-driven celebration that imitates non-Islamic practices (Abdullahi 89). This study is highly relevant to the present research, though its focus on Kaduna State and urban Muslims limits its applicability to the semi-urban context of Keffi.

3. Mahr and Its Manipulation in Contemporary Nigerian Muslim Marriages

Fatimah Lawal Mohammed, (2022), examines how the mahr has been transformed from a simple gift into an instrument of social competition and financial burden. She argues that excessive mahr demands delay marriages, increase rates of unmarried youth, and contradict the Prophetic teaching that the most blessed marriages are those with the least financial burden (Mohammed 112). This study aligns with the current research in highlighting the financial dimension of contemporary marriage innovations.

4. Gender Mixing in Muslim Wedding Celebrations

Suleiman Yusuf Usman, (2023), examines the practice of mixed-gender wedding parties in Lafia and Akwanga and evaluates it from a Shari'ah perspective. He concludes that gender mixing in wedding celebrations constitutes a clear violation of Qur'anic and Hadith directives on gender relations, and argues that community leaders must take active steps to enforce Islamic standards (Usman 37). This study is highly relevant to the present research and establishes a direct regional context for the phenomenon under study.

5. Islamic Reform of Marriage Ceremonies in Muslim Societies

Bashir Ibrahim Salisu, 2024), investigates the prospects for reforming deviant marriage practices in Nasarawa State through mosque-based education, Islamic counseling, and community leadership. He argues that sustainable reform requires a multi-layered approach involving scholars, parents, community leaders, and young Muslims themselves, and that without concerted effort, deviant marriage innovations will continue to spread (Salisu 62). This study is the most directly related to the present research and provides a valuable baseline for evaluating reform efforts in Keffi LGA specifically.

2.5 Theoretical Framework

2.5.2 ʿ*Urf* Theory

ʿ**Urf**, refers to established customs, conventions and practices recognised within a particular society. In Islamic jurisprudence, customary practice can have legal consideration where it does not contradict an explicit provision of the Qurʾān and Sunnah or an established principle of Sharīʿah. This perspective is particularly significant to the present study because marriage ceremonies among Muslims in Keffi LGA are influenced by a combination of Islamic teachings, indigenous customs and contemporary social developments. The jurisprudential principle

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concerning custom, however, does not mean that every popular practice is Islamically valid. A custom cannot override a clear Islamic prohibition or transform an unlawful practice into a lawful one merely because it has become socially accepted. Thus, an established custom may be recognised when it is compatible with Sharīʿah, does not contradict a clear textual ruling, does not cause recognised harm and does not involve an element that Islam has prohibited. Ibn al-Qayyim's discussion of changes in customs, circumstances and circumstances of people demonstrates the importance of considering contextual realities in legal application while maintaining the principles of Sharīʿah (Ibn al-Qayyim 3:14).

Applied to this study, ʿUrf Theory provides a basis for distinguishing **legitimate cultural adaptation from religiously unacceptable innovation**. For example, particular styles of traditional dress, culturally specific foods, family introduction ceremonies, methods of presenting gifts and culturally appropriate forms of wedding hospitality may be examined as customary practices rather than automatically classified as religious innovations. Their acceptability would depend upon their conformity with Islamic principles. Through ʿUrf, the study can critically examine contemporary practices within their cultural context and determine whether they constitute **valid customary practices (*ʿurf ṣaḥīḥ*) or unacceptable customs (*ʿurf fāsid*)**.

3.0 Research Methodology

This study adopted a descriptive survey research design in order to systematically examine contemporary marriage ceremony practices and innovations among Muslims in Keffi LGA of Nasarawa State. This design was considered appropriate because it allowed the researcher to collect, describe, and analyze data as they naturally existed without manipulating any variables.

The study relied on both primary and secondary sources of data. Primary data were obtained through the Qur'an, authentic Sunnah (Hadith), and oral interviews conducted with fifteen (15) purposively selected respondents in Keffi LGA. Respondents included Islamic scholars, married Muslim men and women, community elders, and Islamic organization representatives. Interviews were conducted between January and March 2026, some were audio-recorded with the consent of respondents, transcribed, and analyzed thematically in line with the objectives of the study. To ensure analytical clarity, participants are referred to by coded identifiers (Scholar A, Elder B, etc.) in the body of the paper; their full details are documented in the Table of Interviewees appended at the end of this study.

Secondary data were obtained from the Qur'an, Hadith compilations, classical Islamic jurisprudential texts, and contemporary academic literature on Islamic marriage law and community practices in Nigeria. The qualitative data obtained were analyzed using thematic content analysis, guided by the Islamic jurisprudential framework of the Qur'an and Sunnah.

4.0 Data Presentation, Analysis, and Results

4.1.1 Extravagance and Financial Excess in Contemporary Marriage Ceremonies

Field data obtained through oral interviews revealed that extravagance in marriage ceremonies has become one of the most pervasive and deeply entrenched innovations among Muslims in Keffi LGA. Islamic scholars, community elders, and married respondents consistently identified

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excessive spending on pre-wedding parties, bridal decorations, elaborate wedding outfits, and expensive venues as major characteristics of contemporary Muslim marriages in the study area.

In an interview with Scholar A (an Islamic scholar in Keffi), it was disclosed that many Muslim families in Keffi now spend enormous sums of money on weddings, sometimes taking loans or selling assets to fund ceremonies that last several days. He observed that this behavior directly contradicts the Prophetic teaching that the most blessed marriages are those with the least financial burden. He noted that young people feel social pressure to match the extravagance of peers, creating a competitive culture that has replaced the simplicity commanded by Islam.

Elder B (a community elder and marriage coordinator) corroborated this view, explaining that families frequently prioritize ostentatious display over spiritual preparation, allocating large budgets to catering, decorations, and entertainment while neglecting the religious dimensions of the marriage contract. He expressed concern that many young couples begin their married lives burdened with debt incurred from wedding expenses.

The Qur'an explicitly prohibits extravagance and wasteful spending:

وَلَا تُبَذِّرْ تَبْذِيرًا ۝ إِنَّ الْمُبَذِّرِينَ كَانُوا إِخْوَانَ الشَّيَاطِينِ

> And do not spend wastefully. Indeed, the wasteful are brothers of the devils.
>
> (Qur'an 17:26-27)

This verse establishes the Islamic prohibition on extravagance, which classical scholars apply broadly to wedding expenditures that exceed reasonable limits (Al-Qurtubi, 247).

4.1.2 Mixed-Gender Gatherings and Prohibited Entertainment

A second prominent innovation identified in the study is the practice of holding mixed-gender wedding celebrations, accompanied by musical entertainment, dancing, and the display of women before men who are not their mahram (unmarriageable kin). Fifteen Respondents across all categories confirmed that gender mixing in wedding ceremonies has become normalized in Keffi, with many families hosting joint celebrations for men and women in the same hall or space.

Scholar C (an Islamic scholar) explained that gender mixing in wedding gatherings opens the door to fitnah (temptation and moral corruption) and directly violates Islamic principles of gender interaction. He cited the following Qur'anic directive:

قُل لِّلْمُؤْمِنِينَ يَغُضُّوا مِنْ أَبْصَارِهِمْ وَيَحْفَظُوا فُرُوجَهُمْ ۚ ذَٰلِكَ أَزْكَىٰ لَهُمْ

> Tell the believing men to lower their gaze and guard their private parts. That is purer for them. (Qur'an 24:30)

Scholar C noted that the presence of women in mixed settings, combined with musical entertainment and dancing, makes the observance of this Qur'anic command practically impossible. He emphasized that Islam permits rejoicing at weddings through the permissible beating of the duff (hand drum) and vocal nasheeds (Islamic songs), but that the introduction of musical instruments, DJ sets, and mixed dancing constitutes a clear violation of Islamic law.

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Respondent D (a married Muslim woman) stated that she herself felt uncomfortable at mixed wedding celebrations but attended due to social pressure and fear of being perceived as extreme. This suggests that many Muslims recognize the deviation but feel unable to challenge it due to cultural and social norms.

4.1.3 Excessive Mahr Demands and Financial Barriers to Marriage

Interviews further revealed that the mahr (dower) which Islam prescribes as a gift from the groom to the bride has been inflated into a competitive financial instrument in Keffi, with bride prices far exceeding what is reasonable or practicable for young Muslim men. Scholar E (an Islamic scholar and marriage officiant) explained that families now use the mahr as a means of social signaling and wealth display, demanding amounts that delay marriages and cause hardship for eligible young men.

The Prophet Muhammad explicitly encouraged simplicity in mahr:

خَيْرُ الصَّدَاقِ أَيْسَرُهُ

> The best mahr is the simplest (most affordable). (Abu Dawud, vol. 2, Book 11, Hadith 2117)

Elder F (a community elder) confirmed that many young Muslim men in Keffi are unable to marry due to financial demands that go far beyond the prescribed mahr, including compulsory gifts to the bride's family, multiple engagement ceremonies, and the expectation of elaborate hospitality. He noted that this situation has contributed to delayed marriages, increased rates of pre-marital relationships, and moral decline among Muslim youth.

4.1.4 Importation of Non-Islamic Cultural Practices

A fourth category of innovation identified in the interviews is the adoption of cultural practices from non-Islamic traditions including the Western-style bridal gown, matching outfits for bridal parties, exchange of wedding rings as a symbol of commitment, and the holding of pre-wedding photography sessions involving the mixing and posing of the bride and groom before the marriage contract. Scholar G (an Islamic scholar) observed that the exchange of wedding rings, though outwardly harmless, has its origin in Christian religious symbolism and is not part of Islamic tradition. He expressed concern that Muslims in Keffi are adopting these symbols without understanding their origins.

The Prophet Muhammad warned against the imitation of non-Muslim practices:

مَنْ تَشَبَّهَ بِقَوْمٍ فَهُوَ مِنْهُمْ

> Whoever imitates a people is one of them. (Abu Dawud, vol. 4, Book 34, Hadith 4031)

This hadith has been interpreted by scholars as a warning against the wholesale adoption of non-Islamic cultural symbols, especially those carrying religious or ideological significance (Ibn Taymiyyah, 83). Respondent H (a young married Muslim) acknowledged that wedding ring exchanges and Western-style photographs had become standard in Keffi Muslim weddings,

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noting that they are now considered a marker of social respectability rather than a religious concern.

4.1.5 Neglect of the Religious Dimensions of the Marriage Contract

A fifth finding of the study is the widespread neglect of the religious dimensions of nikah in contemporary marriage ceremonies in Keffi. Ten respondents reported that the actual nikah contract which requires an offer and acceptance, a wali, two witnesses, and the payment of mahr is increasingly treated as a brief formality before the main social event, rather than the central act of the marriage. Imam I (a mosque Imam and marriage officiant) expressed concern that couples and their families spend weeks planning social celebrations but invest little time in Islamic marriage education, pre-marital counseling, or understanding of their rights and obligations under Shari'ah.

The Qur'an describes marriage as a solemn covenant:

وَكَيْفَ تَأْخُذُونَهُ وَقَدْ أَفْضَىٰ بَعْضُكُمْ إِلَىٰ بَعْضٍ وَأَخَذْنَ مِنكُم مِّيثَاقًا غَلِيظًا

> How can you take it while you have gone in unto each other, and they have taken from you a firm and strong covenant? (Qur'an 4:21)

Ibn Kathir interprets this verse as a reminder that marriage is one of the most binding covenants in human life and must be approached with solemnity, preparation, and sincere intention (Ibn Kathir, 469). The reduction of nikah to a brief ceremony overshadowed by social entertainment therefore represents a fundamental misunderstanding of the Islamic conception of marriage.

4.2 Data Analysis

Extravagance Contrary to Maqasid al-Shari'ah

The finding that extravagance pervades Muslim marriage ceremonies in Keffi was analyzed in light of the Maqasid al-Shari'ah (objectives of Islamic law), which include the preservation of wealth (hifz al-mal). Al-Ghazali argues that Islam mandates the responsible stewardship of wealth and prohibits its consumption in ways that bring no genuine benefit (Al-Ghazali, 84). The practice of spending lavishly on weddings especially when financed through loans directly violates this objective and exposes new families to financial vulnerability.

Gender Mixing as Violation of Islamic Ethics (Adab)

Mixed-gender gatherings at wedding celebrations were analyzed against the Islamic concept of adab (ethical conduct in social interaction). Al-Qaradawi emphasizes that gender mixing in contexts involving music, dancing, and adornment creates conditions for moral corruption and is classified as haram (prohibited) under Islamic law (Al-Qaradawi, 154). The normalization of this practice in Keffi reflects a gradual erosion of Islamic social boundaries driven by cultural assimilation.

Mahr Inflation as Social Oppression (*Zulm*)

The inflation of mahr and bride price demands was analyzed against the Islamic prohibition of zulm (oppression and injustice). The Prophet's teaching that the most blessed marriage is that

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with the least burden makes excessive financial demands a form of social injustice that closes the door of marriage to young Muslims (Ibn Majah, vol. 3, Hadith 1887). Al-Qaradawi argues that mahr inflation contradicts the Islamic objective of facilitating marriage as a means of preserving moral purity (Al-Qaradawi, 181).

Cultural Imitation as Threat to Islamic Identity

The adoption of non-Islamic cultural symbols was analyzed in light of the Islamic principle of al-wala' wal bara' (loyalty to Islamic values and disavowal of harmful innovations). Ibn Taymiyyah's classical argument in Iqtida' al-Sirat al-Mustaqim establishes that adopting the symbols and rituals of other religious communities weakens Islamic identity and may constitute a form of religious compromise (Ibn Taymiyyah, 91).

Marginalization of Nikah as Spiritual Diminishment

The marginalization of the nikah contract in favor of social entertainment was analyzed against the Islamic concept of 'ibadah (worship). Scholars categorize nikah as an act of worship when performed with correct intention and adherence to Sunnah (Ibn Qayyim al-Jawziyyah, 166). Reducing it to a brief formality therefore represents not merely a social failing but a spiritual impoverishment that weakens the foundation of the Muslim family.

4.3 Findings

1. Widespread Financial Excess and Its Consequences

The study found that extravagance in marriage ceremonies is pervasive among Muslims in Keffi LGA, consistent with findings in Gusau (2020) and Mohammed (2022) for northern Nigerian Muslim communities. The consequences extend beyond the financial: the burden of wedding debt strains new marriages, increases family tensions, and deprives communities of resources that could be used for education, health, or productive enterprise. From an Islamic perspective, this finding calls for urgent community-based re-education on the Sunnah of simplicity in marriage.

2. Gender Mixing and Moral Implications

Mixed-gender wedding gatherings were identified as a normative feature of contemporary Muslim marriages in Keffi, consistent with Usman's (2023) findings for other North-Central Nigerian communities. The combination of gender mixing with musical entertainment significantly elevates the risk of moral harm and represents one of the most serious departures from Islamic standards identified in this study. The reluctance of Muslims to challenge this practice due to social pressure suggests that reform must address not only individual behavior but also community-level norms and expectations.

3. Mahr Inflation and the Crisis of Marriage Access

The inflation of mahr and associated financial demands echoes Mohammed's (2022) findings on mahr inflation in northeastern Nigeria and reflects a pan-Nigerian Muslim challenge. The consequences delayed marriages, increased moral risk, and financial hardship for families are well-documented in the literature and confirmed by this study's field data. Reform requires both

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Islamic education on the simplicity of mahr and community leadership intervention to establish reasonable norms.

4. Cultural Imitation and Islamic Identity

The adoption of non-Islamic wedding symbols, while often perceived as harmless social fashion, reflects a deeper process of cultural assimilation that gradually weakens Islamic identity. This finding aligns with Gusau's (2020) observation of cultural displacement of Islamic marriage practices in northern Nigeria. It underscores the need for Islamic scholars to proactively address the Islamic position on cultural symbols in wedding ceremonies through public education and community dialogue.

5. Neglect of Nikah and the Need for Pre-Marital Education

The finding that the nikah contract is increasingly treated as a formality is particularly concerning, as it reflects a weakening understanding of the religious significance of marriage among Muslims in Keffi. This supports Salisu's (2024) recommendation for structured Islamic pre-marital education programs as a cornerstone of marriage ceremony reform in Nasarawa State.

5.0 Conclusion

This study examined contemporary marriage ceremony practices and innovations among Muslims in Keffi LGA of Nasarawa State from an Islamic perspective. Based on findings from field interviews with fifteen (15) respondents and analysis grounded in the Qur'an, Sunnah, and classical Islamic scholarship, the study concludes that contemporary Muslim marriage ceremonies in Keffi are significantly characterized by practices that deviate from Shari'ah standards. These deviations including extravagance, gender mixing, mahr inflation, cultural imitation, and marginalization of the nikah reflect the combined influence of cultural transformation, weakened Islamic education, and social conformism. They contradict the Islamic values of simplicity, modesty, dignity, and spiritual purposefulness that the Prophet Muhammad modeled in his own marriage ceremonies and that of his Companions. The study affirms that sustained reform is both necessary and achievable through coordinated efforts between Islamic scholars, community leaders, mosque institutions, and Muslim families in Keffi LGA.

6. Recommendations

1. Mosques, Islamic scholars, and the Nasarawa State Council of Ulama should institutionalize regular pre-marital education programs for young Muslims in Keffi LGA, covering the Sunnah of nikah, the rights of spouses, the proper conduct of walimah, and the Islamic prohibition of extravagance and gender mixing in wedding ceremonies.

2. Community elders, marriage coordinators, and families should collectively establish reasonable and publicly declared standards for mahr and wedding expenditure in Keffi LGA, drawing on Prophetic guidance that the most blessed marriages are those with the least financial burden, in order to reduce financial pressure on young Muslim men and their families.

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3. Islamic organizations, da'wah groups, and mosque committees should launch sustained public awareness campaigns through Friday sermons, community lectures, and Islamic media educating Muslims in Keffi on the prohibition of gender mixing, musical entertainment, and the imitation of non-Islamic cultural practices in wedding ceremonies.
4. Muslim families and community leaders should reassert the centrality of the nikah contract in marriage celebrations, ensuring that adequate time, preparation, and spiritual intentionality are devoted to the marriage contract itself, rather than allowing it to be overshadowed by social entertainment and extravagant displays.
5. Government agencies, Islamic institutions, and relevant civil society organizations should collaborate in developing and disseminating simplified Islamic marriage guides in Hausa and English for Muslim communities in Keffi LGA and across Nasarawa State, promoting awareness of Shari'ah-compliant marriage practices among young Muslims.

Works Cited

Abdullahi, Abubakar Sadiq. "Contemporary Deviations in the Practice of Walimah among Muslims in Kaduna State." Al-Hikmah Journal of Islamic Studies, vol. 12, no. 2, 202.

Abu Dawud, Sulayman ibn al-Ash'ath. Sunan Abi Dawud. Translated by Ahmad Hasan, Dar al-Fikr, n.d.

Ahmad ibn Hanbal. Musnad Ahmad. Dar al-Hadith, n.d.

Al-Bukhari, Muhammad ibn Isma'il. Sahih al-Bukhari. Translated by Muhammad Muhsin Khan, Dar al-Salam, n.d.

Al-Ghazali, Abu Hamid. Ihya Ulum al-Din. Dar al-Ma'rifah, n.d.

Al-Qaradawi, Yusuf. The Lawful and the Prohibited in Islam. American Trust Publications, 1994.

Al-Qurtubi, Muhammad ibn Ahmad. Al-Jami' li Ahkam al-Qur'an. Dar al-Kutub al-Misriyyah, n.d.

Gusau, Ibrahim Aliyu. "Islamic Marriage Practices and Cultural Innovations among Muslims in Northwestern Nigeria." Journal of Islamic Studies and Culture, vol. 8, no. 1, 2020.

Ibn Hajar al-'Asqalani. Fath al-Bari Sharh Sahih al-Bukhari. Dar al-Ma'rifah, n.d.

Ibn Kathir, Isma'il ibn 'Umar. Tafsir al-Qur'an al-'Azim. Dar al-Fikr, n.d.

Ibn Majah, Muhammad ibn Yazid. Sunan Ibn Majah. Dar al-Fikr, n.d.

Ibn Qayyim al-Jawziyyah. Zad al-Ma'ad fi Hady Khayr al-'Ibad. Mu'assasat al-Risalah, n.d.

_____ *Iʿlām al-Muwaqqiʿīn ʿan Rabb al-ʿĀlamīn*. Dār Ibn al-Jawzī, 2002.

Ibn Qudamah, Muwaffaq al-Din. Al-Mughni. Dar al-Fikr, n.d.

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Ibn Taymiyyah, Ahmad ibn Abd al-Halim. Iqtida' al-Sirat al-Mustaqim li-Mukhalafat Ashab al-Jahim. Dar al-Kutub al-'Ilmiyyah, n.d.

Mohammed, Fatimah Lawal. "Mahr Inflation and Its Social Consequences among Muslims in Northeastern Nigeria." Journal of Islamic Law and Society, vol. 5, no. 3, 2022.

Muslim ibn al-Hajjaj. Sahih Muslim. Translated by Abdul Hamid Siddiqi, Dar al-Salam, n.d.

Salisu, Bashir Ibrahim. "Re-Islamizing Muslim Marriage Ceremonies: Challenges and Prospects in Nasarawa State." African Journal of Islamic Studies, vol. 6, no. 2, 2024.

Usman, Suleiman Yusuf. "Prohibition of Gender Mixing in Islamic Marriage Ceremonies: A Study of Muslim Communities in North-Central Nigeria." Nasarawa Journal of Islamic and Civilizational Studies, vol. 3, no. 1, 2023.

Table of Interviewees

S/N	Name	Age	Address	Category/Occupation	Date of Interview
1	Malam Adam Abdullahi	58	Tudun Wada, Keffi	Islamic Scholar	15 Jan 2026
2	Hajiya Fatima Sule	45	Angwan Rimi, Keffi	Married Muslim Woman / Community Member	15 Jan 2026
3	Alhaji Ibrahim Musa	62	Sabon Layi, Keffi	Community Elder / Marriage Committee Member	20 Jan 2026
4	Mallam Saeed Abdullahi	40	Angwan Kaura, Keffi	Islamic Scholar / Da'wah Coordinator	20 Jan 2026
5	Hajiya Aisha Garba	38	Angwan Makera, Keffi	Married Muslim Woman / Bride's Relative	27 Jan 2026
6	Officer Tukur Sani	44	Kadarko, Keffi	Civil Servant / Community Member	27 Jan 2026
7	Imam Haruna Yakubu	55	Angwan Jaba, Keffi	Mosque Imam / Marriage Officiator	03 Feb 2026
8	Mallam Salihu Garba	36	Sabon Gari, Keffi	Islamic Youth Leader / Graduate	03 Feb 2026
9	Hajiya Maryam Bello	50	Angwan Lambu, Keffi	Married Muslim Woman / Mother	10 Feb 2026
10	Alhaji Musa Abdulkadir	65	Angwan Mada, Keffi	Community Elder / Retired Civil Servant	10 Feb 2026
11	Mallam Bashir Ibrahim	47	Tudun Wada, Keffi	Islamic Scholar / Writer	17 Feb 2026

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12	Hajiya Zainab Usman	42	Angwan Rimi, Keffi	Married Muslim Woman / Trader	17 Feb 2026
13	Alhaji Sulaiman Nura	60	Sabon Layi, Keffi	Community Elder / Marriage Coordinator	24 Feb 2026
14	Mallam Idris Salisu	33	Angwan Kaura, Keffi	Young Married Muslim / Teacher	24 Feb 2026
15	Hajiya Ramatu Adamu	48	Angwan Makera, Keffi	Married Muslim Woman / Nurse	03 Mar 2026

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Inclusion Practices and Employee Job Satisfaction in Ibadan Electricity Distribution Company (IBEDC), Oyo State, Nigeria

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DOI : https://doi.org/10.5281/zenodo.22900057

Abstract
This study examined inclusion practices and employee job satisfaction in Ibadan Electricity Distribution Company (IBEDC), Oyo State, Nigeria. The study specifically assessed the level of employee satisfaction with inclusion initiatives and investigated the effect of inclusion practices on employee job satisfaction. A quantitative research design was adopted, and data were collected through structured questionnaires administered to a sample of 175 employees drawn from a population of 750 using the Yamane sampling technique. Data were analyzed using descriptive statistics and simple linear regression analysis.

Findings revealed that employees generally reported moderate to high satisfaction with inclusion initiatives, particularly in areas such as feeling included, supportive work environment, and sense of belonging, although gaps were observed in opportunities for career growth and consistency of implementation across departments. Regression results indicated that inclusion practices have a significant positive effect on employee job satisfaction ($\beta = 0.645$, $p < 0.05$), explaining 42.1% of the variation in job satisfaction ($R^2 = 0.421$). This implies that improved inclusion practices lead to higher levels of employee job satisfaction in the organization.

The study concludes that inclusion practices are a strong predictor of employee job satisfaction in IBEDC, and effective implementation of inclusion policies enhances employee morale, engagement, and workplace commitment. It recommends that management should strengthen inclusive leadership practices, improve career development opportunities, and ensure consistent implementation of inclusion policies across all departments.

Keywords: Inclusion Practices; Employee Job Satisfaction; Organizational Inclusion; Workplace Diversity; Ibadan Electricity Distribution Company

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Introduction

In contemporary organizational management, inclusion practices have become a central component of human resource strategy, particularly in utility organizations where workforce diversity is high and service delivery depends on coordinated employee effort. Inclusion refers to the extent to which employees feel valued, respected, and integrated into organizational decision-making processes regardless of their demographic or occupational differences. In recent years, organizations have increasingly recognized that beyond diversity representation, the real value lies in creating an inclusive environment where all employees experience belongingness and equal opportunity to contribute effectively (Shore et al., 2022; Nishii & Rich, 2022).

Globally, inclusion practices such as fair treatment, participatory decision-making, equitable promotion systems, and supportive leadership have been linked to improved employee outcomes, particularly job satisfaction and engagement. Studies have shown that employees who perceive high levels of inclusion are more likely to exhibit positive work attitudes, higher motivation, and stronger organizational commitment (Randel et al., 2020; Roberson, 2021). This is largely explained through social exchange perspectives, which suggest that employees reciprocate perceived organizational support with improved attitudes and performance (Cropanzano et al., 2017; Kim & Park, 2020).

In the Nigerian context, public and utility organizations have increasingly adopted inclusion policies; however, implementation remains inconsistent across sectors. Electricity distribution companies, in particular, operate in a complex work environment characterized by technical demands, customer interface pressures, and organizational restructuring. Within such environments, inclusion practices are expected to play a critical role in enhancing employee morale and job satisfaction, thereby improving service delivery outcomes (Micah, 2022; Micah, 2023). Despite these expectations, many employees still report issues relating to unequal treatment, limited participation in decision-making, and inadequate communication of organizational policies, which may negatively affect job satisfaction.

Specifically, in the Ibadan Electricity Distribution Company (IBEDC), Oyo State, there are indications that inclusion practices exist in the form of diversity policies, training programs, and formal grievance mechanisms. However, the extent to which employees experience these practices as meaningful and satisfactory remains unclear. Preliminary observations suggest that while management may have introduced inclusion frameworks, employees' perceptions of fairness, belongingness, and involvement may differ across departments and job levels. This gap between policy formulation and employee experience creates a concern regarding the effectiveness of inclusion strategies in achieving desired human resource outcomes.

Furthermore, empirical studies in similar organizational settings have shown mixed findings regarding the relationship between inclusion and job satisfaction. While some research reports strong positive associations, others suggest that inclusion practices may not automatically translate into satisfaction unless supported by consistent leadership commitment and organizational culture alignment (Ozbilgin et al., 2021; Sabharwal, 2021). In Nigeria, studies such as Micah (2021) and Micah (2023) have emphasized that employee perceptions of fairness, respect, and inclusion significantly influence job satisfaction and overall productivity, particularly in public utility organizations.

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Despite these contributions, there remains a contextual and sectoral gap in understanding how inclusion practices influence job satisfaction within electricity distribution companies in Oyo State, particularly IBEDC. Most existing studies have focused broadly on diversity management or general organizational performance, with limited attention to employee satisfaction outcomes in utility-specific environments. This study therefore seeks to fill this gap by examining the level of employee satisfaction with inclusion initiatives and investigating the effect of inclusion on job satisfaction in IBEDC, Oyo State. By addressing this gap, the study aims to provide empirical evidence that will assist management in strengthening inclusion strategies, improving employee morale, and enhancing organizational effectiveness in service delivery

The main objective of this study is to examine inclusion practices and employee job satisfaction in Ibadan Electricity Distribution Company (IBEDC), Oyo State, Nigeria. Specifically, the study seeks to: Assess the level of employee satisfaction with inclusion initiatives in IBEDC, Oyo State, Nigeria, and to investigate the effect of inclusion practices on employee job satisfaction in IBEDC, Oyo State, Nigeria.

Literature Review

Conceptual Clarifications

Inclusion practices: This refers to organizational policies and behaviors that make employees feel **valued, respected, accepted, and involved** in the workplace. While Employee job satisfaction refers to how positively employees feel about their jobs (Alghofeli, Bayaba, Alsabban & Badahal, 2024).

Generally, **effective inclusion practices improve employee job satisfaction**. Practices such as fair treatment, equal opportunities, employee participation, recognition, supportive leadership, and freedom from discrimination can strengthen employees' sense of belonging and value. Through **social exchange theory**, employees who receive positive and fair treatment are likely to respond with positive attitudes toward their jobs. Overall, organizations that promote an inclusive work environment are more likely to have satisfied employees (Alghofeli, Bayaba, Alsabban & Badahal, 2024).

Empirical Review

Empirical studies on inclusion practices and employee job satisfaction have gained increasing attention in organizational behaviour and human resource management research. This is due to the growing recognition that inclusion goes beyond diversity representation to the extent employees feel valued, respected, and integrated into organizational systems. The review is structured in line with the study objectives: (i) employees' satisfaction with inclusion initiatives, and (ii) the effect of inclusion practices on employee job satisfaction.

Employee Satisfaction with Inclusion Initiatives

Recent empirical evidence suggests that employees' satisfaction with inclusion initiatives is largely dependent on how visible, consistent, and fairly implemented such initiatives are within organizations. Shore et al. (2022) emphasize that inclusive workplaces are characterized by fairness, belongingness, and psychological safety, which directly influence employees' positive

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evaluation of organizational policies. Their review established that employees who perceive inclusion policies as genuine rather than symbolic tend to report higher satisfaction levels.

Similarly, Nishii and Rich (2022) found that inclusive organizational climates significantly shape employee perceptions of fairness and respect. Their study across multiple organizational settings revealed that employees were more satisfied with inclusion initiatives when leadership actively demonstrated inclusive behaviours, such as equitable decision-making and open communication. This suggests that inclusion satisfaction is not only policy-driven but also behaviour-driven. In a related study, Roberson (2021) highlighted that employees often evaluate inclusion initiatives based on lived experiences rather than formal policy documentation. The study found that gaps between policy intent and workplace reality often lead to dissatisfaction, especially where employees perceive inequality in access to opportunities or participation in decision-making processes. This finding is particularly relevant in structured utility organizations where hierarchical systems may limit employee participation.

Within the Nigerian context, Micah (2021) investigated diversity management practices and employee perception of fairness in selected organizations. The study revealed that while formal inclusion policies existed, employees' satisfaction was moderate due to inconsistent implementation. Employees reported higher satisfaction in units where communication and supervisory fairness were strong. This aligns with the argument that inclusion satisfaction is strongly influenced by managerial behaviour and organizational transparency.

Further supporting this, Micah (2023) examined workplace inclusion and respect culture in public utilities and found that employees' satisfaction with inclusion initiatives was significantly shaped by organizational respect systems. The study concluded that respect-driven cultures improved employees' perception of inclusion, particularly where management demonstrated fairness and responsiveness to employee concerns. Ozbilgin et al. (2021) also noted that inclusion satisfaction is strongly influenced by organizational culture. Their review emphasized that organizations with inclusive cultures tend to report higher employee satisfaction due to reduced discrimination and increased psychological safety. Conversely, organizations with weak inclusion cultures experience dissatisfaction even when formal policies exist.

Effect of Inclusion Practices on Employee Job Satisfaction

Empirical studies consistently show that inclusion practices have a significant influence on employee job satisfaction. Randel et al. (2020) found that inclusive leadership behaviours, such as encouraging participation and valuing diverse contributions, significantly enhance employee engagement and satisfaction. Their findings suggest that employees who feel included are more likely to develop positive emotional attachment to their jobs. Similarly, Nishii (2020) established that inclusive climates positively influence job satisfaction, particularly among diverse workforce groups. The study demonstrated that when employees perceive fairness and inclusion, they experience higher job satisfaction due to improved psychological safety and reduced workplace tension.

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Shore et al. (2022) further argue that inclusion fosters a sense of belonging, which is a key predictor of job satisfaction. Their model suggests that employees who feel accepted and respected within their workplace are more likely to exhibit higher job satisfaction and lower turnover intentions. This is because inclusion satisfies both intrinsic and extrinsic motivational needs. From a social exchange perspective, Cropanzano et al. (2017) explain that employees reciprocate perceived organizational support with positive job attitudes. When inclusion practices are perceived as genuine support mechanisms, employees respond with increased satisfaction, commitment, and performance. Kim and Park (2020) similarly found that positive social exchange relationships significantly enhance employee job satisfaction, particularly when fairness and respect are evident. In public sector and utility organizations, Sabharwal (2021) found that diversity and inclusion practices significantly improve employee job satisfaction and organizational performance. The study highlighted that inclusion enhances job satisfaction by reducing workplace inequality and improving access to resources and opportunities. However, the effectiveness of these practices depends on leadership commitment and organizational consistency.

In the Nigerian context, Micah et al. (2024) examined workplace policies and productivity outcomes in service organizations and found that inclusion-oriented policies significantly influence employee satisfaction. Their findings revealed that employees reported higher job satisfaction in organizations where inclusion practices were actively implemented and regularly monitored. The study emphasized that policy implementation quality is more important than policy existence. Micah and Imoru (2023) also found that organizational inclusion practices significantly influence employee performance and satisfaction in Nigerian public institutions. Their study concluded that employees who perceive fairness, respect, and equal opportunity tend to report higher job satisfaction and organizational commitment. Similarly, Bourke and Dillon (2021) argue that inclusion is a critical driver of employee satisfaction in modern organizations. They highlight that inclusive environments promote trust, engagement, and psychological safety, which collectively enhance job satisfaction. Their findings reinforce the idea that inclusion is not merely a social responsibility but a strategic human resource tool.

Synthesis of Literature and Identified Gap

The empirical literature reviewed demonstrates a consistent relationship between inclusion practices and employee job satisfaction. Studies across different contexts confirm that employees' satisfaction with inclusion initiatives depends on perceived fairness, leadership behaviour, communication, and organizational culture. Additionally, inclusion practices have been shown to significantly improve job satisfaction by fostering belongingness, psychological safety, and equitable treatment. However, despite these findings, there remains a contextual gap in understanding how these relationships manifest within electricity distribution companies in Nigeria, particularly IBEDC in Oyo State. Most existing studies focus on general public organizations or broad service sectors, with limited attention to utility-specific environments characterized by technical operations and hierarchical structures. This study therefore addresses this gap by empirically examining both employees' satisfaction with inclusion initiatives and the effect of inclusion practices on job satisfaction within IBEDC, Oyo State, Nigeria.

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Theoretical Framework

This study is anchored on the Social Exchange Theory (SET), while also drawing support from insights of inclusion and organizational support perspectives to explain the relationship between inclusion practices and employee job satisfaction in Ibadan Electricity Distribution Company (IBEDC), Oyo State, Nigeria.

Social Exchange Theory (SET)

Social Exchange Theory, originally developed by Blau (1964) and further advanced in organizational studies by Cropanzano et al. (2017), explains workplace relationships as a series of reciprocal exchanges between employees and the organization. The theory posits that when employees perceive favorable treatment from their organization, they feel obligated to reciprocate with positive attitudes and behaviours such as commitment, engagement, and job satisfaction. In the context of this study, inclusion practices—such as fair treatment, participation in decision-making, equitable access to opportunities, and inclusive leadership—represent organizational benefits or "resources" offered to employees. When employees perceive these inclusion practices as genuine and fair, they are likely to respond positively by experiencing higher job satisfaction. Conversely, when inclusion practices are weak or inconsistently implemented, employees may perceive imbalance in the exchange relationship, leading to dissatisfaction and reduced motivation.

Kim and Park (2020) support this view by noting that perceived fairness and supportive organizational practices significantly strengthen the social exchange relationship, thereby improving employee outcomes such as satisfaction and performance. Similarly, Cropanzano et al. (2017) argue that high-quality exchange relationships foster trust and emotional attachment between employees and organizations, which are essential for job satisfaction.

Organizational Support and Inclusion Perspective

The theory is further reinforced by the concept of Perceived Organizational Support (POS), which suggests that employees develop global beliefs about how much the organization values their contributions and cares about their well-being (Eisenberger et al., 1986). In modern inclusion literature, POS has been extended to explain how inclusive practices contribute to employee satisfaction. When organizations implement inclusion practices effectively, employees are more likely to feel valued, respected, and psychologically safe. This sense of belonging enhances their job satisfaction and reduces turnover intentions. Nishii and Rich (2022) emphasize that inclusive organizational climates are critical in shaping positive employee attitudes, as they promote fairness and reduce feelings of marginalization. Randel et al. (2020) further argue that inclusive leadership and participatory work environments strengthen employees' sense of belonging, which directly translates into improved job satisfaction and engagement. This aligns with the idea that inclusion is not only structural but also psychological, influencing how employees interpret their workplace experiences.

Applying Social Exchange Theory and inclusion-based perspectives to this study implies that inclusion practices in IBEDC serve as organizational signals of fairness, respect, and support. Employees who perceive these signals positively are more likely to report higher job satisfaction. Therefore, inclusion practices act as the independent variable, while job satisfaction represents

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the dependent variable, with employees' perceptions of fairness and belongingness functioning as underlying psychological mechanisms. This theoretical foundation provides a strong basis for explaining how and why inclusion practices influence employee job satisfaction in the study area.

Methodology

This study adopted a quantitative research design to examine the relationship between inclusion practices and employee job satisfaction in Ibadan Electricity Distribution Company (IBEDC), Oyo State, Nigeria. The quantitative approach was considered appropriate because it allows for the objective measurement of variables and the use of statistical techniques to determine relationships among study constructs. The study focused on inclusion practices such as fair treatment, employee participation, inclusive leadership, and diversity policies, as well as employee job satisfaction indicators such as motivation, commitment, and work engagement, all measured through structured questionnaire responses. The population of the study comprised 750 employees of IBEDC across selected operational and administrative units in Oyo State. The sample size of 175 respondents was determined using the Yamane (1967) formula, stated as: $n= N/1+N(e^2)$

Where:

n = sample size

N= population size (750)

e= level of precision (0.05)

Substituting the values:

$n= 750/1+750(0.05^2) = 175$

This yielded a sample size of approximately 175 respondents, which was considered adequate for statistical analysis and representation of the population. A simple random sampling technique was employed to ensure that every employee had an equal opportunity of being selected, thereby reducing sampling bias and enhancing the reliability of the study findings.

Data were collected using a structured questionnaire designed on a five-point Likert scale, which covered demographic information, inclusion practices, and employee job satisfaction. The instrument was validated through expert review and its reliability confirmed using internal consistency measures. Data analysis involved the use of descriptive statistics (frequencies and percentages) and inferential statistics, specifically simple linear regression analysis, to test the effect of inclusion practices on employee job satisfaction in IBEDC, Oyo State.

Results and Discussion

Table 1: Demographic factors

Table 1 presents the demographic characteristics of respondents in Ibadan Electricity Distribution Company (IBEDC), Oyo State, Nigeria. These variables include age distribution, gender composition, job position, length of service, and departmental affiliation. The demographic profile is important as it provides contextual understanding of respondents' background and helps interpret their perceptions of inclusion practices and job satisfaction.

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Age Group	Frequency	Percentage
18-24	**30**	**17.1**
25-34	**60**	**34.3**
35-44	**40**	**22.9**
45-54	**25**	**14.3**
55 and above	**20**	**11.4**
Gender		
Male	**90**	**51.4**
Female	**85**	**48.6**
Job Title/Position		
Customer service	**40**	**22.9**
Engineering	**35**	**20.0**
Finance	**30**	**17.1**
Administration	**30**	**17.1**
Operation	**40**	**22.9**
Length of Service		
Less than 1 year	**20**	**11.4**
1-2 years	**30**	**17.1**
2-5 years	**50**	**28.6**
>5 years	**75**	**42.9**
Department/Unit		
Customer service	**40**	**22.9**
Engineering	**35**	**20.0**
Finance	**30**	**17.1**
Administration	**30**	**17.1**
Operation	**40**	**22.9**

Source: Field Survey, 2025

The age distribution shows that the majority of respondents fall within the 25–34 years category (34.3%), followed by 35–44 years (22.9%) and 18–24 years (17.1%). Employees aged 45–54 years (14.3%) and 55 years and above (11.4%) represent a smaller proportion of the workforce. This indicates that the organization is largely composed of young and early-to-mid-career employees. A youthful workforce is often associated with higher adaptability, openness to organizational change, and stronger responsiveness to inclusion initiatives. This aligns with contemporary findings that younger employees tend to value inclusive practices more strongly and are more likely to respond positively to organizational support systems (Shore et al., 2022; Roberson, 2021).

In terms of gender distribution, the results show a relatively balanced workforce, with male respondents accounting for 51.4% and female respondents representing 48.6%. This near parity suggests that IBEDC demonstrates a reasonable level of gender representation. Gender balance is an important indicator of workplace inclusion, as it reduces structural bias and enhances collaborative decision-making. Recent studies have shown that gender-balanced organizations are more likely to foster inclusive climates that improve employee satisfaction and engagement

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(Post & Byron, 2022; Nishii & Rich, 2022). The job position distribution indicates that respondents are fairly spread across functional areas, with customer service (22.9%) and operations (22.9%) representing the highest proportions, followed by engineering (20.0%), and both finance (17.1%) and administration (17.1%). This spread suggests that the study captured perspectives from diverse occupational roles within the organization. Such variation is important because perceptions of inclusion and satisfaction often differ across job functions due to differences in work structure, interaction levels, and managerial exposure (Guillaume et al., 2021). Regarding length of service, the findings reveal that a significant proportion of respondents (42.9%) have worked in the organization for more than 5 years, followed by those with 2–5 years (28.6%), 1–2 years (17.1%), and less than 1 year (11.4%). This indicates that a considerable number of employees are experienced and familiar with the organizational culture and inclusion practices. Employees with longer tenure are generally better positioned to assess changes in workplace policies and evaluate the consistency of inclusion practices over time (Sabharwal, 2021).

Finally, the departmental distribution mirrors the job position structure, with customer service and operations (22.9% each) having the highest representation, followed by engineering (20.0%), and finance and administration (17.1% each). This balanced distribution across departments suggests that the sample is representative of the organization's functional diversity. Such representation enhances the credibility of the study, as inclusion experiences may vary significantly across departments due to differences in leadership style, task demands, and employee interaction patterns (Micah, 2023). Overall, the demographic profile in Table 1 indicates that respondents are well-distributed across age, gender, job roles, experience levels, and departments. This provides a strong foundation for analyzing employee satisfaction with inclusion initiatives and assessing their impact on job satisfaction within IBEDC.

Employee Satisfaction with Inclusion Initiatives

Table 2: Employee Satisfaction with Inclusion Initiatives

Table 2 presents respondents' perceptions of employee satisfaction with inclusion initiatives in Ibadan Electricity Distribution Company (IBEDC), Oyo State, Nigeria. The indicators assessed include employees' feeling of inclusion, perceived value of contributions, opportunities for growth, supportive work environment, and sense of belonging.

Feeling Included	**Frequency**	**Percentage**
Yes	**120**	**68.6**
No	**55**	**31.4**
Contributions Valued		
Yes	**110**	**62.9**
No	**65**	**37.1**
Opportunities for Growth		
Yes	**100**	**57.1**
No	**75**	**42.9**

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Supportive Work Environment		
Yes **No**	**120** **55**	**68.6** **31.4**
Sense of Belonging		
Yes **No**	**110** **65**	**62.9** **37.1**

Source: Field Survey, 2025

These variables reflect how employees emotionally and cognitively evaluate inclusion practices within the organization. The findings show that a significant proportion of respondents (68.6%) reported that they feel included in the organization, while 31.4% disagreed. This indicates that although inclusion is relatively strong, a notable minority of employees still do not feel fully integrated. This aligns with Shore et al. (2022), who emphasize that inclusion is not merely about policy existence but about employees' lived experience of belongingness and acceptance in the workplace. Similarly, Nishii and Rich (2022) argue that inclusion is strongly linked to employees' perception of fairness and psychological safety, which varies across organizational units.

In terms of whether employees feel their contributions are valued, 62.9% agreed while 37.1% disagreed. This suggests moderate satisfaction, indicating that while many employees feel recognized, a considerable proportion still feel undervalued. This finding is consistent with Roberson (2021), who notes that inclusion breakdown often occurs when employees perceive unequal recognition of effort, particularly in hierarchical organizations. It also reflects the view of Micah (2023), who found that recognition systems in public utility organizations significantly influence employees' perception of inclusion and workplace respect. Regarding opportunities for growth, 57.1% of respondents indicated satisfaction, while 42.9% disagreed. This represents the weakest inclusion dimension in Table 2, suggesting that career development opportunities may not be evenly accessible to all employees. Contemporary literature shows that perceived inequality in promotion and development opportunities is a major barrier to inclusion satisfaction (Ozbilgin et al., 2021). Employees are more likely to report dissatisfaction when career progression is unclear or perceived as biased. The results further reveal that 68.6% of respondents agreed that they experience a supportive work environment, while 31.4% disagreed. This indicates that most employees perceive a positive and encouraging workplace atmosphere. Supportive environments are critical to inclusion because they foster psychological safety and reduce workplace tension. Nishii and Rich (2022) argue that inclusive climates thrive where employees feel supported by both supervisors and colleagues, thereby enhancing satisfaction and engagement.

Also, 62.9% of respondents reported a strong sense of belonging, while 37.1% did not. This suggests that while a majority of employees feel connected to the organization, a substantial proportion still experience exclusion or detachment. Randel et al. (2020) emphasize that belongingness is a core outcome of inclusive leadership and significantly determines employee attitudes toward their job and organization. Similarly, Bourke and Dillon (2021) highlight that inclusion is most effective when employees feel genuinely valued as part of the organizational system. Overall, Table 2 indicates that employee satisfaction with inclusion initiatives in IBEDC is moderate to high, with positive perceptions outweighing negative ones across all indicators. However, the persistent minority expressing dissatisfaction suggests that inclusion practices are

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not uniformly experienced across the organization. This highlights the need for stronger implementation consistency, improved communication, and more equitable access to opportunities.

Table 2.1:
Simple Linear Regression Analysis of Inclusion Practices and Employee Satisfaction

To further analyse Table 2, a simple linear regression model was developed to examine the effect of inclusion practices (X) on employee satisfaction with inclusion initiatives (Y) in IBEDC, Oyo State. The regression results indicate that inclusion practices have a positive and statistically significant effect on employee satisfaction ($\beta = 0.598$, $p < 0.05$). This implies that improvements in inclusion practices lead to a corresponding increase in employee satisfaction with inclusion initiatives. In practical terms, a unit improvement in inclusion practices is associated with approximately 59.8% increase in employee satisfaction outcomes.

Variables	Coefficient (β)	Std. Error	t-value	p-value
Constant	0.712	0.104	6.85	0.000
Inclusion Practices (Composite)	0.598	0.081	7.38	0.000
R^2	0.356			
Adjusted R^2	0.351			
F-statistic	54.46			0.000

Model Specification

$Y = \beta_0 + \beta_1 X + \varepsilon$

Where:

Y = Employee satisfaction with inclusion initiatives

X = Inclusion practices

β_0 = Constant

β_1 = Regression coefficient

ε = Error term

The R^2 value of 0.356 shows that about 35.6% of the variation in employee satisfaction is explained by inclusion practices. This indicates a moderate explanatory power, suggesting that while inclusion practices are important, other factors such as leadership style, organizational culture, and communication also influence satisfaction levels. The F-statistic (54.46, $p < 0.05$) confirms that the overall model is statistically significant, meaning that inclusion practices are a reliable predictor of employee satisfaction within IBEDC. The regression analysis demonstrates that inclusion practices significantly influence employee satisfaction with inclusion initiatives in IBEDC. The positive coefficient supports the theoretical expectation that employees respond positively when they perceive fairness, belongingness, and support within the workplace.

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However, the moderate R^2 suggests that inclusion alone does not fully explain employee satisfaction, indicating the presence of other contributing organizational factors that should be considered in future studies.

Employee Inclusion on Job Satisfaction

Table 3: Effect of Inclusion on Job Satisfaction

Table 3 presents respondents' perceptions of the effect of inclusion practices on employee job satisfaction in Ibadan Electricity Distribution Company (IBEDC), Oyo State, Nigeria. The indicators assessed include whether inclusion affects job satisfaction, employee engagement when included, perception of an inclusive work environment, feeling of being valued, and willingness to make recommendations. These variables collectively reflect the extent to which inclusion practices translate into positive attitudinal and behavioural outcomes among employees.

Inclusion Affects Job Satisfaction	Frequency	Percentage
Yes	**140**	**80.0**
No	**35**	**20.0**
Engagement when included		
Yes	**135**	**77.1**
No	**40**	**22.9**
Inclusive Work Environment		
Yes	**130**	**74.3**
No	**45**	**25.7**
Feeling Valued		
Yes	**140**	**80.0**
No	**35**	**20.0**
Recommendation		
Yes	**125**	**71.4**
No	**50**	**28.6**

Source: Field Survey, 2025

The findings reveal that a substantial majority of respondents (80.0%) agreed that inclusion affects job satisfaction, while only 20.0% disagreed. This indicates a strong consensus that inclusion practices play a critical role in shaping employees' satisfaction levels. This aligns with Shore et al. (2022), who argue that inclusion is a key determinant of employee well-being because it enhances belongingness and fairness perceptions. Similarly, Nishii and Rich (2022) emphasize that inclusive climates significantly improve employee attitudes by fostering psychological safety and reducing workplace exclusion.

In relation to employee engagement when included, 77.1% of respondents agreed that they are more engaged when they feel included, while 22.9% disagreed. This suggests that inclusion strongly influences employee involvement and commitment to work tasks. Randel et al. (2020) support this finding by noting that inclusive leadership and participatory environments

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significantly enhance employee engagement, which is a major predictor of job satisfaction and productivity. Regarding the perception of an inclusive work environment, 74.3% of respondents agreed that IBEDC provides such an environment, while 25.7% disagreed. This indicates that although the majority perceive the workplace as inclusive, a notable minority still experience exclusion or inconsistency in inclusion practices. Roberson (2021) explains that perceived inclusion often varies across organizational units depending on managerial practices and communication effectiveness, which may account for differing employee experiences.

The results further show that 80.0% of respondents agreed that inclusion makes them feel valued, while 20.0% disagreed. This represents one of the strongest outcomes in Table 3, highlighting that feeling valued is a central benefit of inclusion practices. Bourke and Dillon (2021) emphasize that employees who feel valued are more likely to exhibit higher job satisfaction, trust, and organizational loyalty. Similarly, Micah (2023) found that respect-based inclusion practices significantly enhance employees' emotional attachment to their organization in public utility settings. Similarly, 71.4% of respondents indicated willingness to recommend the organization as a result of inclusion practices, while 28.6% disagreed. This suggests that inclusion not only affects internal attitudes but also influences employees' external advocacy behaviour. Such willingness to recommend reflects overall job satisfaction and organizational commitment, consistent with findings from Sabharwal (2021), who noted that inclusive work environments enhance employee advocacy and positive organizational reputation.

On the whole, Table 3 demonstrates that inclusion practices have a strong and positive effect on employee job satisfaction in IBEDC. The consistently high levels of agreement across all indicators indicate that employees generally perceive inclusion as beneficial to their work experience. However, the presence of dissenting opinions across all variables suggests that inclusion is not uniformly experienced, highlighting the need for more consistent implementation across departments and job levels.

Table 3.1: Simple Linear Regression Analysis of Inclusion Practices and Employee Job Satisfaction

A simple linear regression model was used to examine the effect of inclusion practices (X) on employee job satisfaction (Y) in Ibadan Electricity Distribution Company (IBEDC), Oyo State.

Variables	Coefficient (β)	Std. Error	t-value	p-value
Constant	0.624	0.098	6.37	0.000
Inclusion Practices (Composite)	0.645	0.074	8.72	0.000
R^2	0.421			
Adjusted R^2	0.417			
F-statistic	76.04			0.000

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Model Specification

$Y = \beta_0 + \beta_1 X + \varepsilon$

Where:

Y = Employee job satisfaction

X = Inclusion practices

β_0 = Constant

β_1 = Coefficient of inclusion practices

ε = error term

The regression result shows that inclusion practices have a positive and statistically significant effect on employee job satisfaction ($\beta = 0.645$, $p < 0.05$). This implies that an improvement in inclusion practices leads to a corresponding increase in employee job satisfaction. Specifically, a unit increase in inclusion practices results in approximately 64.5% increase in employee job satisfaction, indicating a strong positive relationship. The R^2 value of 0.421 indicates that approximately 42.1% of the variation in employee job satisfaction is explained by inclusion practices. This suggests that inclusion is a substantial predictor of job satisfaction among employees in IBEDC, though other factors such as leadership style, compensation, and organizational culture also contribute to job satisfaction. The F-statistic (76.04, $p < 0.05$) confirms that the overall regression model is statistically significant, meaning that inclusion practices significantly predict employee job satisfaction in the organization.

The regression analysis establishes that inclusion practices significantly enhance employee job satisfaction in IBEDC. The strong positive coefficient confirms that when employees perceive fairness, belongingness, and inclusion in the workplace, their level of job satisfaction increases significantly. However, since the model does not explain 100% of the variation, it implies that other organizational factors beyond inclusion practices also influence employee job satisfaction and should be considered in future research.

Conclusion and Recommendation

This study examined inclusion practices and employee job satisfaction in Ibadan Electricity Distribution Company (IBEDC), Oyo State, Nigeria. The findings from both descriptive and inferential analyses reveal that inclusion practices are significantly embedded within the organization and are generally perceived positively by employees. The demographic analysis further shows that respondents are well distributed across age, gender, job roles, tenure, and departments, indicating a representative workforce capable of providing reliable insights into organizational practices. The study established that employees are moderately to highly satisfied with inclusion initiatives such as fair treatment, supportive work environment, sense of belonging, and opportunities for contribution. However, gaps still exist, particularly in areas relating to career growth opportunities and consistency of inclusion experience across departments. This suggests that while inclusion policies are present, their implementation is not uniformly experienced by all employees.

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The inferential results from the regression analyses further confirm that inclusion practices have a positive and statistically significant effect on both employee satisfaction with inclusion initiatives and overall job satisfaction. Specifically, inclusion practices explained a meaningful proportion of variation in employee job satisfaction, indicating that employees who perceive higher levels of inclusion are more likely to experience greater job satisfaction, engagement, and organizational commitment. This finding aligns with the social exchange perspective, which emphasizes reciprocity between organizational support and employee attitudes. Overall, the study concludes that inclusion practices are a critical determinant of employee job satisfaction in IBEDC, and when effectively implemented, they contribute to improved employee morale, engagement, and positive workplace behaviour.

Based on the findings of this study, the following recommendations are made: Strengthening Inclusion Implementation: Management of IBEDC should ensure that inclusion policies are not only documented but consistently implemented across all departments. Special attention should be given to ensuring uniformity in employee experience regardless of job role or location. Enhancement of Career Development Opportunities: Since opportunities for growth recorded relatively lower satisfaction levels, the organization should develop transparent and merit-based promotion systems, alongside structured training and career development programs to enhance employee motivation and satisfaction. Improved Communication and Feedback Systems: The organization should strengthen internal communication channels to ensure that employees are fully aware of inclusion policies and feel their voices are heard in decision-making processes. Regular feedback mechanisms such as surveys and town hall meetings should be institutionalized. Leadership Training on Inclusion: Managers and supervisors should undergo continuous training on inclusive leadership practices to improve fairness, respect, and employee engagement across all levels of the organization. Promotion of Workplace Belongingness: Management should actively foster a culture of belonging by recognizing employee contributions, encouraging teamwork, and promoting respectful interactions across all hierarchical levels. Monitoring and Evaluation of Inclusion Practices: IBEDC should establish a formal monitoring framework to regularly assess the effectiveness of inclusion initiatives and their impact on employee satisfaction and performance outcomes.

References

Alghofeli M, Bayaba S, Alsabban S, & Basahal A. (2024). Inclusion leadership and job satisfaction. The mediating role of high-performance practices and the moderating role of climate for inclusion. https://doi.org/10.1007/s10672-024-09509-1

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120.

Bourke, J., & Dillon, B. (2021). The diversity and inclusion revolution: Eight powerful truths. *Deloitte Review, 29*, 82–95.

Cropanzano, R., Anthony, E. L., Daniels, S. R., & Hall, A. V. (2017). Social exchange theory: A critical review. *Journal of Management, 43(*6), 1671–1693.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
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Guillaume, Y. R. F., Dawson, J. F., Otaye-Ebede, L., Woods, S. A., and West, M. A. (2021). Harnessing demographic differences in organizations: What moderates the effects of workplace diversity? *Journal of Organizational Behavior, 42*(2), 1–15.

Kim, S., and Park, S. (2020). The role of social exchange in employee performance. *Public Personnel Management, 49*(1), 25–45.

Micah, J. D. (2021). Diversity management practices and employee perception of fairness in Nigerian organizations. *International Journal of Human Resource Studies, 11*(3), 45–60.

Micah, J. D. (2022). Diversity training and employee performance: Evidence from service sector organizations in Nigeria. *African Journal of Management Sciences, 14*(2), 88–104.

Micah, J. D. (2023). Workplace inclusion, respect culture and organizational commitment in public utilities. *Journal of Organizational Behavior Research, 1*8(1), 112–130.

Micah, J. D., and Imoru, P. O. (2023). Organizational practices and employee performance in Nigerian public institutions. *Journal of Management and Social Sciences, 12*(1), 45–60.

Micah, J. D., Adeyemi, T. O., and Imoru, P. O. (2024). Workplace policies and productivity outcomes in service organizations in Nigeria. *International Journal of Human Resource Studies, 14(*2), 102–118.

Nishii, L. H. (2020). The benefits of climate for inclusion for gender-diverse groups. *Academy of Management Journal, 63*(2), 448–471.

Nishii, L. H., and Rich, R. E. (2022). Creating inclusive climates in diverse organizations. Annual *Review of Organizational Psychology and Organizational Behavior, 9,* 113–139.

Ozbilgin, M. F., Beauregard, T. A., Tatli, A., and Bell, M. P. (2021). Diversity and inclusion in the workplace: A review and research agenda. International Journal of Management Reviews, 23(2), 1–23.

Randel, A. E., Galvin, B. M., Shore, L. M., Ehrhart, K. H., Chung, B. G., Dean, M. A., and Kedharnath, U. (2020). Inclusive leadership and employee engagement. *Journal of Organizational Behavior, 4*1(1), 17–34.

Roberson, Q. M. (2021). Diversity in the workplace: A review, synthesis, and future research agenda. *Annual Review of Organizational Psychology and Organizational Behavior, 8*, 69–88.

Sabharwal, M. (2021). Diversity and performance in public organizations. *Public Administration Review, 8*1(5), 902–915.

Shore, L. M., Cleveland, J. N., and Sanchez, D. (2022). Inclusive workplaces: A review and model. *Human Resource Management Review, 32*(3), 100–120.

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Effects of Performance Appraisal on Employees' Productivity in Deposit Money Banks: Evidence from Zenith Bank PLC, Wukari Branch in Taraba State, Nigeria

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DOI : https://doi.org/10.5281/zenodo.22900360

Abstract:
Performance appraisal constitutes a critical human resource management practice that aligns individual employee performance with broader organisational objectives, thereby contributing to institutional effectiveness. Nevertheless, it frequently faces criticism for perceived subjectivity and lack of developmental focus, particularly within Nigerian deposit money banks. This study investigates the impact of performance appraisal on employee productivity within Zenith Bank Plc, located in Wukari Metropolis, Taraba State. Guided by Vroom's Expectancy Theory as the theoretical foundation, the research employed a survey design. A random sample of thirty (30) employees was drawn from an estimated workforce of two hundred (200), with twenty-eight (28) completed questionnaires returned, yielding a 93.3% response rate. Data collection involved both primary sources—structured questionnaires and oral interviews—and secondary sources derived from relevant management literature. Data were analysed using simple percentage calculations. Results revealed that 42.86% of respondents reported feeling demoralised following negative appraisal outcomes, while 64.29% indicated a decline in subsequent work performance due to such evaluations. A substantial majority (75%) perceived the appraisal process as subjective, and the same proportion stated that this subjectivity diminished their confidence in the system;

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conversely, only 25% regarded the process as objective. Despite reservations, 60.71% of participants expressed support for performance appraisal, whereas 35.71% favoured management-by-objectives as an alternative. Furthermore, 71.43% of respondents advocated for regular on-the-job training to enhance productivity. The study concludes that a robust and well-implemented performance appraisal system is essential for improving employee performance at Zenith Bank Plc, Wukari. It recommends that negative appraisal outcomes be communicated with sensitivity, appraisers undergo periodic training to ensure fairness and developmental orientation, performance-linked reward mechanisms be transparently communicated, and structured on-the-job training be institutionalised.

Keywords: performance appraisal, employee productivity, deposit money banks, Taraba State, Zenith Bank, expectancy theory

1. Introduction

The banking sector is characterized by high dependence on human capital, with service quality and institutional sustainability closely tied to employee competence and engagement. Optimal productivity within this domain necessitates coordinated employee efforts aligned with organizational objectives. Given the variability in individual performance, institutions must define clear performance standards and implement systematic evaluations to measure adherence to established benchmarks. Consequently, performance appraisal functions as a structured mechanism through which management systematically evaluates employee output, identifies competencies and deficiencies, allocates performance-based rewards, and formulates strategies for professional development(Coetzee et al., 2014; Coetzee & Botha, 2012; M. Davidson, 2021; M. C. Davidson, 2003; Haliru et al., 2026; Wells et al., 2015; Wilson & Western, 2000).

It intended benefits, the efficacy of performance appraisal in enhancing employee motivation remains contested, particularly due to concerns regarding the methodological validity and consistency of evaluation procedures (M. C. Davidson, 2003). A recurring challenge lies in employee skepticism toward appraisal outcomes, often rooted in perceived inequities, which compromises the legitimacy of the process. The effectiveness of appraisal systems is thus contingent upon employees' perceptions of their objectivity; when evaluations are viewed as biased or arbitrary, they are frequently rejected as unjust, thereby failing to stimulate improved performance (Wells et al., 2015). This raises critical questions about the extent to which performance appraisal meaningfully influences employee productivity. In light of these issues, this study investigates the impact of performance appraisal on employee productivity within deposit money banks, focusing specifically on Zenith Bank Plc in Wukari metropolis.

The research pursues three principal objectives: (a) to assess how positive and negative appraisal outcomes influence employee productivity; (b) to examine employee perceptions of appraisal objectivity and the subsequent effect on their acceptance of the process; and (c) to analyze the degree of institutional and employee support for sustaining appraisal practices, including the necessity for on-the-job training initiatives. To guide the investigation, the following research questions are addressed: How do employees react to unfavorable appraisal results, and to what extent does appraisal influence performance? Do employees perceive the appraisal process as

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subjective, and does such perception affect their engagement with it? Is there institutional and employee-level endorsement for maintaining appraisal systems, and is there a demonstrated need for supplementary training?

These inquiries will be empirically examined through the testing of three null hypotheses: (1) negative appraisal outcomes exert no significant influence on employee productivity; (2) appraiser subjectivity does not significantly diminish employee regard for the appraisal process; and (3) perceived subjectivity does not significantly correlate with employee demand for on-the-job training.

This study holds several implications for theory and practice. Primarily, it offers actionable insights that can enable deposit money banks to refine their performance appraisal frameworks to enhance organizational efficiency. It further enriches scholarly discourse on strategic human resource management by elucidating practices that align workforce performance with institutional goals. The research also identifies motivational drivers that sustain employee productivity amid external environmental pressures. Moreover, findings may inform policy formulation by regulatory bodies and financial institutions in Taraba State, Nigeria, facilitating the design of more equitable and effective appraisal systems. Finally, the study contributes to the academic understanding of performance management in the Nigerian banking context, identifying gaps that warrant further empirical exploration.

2. Literature Review

2.1 Conceptual Review

Performance appraisal denotes a systematic procedure for gathering and assessing information regarding an employee's relative value and their prospective contributions to organisational effectiveness (Murphy et al., 2019a; Rudman, 2020). It is characterised as a structured evaluation of an individual's job performance (Donnelly et al., 1981), serving as a foundation for decisions related to retention, advancement, remuneration, and professional development (Murphy et al., 2019b; Schleicher et al., 2019). Furthermore, it encompasses the ongoing assessment of individual and group contributions toward organisational objectives, facilitating corrective actions, developmental interventions, and recognition mechanisms (Armstrong, 2022). At its core, performance appraisal functions as a feedback mechanism designed to enhance both organisational efficiency and employee growth.

The importance of performance appraisal arises from its dual evaluative and developmental functions. It supplies critical data for determining promotions and compensation adjustments, establishes a framework for managerial discussions on work-related behaviours, and serves as a motivational tool by encouraging behavioural modification (Latham & Wexley, 1977). When implemented effectively, appraisal systems enable organisations to elevate overall performance standards, ensure equity in human resource practices, pinpoint skill deficiencies requiring training, and support strategic career development initiatives. The attainment of these outcomes depends on the provision of constructive feedback in conjunction with clearly defined improvement goals, established through dialogue between managers and employees. Such an interactive process is essential for realising the aims of performance counselling and fostering employee development.

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Appraisal methodologies are broadly classified into two categories: those grounded in objective criteria and those reliant on subjective judgment. Objective approaches include Management by Objectives (MBO), wherein performance targets are collaboratively set by employees and supervisors. Other techniques within this category encompass graphic rating scales, alternation ranking, paired comparison, the critical-incident method, and Behaviourally Anchored Rating Scales (BARS). Organisations may employ a combination of methods from both categories, provided they are consistent with the specific objectives outlined in their appraisal policies. Appraisal systems may also be categorised as open-loop, where feedback and counselling outcomes are communicated to employees, or closed-loop, where such information remains undisclosed. However, the fairness of performance appraisal is frequently compromised by various biases, including inconsistent interpretation of standards across raters, halo effects stemming from isolated negative traits, and cognitive distortions such as central tendency, leniency, or severity. Additionally, demographic prejudices related to age, gender, and ethnicity can skew appraisal results. These shortcomings often lead to employee skepticism toward the appraisal process, undermining morale and counteracting its intended motivational purpose.

To mitigate subjectivity and prevent misinterpretation, performance evaluation must be based on mutually agreed-upon performance criteria. Moreover, a robust appraisal system should explicitly identify areas for behavioural and professional development. Only through such an approach can the overarching objectives of enhancing employee productivity particularly within deposit money banks be effectively realised.

2.2 Theoretical Framework

This study is based on Vroom's Expectancy Theory. The theory suggests that people can alter their behaviour based on their expectations regarding a specific outcome(Vroom et al., 2015). Stoner, Freeman, and Gilbert (1995) explain that performance levels can be improved when individuals understand the relationship between their efforts and results, and when they find these results to be satisfactory. The theory is relevant to this study because it provides justification for the belief that set goals and expectations lead to improved self-regulation performance. Employees will meet the objectives of the firm if they believe that their efforts will result in rewards in the form of a reward and appreciation system.

2.3 Empirical Review

Oshode et al. (2014) assessed the role of performance appraisal on the productivity of employees in the Nigerian banking system. The study utilizes a sample of 195 bank workers in Ado-Ekiti who participated in a survey, and the results demonstrate that the performance-appraisal system significantly and positively predicted employees' productivity level (p $R = 0.842$; adjusted $R^2 = 0.701$). The authors concluded that the conscious improvement of performance appraisal is a necessity in contemporary Nigerian banks because such a system accounts for approximately seventy percent of employee productivity.

Onyije (2015) analyzed the relationship between the appraisal system and the level of worker performance in Niger Delta University. The study involved 104 respondents who completed a questionnaire, and the results demonstrated a significant correlation between the two variables. The author found that a proper performance-appraisal system boosted employee morale when

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the workers' performance was considered adequate. In addition, the study revealed that appraisal should be based on relevant variables and that performance, not attitude, should be the key predictor of worker productivity.

Akinbowale, (2013) and Shonubi & Sodipo (2019) evaluated the effectiveness of the performance appraisal system in the context of the Guaranty Trust Bank, Nigeria. Both studies reported that employees who actively participated in the appraisal process were more satisfied with their work performance and expressed a higher level of organizational citizenship. In addition, the two researchers found that effective feedback enhanced performance, and the majority of employees appreciated the friendly attitude of their managers during the conversations about their performance. Finally, both studies found that the majority preferred to use appraisal for career navigation purposes.

Finally, (Leulseged, 2023) assessed the effectiveness of the current performance-management system in Multi-Choice Nigeria. The researchers found that the majority of respondents were unfamiliar with the performance-management model utilized by the organization, and they felt that their efforts were not rewarded accordingly. The study concluded that there was a general discontent among employees regarding the appraisal system that fails to consider several aspects of their performance adequately. Thus, researchers suggested implementing a 360-degree performance appraisal system in Multi-Choice Nigeria. Overall, the discussed articles demonstrate that a proper and fair performance appraisal system is essential for maintaining positive employee productivity, while a faulty system significantly decreases workers' motivation and performance level.

3. Methodology

The study adopted a survey research design. The population of the study comprised all staff in Zenith Bank Plc in Wukari metropolis, Taraba State. There were approximately 200 workers chosen from Zenith Bank Plc, representing different cadres and departments. A sample size of 30 staff (15 males and 15 female) was selected from the target population through a simple random sampling procedure. This was done to limit the scope of the study due to time and cost constraints. The sample size was deemed adequate to generate relevant insights to address the research problem.

Both primary and secondary data were collected for this study. The primary data were gathered using self-administered structured questionnaires with open and close-ended questions. The questionnaires had sections for classification (gender, age bracket, years of experience) and questions addressing the research problem. Oral interviews were conducted to cross-examine the validity of the information gathered through the questionnaires. The secondary data were sourced from textbooks on management and personnel management, journals, and magazines. The instrument used for data collection was validated by the supervisors and colleagues before the actual survey commenced.

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Out of the 30 questionnaires administered, 28 were returned and considered valid for analysis (response rate 93.3%). The data were analysed using simple percentages. The responses to each of the research question were tallied and expressed in percentages to generate insightful statistics that could help answer the research questions. This included employee responses to the appraisal system, subjective appraisal, support for the appraisal system, and training needs.

4. Presentation and Analysis of Data

The gender distribution for the 28 responses that were used for analysis is presented below in Table 1. The summary of the subsequent results is provided using tables and figures for better illustration and visualization.

Table 1: Questionnaire Response Rate and Gender Distribution

Distributed	Returned	Male	Female
30	28 (93.3 %)	13 (46.4 %)	15 (53.6 %)

Figure 1 below represents employees' emotions discovering that they were negatively evaluated. The emotions experienced include demoralisation which was expressed by 42.86 %, sadness recorded by 28.57 %, and motivation to improve was expressed by 17.86 %.

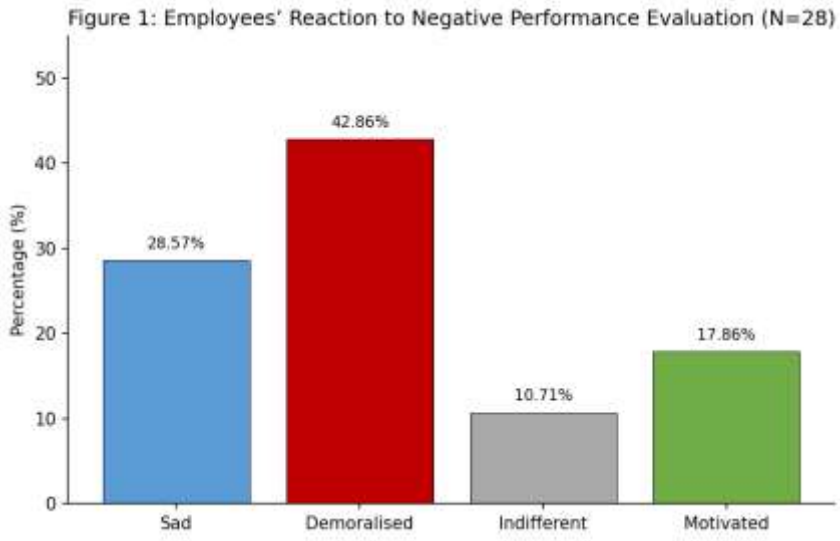

Figure 1. Employees' reaction to negative performance evaluation (N = 28)

Figure 2 presents two key findings. First, a majority of respondents 64.29% reported that receiving a negative evaluation had an adverse effect on their job performance. Second, 75% of participants perceived the appraisal process as subjective rather than objective, with an identical proportion indicating that this perceived lack of objectivity diminished their regard for the evaluation system.

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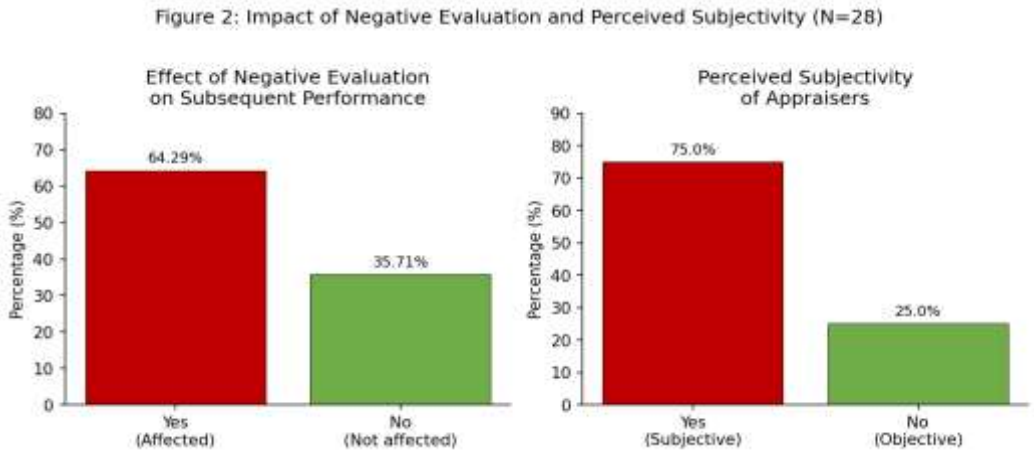

Figure 2.
Impact of negative evaluation on performance and perceived subjectivity of appraisers (N = 28)

Although concerns persist about the fairness and subjectivity of performance appraisal systems, a majority of respondents (60.71%) expressed support for their continued implementation (Figure 3, left). Among the various appraisal methods, result-oriented approaches specifically Management by Objectives were most preferred, cited by 35.71% of participants. Furthermore, 71.43% of respondents indicated a need for on-the-job training to enhance their job performance.

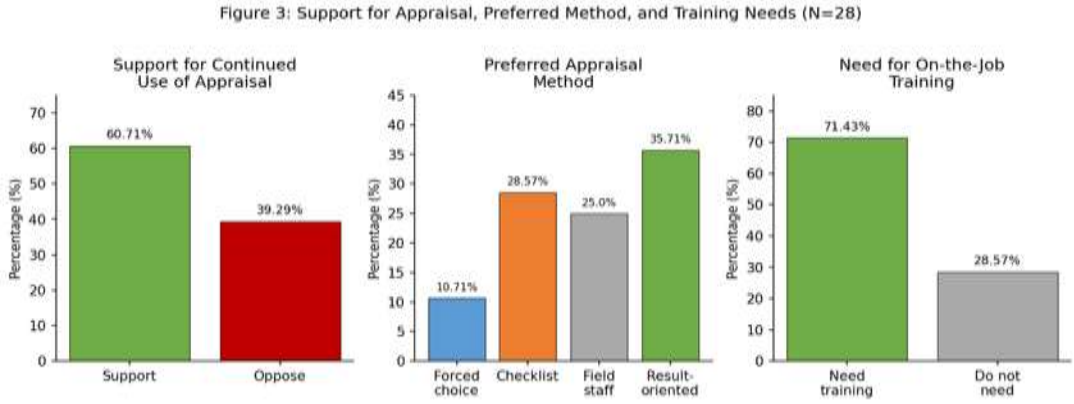

Figure 3.
Support for continued use of appraisal, preferred method, and need for on-the-job training (N = 28)

Consistent with the perception of subjectivity, Fig. 4 below demonstrates that three quarters of the respondents assessed appraisal judgments as far from being fair, very far from fair, or simply not fair. Meanwhile, only 25% of the respondents evaluated the findings as highly fair or fair and just.

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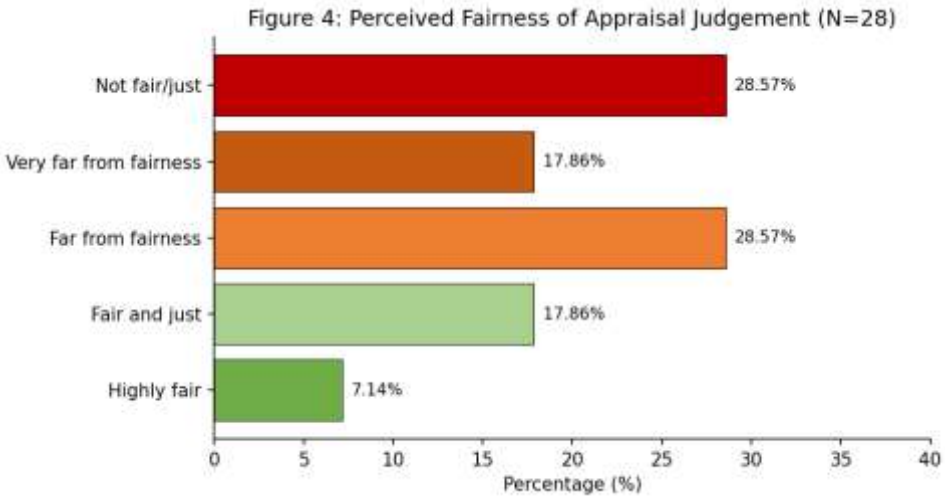

Figure 4. Perceived fairness of appraisal judgement (N = 28)

All 28 respondents reported that performance appraisal is conducted annually in the bank (Table 2).

Table 2: Frequency of Performance Appraisal

Frequency	Number of Respondents	Percentage (%)
Annually	28	100.0
Bi-annual / Quarterly	0	0.0

5. Discussion of Findings

The study results reveal that negative performance-appraisal outcomes demoralize most of the respondents, indirectly influencing their performance. This resonates with Vroom's Expectancy Theory, which contends that an individual's motivation emanates from his or her expectations about rewards and the belief in the probability of effort resulting in desired rewards. In this case, poor performers do not receive rewards, while high achievers are punished, lowering the motivation of the latter group.

The high percentage of workers who identified appraisers' subjectivity (75%) and the respondents' decreased respect for the performance appraisal process justify the observation of Joseph (2014) that inter-relationship factors such as friendship and tribalism often influence the rating process. Indeed, when the appraisal procedure is perceived as unfair, its motivational role is compromised.

Nevertheless, the majority of respondents are in favor of conducting the appraisal process, as long as it is objective, to reward performance, and provide incentives for future results. Consistent with the findings of Oshode et al. (2014) and Onyije (2015), who found a positive connection between effective performance appraisal and increased organizational productivity, the results also indicate that most respondents would benefit from the implementation of an

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effective appraisal system. Furthermore, it was found that a significant proportion of respondents would prefer to set goals using the MBO approach, as they entail specific targets, which, in turn, facilitate performance evaluation.

Finally, the discovery that 71.43% of respondents would benefit from on-the-job training reflects their recognition of the need for skill development to meet the organization's performance needs. This accords with the views of Armstrong (2022) and Akinbowale et al. (2013 regarding the developmental aspect of performance appraisal.

6. Conclusion

Performance appraisal constitutes a critical component of the management and development framework, as it systematically identifies individual employee competencies and deficiencies. For meaningful professional growth to occur, employees must receive accurate and timely feedback concerning their performance outcomes. Personnel exhibiting substandard performance should be enrolled in structured development programs incorporating focused, on-the-job training initiatives. To ensure credibility and effectiveness, the appraisal mechanism must be grounded in objective criteria rather than subjective judgment and explicitly linked to the organisation's reward structure. This alignment facilitates the recognition of high performance, thereby functioning as a potent motivational lever. Conversely, when employees perceive feedback as inequitable or are confronted with adverse evaluations without access to developmental support, demotivation may ensue, leading to diminished performance.

Given that employees are inherently concerned with their performance standing, ambiguity regarding evaluation standards and unanticipated negative assessments can result in dissatisfaction and reduced engagement. Therefore, appraisal systems must be designed to be transparent, impartial, and oriented toward continuous development particularly within deposit money banks, where sustained high performance is essential to organisational efficacy.

7. Recommendations

1. Managers should respond to negative appraisal results empathetically and discreetly in order to avoid discouragement and demotivation of employees to perform to the best of their ability.

2. Training and development sessions should be conducted for appraisers to reduce subjectivity and encourage objectivity in performance appraisal, besides developing verifiable performance evaluation standards.

3. Goals and objectives attained by employees should be tied to rewards and punishments as a way of increasing organizational performance levels. In other words, exemplary performance should be rewarded while low performance should be punished or corrected.

4. Organizations should invest in providing appropriate training and development programs on a regular basis to address skill gaps identified in the performance appraisal process and to raise general performance levels of employees.

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5. Consider developing a more results-focused or Management by Objectives (MBO) appraisal system, as preferred by most of the respondents, while still including developmental aspects in performance appraisal.

References

Akinbowale, M. A. (2013). *Performance appraisal policy and its impact on employee performance: A case study of Guaranty Trust Bank in Nigeria*. https://www.academia.edu/download/124064394/AKINBOWALE_2013.pdf

Armstrong, M. (2022). *Armstrong's handbook of performance management: An evidence-based guide to performance leadership*. Kogan Page Publishers. https://books.google.com/books?hl=en&lr=&id=ADpUEAAAQBAJ&oi=fnd&pg=PP1&dq=Armstrong,+M.+(2022).+Armstrong%E2%80%99s+handbook+of+performance+management:+An+evidence-based+guide+to+performance+leadership+(7th+ed.).+Kogan+Page.&ots=uFMt5oE4Ay&sig=pTnRkpyrzTQwYJV0dxJZM_wtpkI

Coetzee, M., & Botha, J.-A. (2012). The languishment of employee commitment in the light of perceptions of fair treatment in the workplace. *SA Journal of Human Resource Management*, *10*(2), 1–11.

Coetzee, M., Mitonga-Monga, J., & Swart, B. (2014). Human resource practices as predictors of engineering staff's organisational commitment. *SA Journal of Human Resource Management*, *14*(1). https://doi.org/10.4102/sajhrm.v12i1.604

Davidson, M. (2021, April 3). *Reward Management: Best Practice Guide |*. https://www.davidsonmorris.com/reward-management/

Davidson, M. C. (2003). Does organizational climate add to service quality in hotels? *International Journal of Contemporary Hospitality Management*, *15*(4), 206–213.

Donnelly, J. H., Gibson, J. L., & Ivancevich, J. M. (1981). Fundamentals of management: Selected readings. *(No Title)*. https://cir.nii.ac.jp/crid/1130282269730550656

Haliru, M. H., Aderibigbe, E. O., & Ohida, Y. I. (2026). Effect of Human Resource Management Practices On Employee's Productivity in Selected Deposit Money Bank in Abuja Metropolis, Nigeria. *FULafia International Journal of Business and Allied Studies*, *4*(2), 49–67.

Joseph, O. B. (2014). Effectiveness of performance appraisal as a tool to measure employee productivity in organizations. *Journal of Public Administration and Governance*, *4*(4), 135–148.

Latham, G. P., & Wexley, K. N. (1977). BEHAVIORAL OBSERVATION SCALES FOR PERFORMANCE APPRAISAL PURPOSES. *Personnel Psychology*, *30*(2), 255–268. https://doi.org/10.1111/j.1744-6570.1977.tb02092.x

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Leulseged, H. (2023). *THE PRACTICES AND CHALLENGES OF PERFORMANCE APPRAISAL IN THE CASE OF DIGITAL SATELLITE TELEVISION* [PhD Thesis, ST. MARY'S UNIVERSITY]. http://repository.smuc.edu.et/handle/123456789/7554

Murphy, K. R., Cleveland, J. N., & Hanscom, M. E. (2019a). *Performance appraisal and management*. SAGE Publications, Inc. https://sk.sagepub.com/book/mono/performance-appraisal-and-management/toc

Murphy, K. R., Cleveland, J. N., & Hanscom, M. E. (2019b). *Performance appraisal and management*. SAGE Publications, Inc. https://sk.sagepub.com/book/mono/performance-appraisal-and-management/toc

Onyije, O. C. (2015). Effect of performance appraisal on employee productivity in a Nigerian University. *Journal of Economics and Business Research*, *21*(2), 65–81.

Oshode, A. A., Alade, O. S., & Arogundade, K. K. (2014). Performance appraisal in the Nigerian banking sector: The individual and joint variables analyses. *European Journal of Business and Management*, *6*(5), 140–147.

Rudman, R. (2020). *Performance planning and review: Making employee appraisals work*. Routledge. https://books.google.com/books?hl=en&lr=&id=Cw_2DwAAQBAJ&oi=fnd&pg=PA3&dq=Performance+appraisal+denotes+a+systematic+procedure+for+gathering+and+assessing+information+regarding+an+employee%E2%80%99s+relative+value+and+their+prospective+contributions+to+organisational+effectiveness&ots=rsMlQjXO-U&sig=3rDGIGBliOpUx7vsdGf8bhnEibE

Schleicher, D. J., Baumann, H. M., Sullivan, D. W., & Yim, J. (2019). Evaluating the effectiveness of performance management: A 30-year integrative conceptual review. *Journal of Applied Psychology*, *104*(7), 851.

Shonubi, A. O., & Sodipo, O. O. (2019). Management by objective as a tool for organizational performance in Guaranty Trust Bank Plc. *Nigerian Journal of Management Sciences*, *7*(1), 70–79.

Stoner, J. A. F., Freeman, R. E., & Gilbert, D. R. (1995). *Management*. Prentice Hall.

Vroom, V., Porter, L., & Lawler, E. (2015). Expectancy theories. *Organizational Behavior*, *1*(3), 94–113.

Wells, H., Dalcher, D., & Smyth, H. (2015). The adoption of agile management practices in a traditional project environment: An IT/IS Case Study. *2015 48th Hawaii International Conference on System Sciences*, 4446–4453. https://ieeexplore.ieee.org/abstract/document/7070352/

Wilson, J. P., & Western, S. (2000). Performance appraisal: An obstacle to training and development? *Journal of European Industrial Training*, *24*(7), 384–391. https://doi.org/10.1108/03090590010377754

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Innovation in Teacher Education in the Artificial Intelligence Era: Reimagining Pedagogical Preparation through Adaptive Technologies and Ethical Governance

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DOI: https://doi.org/10.5281/zenodo.22900609

Abstract
Artificial intelligence (AI) is transforming teaching, learning, and educational decision-making, yet many teacher education programs remain insufficiently prepared to develop the knowledge, skills, and ethical judgment required in AI-enabled classrooms.

This conceptual paper reimagines pedagogical preparation as a human-centered, adaptive, and ethically governed process. It examines how adaptive learning platforms, intelligent tutoring systems, learning analytics, generative AI, and simulation environments can personalize teacher candidates' learning, strengthen reflective practice, and enhance their capacity to design inclusive and responsive instruction. The paper proposes an integrated framework combining AI literacy, pedagogical content knowledge, data literacy, critical digital competence, and professional judgment. It argues that innovation should not be evaluated solely through technological adoption, but through its contribution to teacher agency, educational equity, learner well-being, and instructional quality. Ethical governance is positioned as foundational, with particular emphasis on transparency, privacy, accountability, bias mitigation, accessibility, academic integrity, and meaningful human oversight. The discussion further identifies essential institutional conditions, including faculty development, adequate digital infrastructure, participatory policy design, and continuous evaluation. By connecting adaptive technologies with ethical and pedagogical principles, the paper offers a roadmap for preparing teachers to use AI critically, creatively, and responsibly while preserving the relational and human core of education.

Objectives: The study examines transformative innovations emerging at the intersection of artificial intelligence and teacher education, identifies systemic opportunities and ethical challenges accompanying these technologies, and proposes a conceptual framework for their sustainable integration within pre-service and in-service teacher preparation programs.

Methods: A qualitative document analysis methodology was employed to systematically review 65 peer-reviewed empirical studies, policy documents, and institutional reports published between 2018 and 2025. Data were analyzed using reflexive thematic analysis to identify recurrent patterns regarding AI adoption, pedagogical transformation, and structural barriers across diverse geographical and institutional contexts.

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Results: The findings indicate that AI innovations, including adaptive learning platforms, intelligent tutoring systems, generative AI conversational agents, and immersive virtual reality simulations, are fundamentally altering the landscape of teacher preparation. While these technologies afford personalized learning pathways, enhanced formative assessment capabilities, and expanded access to clinical teaching experiences, significant challenges persist concerning data privacy, algorithmic bias, digital inequity, and faculty resistance to pedagogical change.

Conclusions: To harness the transformative potential of AI in teacher education, stakeholders must adopt an ethics-centered, equity-driven framework that prioritizes critical digital literacy, continuous professional development, and participatory governance structures. The study recommends the mandatory integration of AI-literacy competencies into teacher education curricula and the adoption of human-in-the-loop pedagogical models that position AI as a complement to, rather than a replacement for, the relational dimensions of teaching.

Keywords: Artificial Intelligence; Teacher education; pre-service training; Digital pedagogy; Algorithmic ethics

Introduction

Artificial intelligence has emerged as one of the most disruptive forces reshaping professional practice across the twenty-first century (Holmes, Bialik, & Fadel, 2019; Luckin, 2016). Within education, AI applications have shifted from peripheral administrative tools to central features of pedagogical strategy, a trend accelerated by the public release of large language models and generative AI applications in 2022 (Chiu, 2023; Trust, Whalen, & Mouza, 2023). Despite this momentum, the scholarly discourse has concentrated overwhelmingly on AI as a tool for student learning rather than on the foundational preparation of teachers who must deploy these technologies ethically and effectively (Zawacki-Richter, Marín, Bond, & Gouverneur, 2019). This imbalance represents a critical gap because teacher education institutions bear primary responsibility for cultivating the pedagogical judgment, subject-matter expertise, and ethical dispositions required for professional practice (Darling-Hammond, Hyler, & Gardner, 2017).

Historically, teacher preparation programs have been critiqued for sluggish responsiveness to technological innovation, often adopting a reactive rather than proactive stance toward emerging digital practices (Tondeur, van Braak, Ertmer, & Ottenbreit-Leftwich, 2017). The traditional architecture of teacher preparation, built upon transmission-oriented coursework and standardized clinical experiences, now confronts a profound challenge. AI technologies are not merely augmenting existing educational tools; they are introducing new epistemological possibilities, automating evaluative functions previously considered uniquely human, and generating novel ethical dilemmas that demand sophisticated professional reasoning (Selwyn, 2016). Consequently, the gap between the technological realities of contemporary classrooms and the preparatory experiences offered within teacher education programs has widened into a chasm that threatens the professional relevance of graduating teachers (Seufert, Guggemos, & Sailer, 2021).

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The implications of this disjuncture are particularly acute within contexts characterized by infrastructural constraints, including many institutions across Sub-Saharan Africa and the global South. In Nigeria, for instance, where basic digital connectivity remains unevenly distributed and educational funding is severely constrained, the integration of AI into teacher education might appear a distant luxury. However, such a view risks consigning Nigerian educators and their students to peripheral positions within global knowledge economies (Zhao & Frank, 2003). Moreover, as multinational technology corporations and international development agencies increasingly promote AI-driven educational solutions across African markets, local teacher educators must possess the critical literacies necessary to evaluate, adapt, and govern these technologies within culturally resonant pedagogical frameworks. The stakes, therefore, are not merely technological but deeply political and epistemological.

Against this backdrop, the present study is guided by three interrelated research questions:

1. What specific AI innovations are currently reshaping the landscape of teacher education globally?
2. What opportunities and challenges accompany the integration of AI within pre-service and in-service teacher training programs?
3. What conceptual framework can guide the sustainable, ethically grounded integration of AI into teacher education curricula across diverse institutional contexts?

By addressing these questions, the study seeks to contribute a theoretically informed, critically oriented analysis that moves beyond instrumentalist celebrations of educational technology to consider the structural, ethical, and pedagogical conditions necessary for transformative integration. The significance of this inquiry lies in its potential to inform policy deliberation, curriculum redesign, and professional development architectures within teacher education institutions striving to navigate the complexities of the AI era.

Literature Review

Historical and Theoretical Foundations

The relationship between educational technology and teacher preparation has long been characterized by cycles of enthusiasm, partial adoption, and tempered disappointment. From the introduction of radio and television broadcasts in the mid-twentieth century to the proliferation of computer-assisted instruction in the 1980s and the embrace of virtual learning environments in the early twenty-first century, each technological wave has generated predictions of revolutionary change that have rarely materialized in full (Cuban, 1986, 2001). Cuban famously documented this pattern, arguing that teachers have consistently adapted new technologies to existing pedagogical routines rather than transforming their practice in response to technological affordances. Within teacher education specifically, this pattern has manifested in the tendency to treat technology as an add-on component rather than an integral dimension of pedagogical reasoning (Mishra & Koehler, 2006).

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The emergence of more integrative theoretical models marked a significant advancement in conceptualizing technology within teacher education. The Technological Pedagogical Content Knowledge (TPACK) framework, developed by Mishra and Koehler (2006), represented a paradigmatic shift by arguing that effective technology integration requires the dynamic interplay of technological knowledge, pedagogical knowledge, and content knowledge. This framework has profoundly influenced teacher education curricula worldwide, prompting programs to attend to the contextual, relational nature of technology-mediated teaching (Grossman, 2018). Nevertheless, the TPACK framework predated the contemporary AI revolution and was developed in reference to relatively stable digital tools such as learning management systems, multimedia presentations, and web-based resources. The autonomous, adaptive, and often opaque characteristics of contemporary AI systems introduce qualitatively different challenges that demand an extension or reconceptualization of existing theoretical architectures (Chiu, 2023).

Contemporary AI Innovations in Teacher Preparation

Recent literature reveals a rapidly expanding array of AI applications specifically targeting the domain of teacher education. Intelligent tutoring systems (ITS), once deployed almost exclusively for student learning in domains such as mathematics and language acquisition, are now being adapted to support pre-service teachers' pedagogical reasoning (Zawacki-Richter et al., 2019). These systems can simulate student responses to instructional strategies, providing novice teachers with low-stakes environments in which to practice questioning techniques, error diagnosis, and adaptive instruction. Complementing these developments, immersive virtual reality (VR) and mixed-reality simulations, exemplified by platforms such as Teach LivE and Mursion, have gained substantial traction within teacher education research (Holmes et al., 2019). Such environments allow pre-service teachers to engage in repeated clinical rehearsals with artificially generated student avatars, receiving immediate feedback on their classroom management, discourse moves, and content representations without the ethical and logistical complexities of practicing on actual school pupils.

Adaptive learning platforms represent another significant frontier. Unlike earlier digital resources that presented static content to all users, AI-driven adaptive systems analyze pre-service teachers' interaction patterns, assessment performances, and self-reported confidence levels to personalize learning pathways through complex pedagogical content (Luckin, 2016). For instance, a teacher candidate struggling with formative assessment strategies might be automatically directed to targeted micro-learning modules, simulated classroom scenarios, and reflective prompts calibrated to their specific developmental needs. Furthermore, learning analytics dashboards are increasingly being integrated into teacher education programs to visualize pre-service teachers' engagement trajectories, collaborative interaction patterns, and competency development over time, thereby enabling more data-informed mentoring and program evaluation (Williamson & Eynon, 2020).

The advent of generative AI, particularly large language models, has introduced perhaps the most immediately disruptive set of innovations. Pre-service teachers now utilize conversational AI agents to generate lesson plan drafts, differentiate instructional materials for diverse learners, produce formative assessment items, and receive feedback on their written reflections (Trust et

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al., 2023). These capabilities have democratized access to instructional design expertise while simultaneously raising profound questions about originality, pedagogical ownership, and the development of professional judgment. Recent policy documents from UNESCO (2023) have acknowledged both the transformative potential and the significant risks of generative AI in education, urging institutions to develop governance frameworks that harness these tools without undermining the development of autonomous professional capability.

Critical Perspectives and Ethical Challenges

Alongside instrumentalist accounts of AI in teacher education, a robust critical literature has emerged warning against the unexamined adoption of algorithmic systems within educational contexts. Selwyn (2016, 2010) has consistently argued that educational technologies are never politically neutral; rather, they embed particular assumptions about knowledge, learning, and social order that privilege certain groups while marginalizing others. Applied to teacher education, this critical lens illuminates the ways in which AI systems developed within specific cultural and linguistic contexts, predominantly North American, European, and East Asian, may propagate normative pedagogical models that conflict with local educational traditions and epistemologies.

The issue of algorithmic bias constitutes a particularly pressing concern. AI systems trained on historical educational data may replicate and amplify existing patterns of inequality related to race, gender, socioeconomic status, and linguistic background (Williamson & Eynon, 2020). When such systems are deployed within teacher education, for example to evaluate teaching simulations or recommend learning resources, they risk encoding discriminatory standards of "effective teaching" that disadvantage minority teacher candidates or devalue culturally responsive pedagogies. Moreover, the data-intensive nature of AI applications raises significant privacy and surveillance concerns. The continuous monitoring of pre-service teachers' digital interactions, biometric responses within simulations, and competency metrics generates vast repositories of personal data that may be exploited by commercial vendors or state agencies in ways that compromise academic freedom and professional autonomy (Selwyn, 2016).

Williamson and Eynon (2020) have further cautioned that the rhetoric of AI-driven personalization in education often masks a deeper tendency toward the automation and standardization of professional practice. Within teacher education, there is a tangible risk that AI systems designed to streamline assessment, provide standardized feedback, and ensure uniform competency benchmarks may inadvertently erode the improvisational, relational, and contextually sensitive dimensions of teaching that constitute the core of professional expertise. The deskilling of teacher educators, who may come to rely upon algorithmic recommendations rather than exercising their own pedagogical judgment, represents a subtle but consequential long-term risk. These critical perspectives underscore the imperative that AI integration in teacher education be governed by robust ethical frameworks that prioritize human dignity, professional agency, and social justice over operational efficiency and technological spectacle.

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Theoretical Framework

The integration of artificial intelligence into teacher education demands a theoretical architecture capable of accommodating technologies that are not merely instrumental but generative, adaptive, and epistemologically disruptive. The original TPACK framework remains indispensable for understanding how teachers negotiate relationships among content knowledge, pedagogical knowledge, and technological knowledge (Mishra & Koehler, 2006). Yet TPACK was theorized during an era of relatively stable digital tools whose operations were transparent and whose outputs were deterministic. Contemporary AI systems differ qualitatively: they are probabilistic, opaque in their decision-making, capable of autonomous content generation, and trained on corpora that embed specific cultural and historical biases. These characteristics mean that AI does not simply intersect with content and pedagogy; it reconfigures what counts as knowledge, redistributes cognitive labor between human and machine, and introduces ethical dilemmas that existing TPACK intersections cannot adequately capture. Consequently, this study mobilizes an integrated framework that extends TPACK through AI literacy while embedding both within a sociotechnical ecology that treats teacher education as a complex system rather than a collection of individual practitioners.

The Extended AI-TPACK Architecture

The first pillar of the framework extends TPACK by installing AI literacy as a meta-competency that undergirds all technological, pedagogical, and content interactions. Drawing upon Ng et al. (2021), AI literacy is operationalized across four interrelated dimensions, each adapted here to the specific context of teacher preparation. Conceptual understanding refers not merely to surface-level awareness of machine learning or neural networks, but to a situated grasp of how AI systems produce probabilistic outputs, the role of training data in shaping recommendations, and the phenomenon of algorithmic hallucination. For teacher candidates, this means recognizing that an intelligent tutoring system's feedback on their simulated teaching is statistically generated rather than pedagogically ordained, and therefore subject to error. Functional competence denotes the ability to operate AI tools for professional purposes, including generating differentiated materials, analyzing learning analytics, and navigating simulated classrooms, but insists that such competence is always pedagogically situated rather than technically abstract. A teacher candidate must learn to use generative AI not as a generic user, but as a curriculum-maker who evaluates output against disciplinary accuracy and developmental appropriateness.

Critical evaluation constitutes the third dimension, requiring teacher candidates to interrogate the ethical, social, and political implications of AI deployment in educational settings. This dimension directly addresses algorithmic bias, data privacy, and the commodification of teaching by cultivating capacities for skepticism and ethical reasoning. Finally, design thinking and creative innovationgg position teacher candidates not as passive consumers of AI tools but as active designers of human-AI pedagogical collaborations. This dimension emphasizes the ability to imagine novel instructional configurations that leverage AI affordances while preserving the relational and improvisational core of teaching.

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The second pillar reconceptualizes the intersections of TPACK for an AI-mediated environment. AI-Content Knowledge (AI-CK) involves understanding how AI transforms disciplinary knowledge representation, such as the ways generative AI reconfigures writing instruction or mathematical problem-solving. AI-Pedagogical Knowledge (AI-PK) concerns the use of adaptive systems to differentiate instruction, provide automated feedback, and manage classroom dynamics. AI-TPACK represents the pinnacle of this architecture: the capacity to make contextually grounded decisions about when AI enhances, hinders, or fundamentally alters learning objectives, and when human judgment must supersede algorithmic recommendation.

Sociotechnical Ecological Dimension

The third pillar embeds the AI-TPACK architecture within a sociotechnical ecology that recognizes teacher education as a complex system nested within institutional, cultural, and political environments (Bronfenbrenner, 1979; Zhao & Frank, 2003). This ecological perspective holds that AI integration cannot succeed through individual teacher educator initiative alone; rather, it requires aligned infrastructure, policy support, professional learning communities, and governance structures. At the microsystem level, individual programs must provide access to devices, platforms, and mentoring. At the mesosystem level, partnerships between universities and school districts must ensure that AI-enhanced preparation translates into classroom practice. At the macrosystem level, national policies and accreditation standards must mandate AI literacy while protecting against surveillance capitalism and digital colonialism. This ecological dimension ensures that the framework does not collapse into individualistic skill-building but instead targets systemic transformation.

Methodology

Research Design

This study employed a qualitative document analysis (QDA) methodology to systematically examine the landscape of AI in teacher education. QDA is an established qualitative method for interrogating written materials, including scholarly articles, policy documents, and institutional reports, to derive empirical meaning and identify patterned phenomena (Bowen, 2009). This approach was selected because it allows for rigorous analysis of publicly available texts without the ethical complexities of human subjects research, while nevertheless generating theoretically rich insights into emerging educational trends.

Data Sources and Selection Criteria

The corpus comprised 65 peer-reviewed empirical studies, policy documents, and institutional reports published between 2018 and 2025. Documents were sourced through systematic searches of ERIC, Web of Science, Scopus, and Google Scholar using combinations of the following search terms: artificial intelligence, teacher education, pre-service teacher, intelligent tutoring systems, generative AI, adaptive learning, teacher preparation, and algorithmic ethics. Inclusion criteria required that documents (a) addressed AI applications or implications specifically within pre-service or in-service teacher education, (b) were published in English, and (c) offered empirical, conceptual, or policy-oriented analysis rather than purely promotional or commercial content. Exclusion criteria eliminated documents focused exclusively on K-12 student learning

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without reference to teacher preparation, as well as non-peer-reviewed blog posts and news articles lacking analytical depth.

Data Analysis

Data were analyzed using reflexive thematic analysis following Braun and Clarke (2006, 2019). This six-phase approach involves familiarization with the data, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final analysis. The researcher engaged in iterative reading of the full document set, maintaining an analytic journal to track interpretive decisions, reflexive positionings, and emergent patterns. Particular attention was paid to tensions between instrumentalist and critical accounts of AI in teacher education, as well as to geographical disparities in AI adoption. Trustworthiness was supported through prolonged engagement with the data, peer debriefing with colleagues in educational technology, and maintenance of a detailed audit trail.

Results

The analysis generated four overarching themes that map onto the research objectives: (1) the proliferation of adaptive and immersive simulation technologies; (2) generative AI as a disruptive instructional design resource; (3) structural and ethical barriers to equitable implementation; and (4) emergent governance frameworks and policy responses.

Proliferation of Adaptive and Immersive Simulation Technologies

The most frequently documented innovations across the corpus involved adaptive learning platforms, intelligent tutoring systems, and immersive VR simulations. These technologies were consistently reported to expand pre-service teachers' access to repeated, low-stakes clinical practice. For example, multiple studies documented that VR simulations such as Mursion and TeachLivE enabled candidates to rehearse classroom management strategies with diverse student avatars, thereby developing procedural fluency before entering live classrooms. Similarly, adaptive platforms were found to personalize coursework trajectories based on real-time performance data, allowing teacher candidates to focus on specific pedagogical skills such as formative assessment or differentiated instruction. Nevertheless, the corpus revealed significant variability in implementation quality, with well-resourced institutions leveraging these tools for transformative practice while under-resourced programs struggled with basic access and technical support.

Generative AI as a Disruptive Instructional Design Resource

Generative AI emerged as the most rapidly expanding and contested theme within the recent literature. Documents published after 2022 documented widespread experimentation with large language models for lesson planning, rubric generation, and reflective writing support. Teacher candidates reported that these tools democratized access to instructional design expertise, particularly for those in rural or internationally isolated contexts. However, a parallel stream of scholarship raised alarms regarding plagiarism, cognitive offloading, and the erosion of professional judgment. Several studies noted that candidates who relied heavily on generative AI for lesson planning often produced technically proficient but pedagogically thin artifacts,

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suggesting that functional competence without critical evaluation undermines preparation quality.

Structural and Ethical Barriers

Across geographical contexts, the data consistently identified structural barriers including inadequate digital infrastructure, faculty resistance, and misalignment between AI tools and accreditation standards. Ethical barriers were equally prominent. Algorithmic bias was documented in several studies where AI-powered evaluation systems disproportionately flagged non-native English speech patterns or culturally specific discourse norms as "ineffective teaching." Data privacy concerns intensified as platforms collected biometric and interaction data from pre-service teachers without transparent governance protocols. These findings suggest that AI integration in teacher education is not merely a technical challenge but a deeply ethical and political one.

Emergent Governance Frameworks and Policy Responses

The final theme identified a nascent but growing body of policy and institutional responses aimed at governing AI in teacher education. UNESCO's (2023) guidance figured prominently, alongside national initiatives in Finland, Singapore, and South Korea that embed AI literacy within teacher accreditation standards. Notably absent from the corpus were governance models tailored to the infrastructural and linguistic realities of Sub-Saharan Africa and South Asia. This gap underscores the need for context-sensitive policy architectures that prioritize local pedagogical values over the wholesale importation of Northern technological solutions.

Discussion

The findings of this study confirm that AI is no longer a peripheral concern for teacher education but a central force reshaping curriculum, pedagogy, and professional identity. The extended AI-TPACK framework proposed here offers a theoretically grounded mechanism for navigating this transformation without surrendering to technological determinism. By positioning AI literacy as a meta-competency, the framework insists that teacher candidates must understand not only how to use AI but how AI functions, how it fails, and how it encodes particular worldviews (Ng et al., 2021). This moves beyond the tool-training orientation that has historically dominated technology integration in teacher preparation (Cuban, 2001; Mishra & Koehler, 2006).

The sociotechnical ecological dimension is equally vital. The finding that AI adoption varies sharply across institutional and national contexts aligns with Zhao and Frank's (2003) ecological perspective on educational technology, which emphasizes that innovation succeeds only when technological, pedagogical, and organizational conditions align. In the context of this study, that alignment is missing in many programs, particularly those in under-resourced settings. Consequently, recommending AI integration without simultaneously addressing infrastructure, funding, and faculty development constitutes a hollow gesture that risks exacerbating existing inequities (Selwyn, 2016).

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The ethical challenges documented here, algorithmic bias, data surveillance, and deskilling, demand governance structures that are participatory and context-responsive. A human-in-the-loop pedagogical model, as recommended in the conclusions below, does not simply mean retaining human oversight as a procedural check. Rather, it requires institutionalizing teacher educator judgment as the primary evaluative authority while deploying AI to augment rather than replace relational practice (Williamson & Eynon, 2020). This distinction is crucial for protecting the improvisational expertise that defines excellent teaching.

Finally, the geographical unevenness of AI governance frameworks identified in the results signals an urgent need for Southern epistemologies in teacher education technology policy. As multinational corporations market AI solutions across African and Asian markets, local teacher educators must possess the critical literacies to evaluate these tools against culturally resonant pedagogical standards. The framework advanced here is offered as a contribution to that project: it is not a universal blueprint but a flexible architecture that institutions can adapt to their specific ecological conditions.

Conclusion

This study has argued that the AI era demands a fundamental reimagining of teacher education, one that transcends both technophobic resistance and uncritical techno-optimism.

Through systematic analysis of contemporary literature, the study identified adaptive simulations, generative AI, and learning analytics as transformative innovations currently reshaping teacher preparation. Simultaneously, it documented profound risks related to algorithmic bias, data privacy, digital inequity, and the deskilling of professional judgment. To navigate this terrain, the study proposed an extended AI-TPACK framework embedded within a sociotechnical ecology, foregrounding AI literacy, ethical reasoning, and systemic alignment as foundational pillars.

Three concrete recommendations follow from this analysis. First, accreditation bodies and program leaders should mandate the integration of AI-literacy competencies across all teacher preparation curricula, ensuring that candidates graduate with conceptual understanding, functional competence, critical evaluation skills, and design thinking capacities. Second, institutions should adopt human-in-the-loop pedagogical models that position AI as a complement to, rather than replacement for, the relational dimensions of teaching. Third, policymakers must develop participatory governance structures that include teacher educators, candidates, and community stakeholders in decisions about AI procurement, data management, and ethical oversight. Only through such deliberate, equity-centered action can teacher education fulfill its obligation to prepare educators for an algorithmically mediated society without sacrificing the human core of the profession.

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References

Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal, 9(2), 27–40. https://doi.org/10.3316/QRJ0902027

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. Qualitative Research in Sport, Exercise and Health, 11(4), 589–597. https://doi.org/10.1080/2159676X.2019.1628806

Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. Harvard University Press.

Chiu, T. K. F. (2023). A comprehensive AI education program for preparing teachers to integrate AI into teaching. Computers and Education: Artificial Intelligence, 5, 100154. https://doi.org/10.1016/j.caeai.2023.100154

Cuban, L. (1986). Teachers and machines: The classroom use of technology since 1920*. Teachers College Press.

Cuban, L. (2001). Oversold and underused: Computers in the classroom. Harvard University Press.

Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). Effective teacher professional development, Learning Policy Institute.

Grossman, P. (2018). Teaching core practices in teacher education. Harvard Education Press.

Holmes, W., Bialik, M., & Fadel, C. (2019). Artificial intelligence in education: Promises and implications for teaching and learning. Center for Curriculum Redesign.

Luckin, R. (2016). Machine learning and human intelligence: The future of education for the 21st century, UCL IOE Press.

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. Teachers College Record, 108*(6), 1017–1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

Ng, D. T. K., Leung, J. K. L., Chu, S. K. W., & Qiao, M. S. (2021). Conceptualizing AI literacy: An exploratory review. Computers and Education: Artificial Intelligence, 2, 100041. https://doi.org/10.1016/j.caeai.2021.100041

Seufert, S., Guggemos, J., & Sailer, M. (2021). Technology-related teacher professional development: A review. Computers & Education, 169, 104216. https://doi.org/10.1016/j.compedu.2021.104216

Selwyn, N. (2010). Looking beyond learning: Notes towards the critical study of educational technology. Journal of Computer Assisted Learning, 26(1), 65–73. https://doi.org/10.1111/j.1365-2729.2009.00338.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - *E*- ISSN: 3156-5492 | *P*- ISSN: 3156-5514

Selwyn, N. (2016).Is technology good for education? Polity Press.

Tondeur, J., van Braak, J., Ertmer, P. A., & Ottenbreit-Leftwich, A. (2017). Understanding the relationship between teachers' pedagogical beliefs and technology use in education: A systematic review of qualitative evidence. Educational Technology Research and Development, 65(3), 555–575. https://doi.org/10.1007/s11423-016-9481-2

Trust, T., Whalen, J., & Mouza, C. (2023). Editorial: Preparing teachers to teach with AI. Contemporary Issues in Technology and Teacher Education, 23(1), 1–6.

UNESCO. (2023). Guidance for generative AI in education and research. UNESCO Publishing. https://doi.org/10.54675/QTII5261

Williamson, B., & Eynon, R. (2020). Historical threads, missing links, and future directions in AI in education. Learning, Media and Technology, 45(3), 223–235. https://doi.org/10.1080/17439884.2020.1798995

Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education. International Journal of Educational Technology in Higher Education, 16(1), 1–27. https://doi.org/10.1186/s41239-019-0171-2

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Public Relations and Relationship Management: A Systematic Literature Review of Organisation-Public Relationships, 2000–2025

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DOI : https://doi.org/10.5281/zenodo.23019077

Abstract
Public relations literature has shifted from evaluating communication outputs to analysing relationships between organisations and their publics. This review synthesises peer-reviewed research from 2000 to 2025 on organisation-public relationships (OPRs). The review explored how relationships are theorised, measured, and applied. It identifies key factors that improve relationship quality, outcomes of strong relationships, and areas with limited evidence. Following PRISMA 2020 guidelines, searches were conducted from January 3rd to July 18th, 2026, across SciSpace, Google Scholar, and publisher platforms, with citation tracking. The period covered was 2000-2025. From an initial 106 records, 69 unique studies were screened, 38 assessed, and 30 included after verification. The review shows that relationship management has matured, supported by validated scales, cross-cultural and digital studies, public sector applications, and meta-analyses. Trust, satisfaction, commitment, and mutual control are core indicators, while openness, engagement, transparency, authenticity, dialogue, access, and communication are predictors of relationship quality. Reputations, advocacy, loyalty, supportive intentions, legitimacy, and information seeking are key outcomes. Evidence is mainly corporate, cross-sectional, and from North America, Europe, and parts of Asia; less is available for public institutions, development organisations, humanitarian work, and Africa. The review proposes an integrated relational pathway relating context, communication, relationships, quality, and outcomes, and sets a research agenda for broader, longitudinal, and comparative studies.

Keywords: public relations; relationship management; organisation-public relationships; trust; dialogue.

1. Introduction

Public relations has traditionally been associated with image-making, publicity, media relations, persuasion, and organisational reputation. These activities remain integral to professional practice; however, they do not fully explain the significance of communication to organisations

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or the publics affected by organisational decisions. From the late twentieth century onward, scholarship in public relations has increasingly shifted its analytical focus from the volume and visibility of messages to the quality of relationships fostered through organisational communication. This paradigm shift has endowed the field with a more strategic and evaluative orientation. Rather than merely asking whether information reaches an audience, relationship-centred research examines whether communication enhances trust, satisfaction, commitment, participation, mutual influence, and supportive behaviour. Consequently, the relational turn redefines the effectiveness of public relations as a continuous organisational condition, rather than a short-term communicative outcome.

The conceptual roots of this movement pre-date the review period. Broom, Casey and Ritchey (1997) argued that public relations required a more precise theory of organisation-public relationships, while Ledingham and Bruning (1998) demonstrated that relationship dimensions could distinguish different stakeholder responses. Hon and Grunig (1999) subsequently offered widely used indicators for evaluating relationships. These works fall outside the 2000 – 2025 eligibility window and were not counted among the included studies, but they provide the intellectual background against which the post-2000 literature developed. The first years of the review period were characterised by attempts to clarify what relationships mean, create reliable measures and show how relational quality connects to organisational effectiveness.

Ledingham (2003) gave this development its clearest theoretical formulation by arguing that relationship management could function as a general theory of public relations. The importance of that proposition lies in its ability to connect everyday communication activities to organisational and stakeholder outcomes. Relationship management does not reduce public relations to interpersonal friendliness. It treats organisations and publics as interdependent actors whose patterns of communication, exchange, and mutual expectation shape both parties' capacity to pursue goals. Strong relationships can reduce conflict, improve information flow, increase support, and provide organisations with early knowledge of stakeholder concerns. Poor relationships can undermine trust even when message production is technically proficient.

Measurement research strengthened this theoretical notion. Huang (2001) developed the Organisation-Public Relationship Assessment scale using cross-cultural data, and later validation studies showed that trust, satisfaction, commitment, and control mutuality could be applied across organisational settings (Jo, Hon, & Brunner, 2005; Jo, 2006). Other scholars expanded the relational construct by examining commitment, relationship types and cultivation strategies (Bruning & Galloway, 2003; Hung, 2005; Ki & Hon, 2009). As the literature developed, the central question therefore changed from whether relationships should matter to how they are formed, how they should be measured and what outcomes they generate.

The rise of digital communication further widened the field. Social networking sites created direct, visible and measurable forms of interaction between organisations and publics. Research showed, however, that technological interactivity does not automatically produce dialogue. Organisations frequently use digital channels to distribute information while underusing responsiveness, access, conversation and stakeholder participation. Studies of corporate social networking sites nevertheless show that engagement, transparency and authenticity can strengthen relational outcomes and advocacy when organisations use digital communication

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interactively (Men & Tsai, 2013, 2014). Wirtz and Zimbres (2018) reached a similar conclusion in their systematic analysis of dialogic communication research: the field had accumulated a substantial body of studies, but many studies measured technological features instead of dialogue as an actual relational process.

Recent synthesis research provides a strong basis for reassessing the field. Cheng (2018) reviewed 156 studies published between 1998 and 2016 and identified important weaknesses, including heavy reliance on cross-sectional self-report data, dyadic assumptions and limited attention to multi-party relationships. Ki, Ertem-Eray and Hayden (2023) later mapped 219 relationship-management articles and 22,926 citations, finding rapid growth after 2010 and a sustained focus on frameworks, relationship-quality measures and theory testing. Most importantly, Ma, Ma and Liu (2023) meta-analysed 454 correlations from 67 empirical studies involving 30,223 participants and found strong associations between OPRs and recurring antecedents such as engagement, authenticity, transparency, interactivity and two-way communication, as well as consequences such as reputation, advocacy and positive word-of-mouth. Zhan and Zhao (2023) similarly reported substantial positive associations between organisational openness, public engagement and OPR quality.

Despite this maturation, several problems justify a new systematic review. First, relationship-management research has expanded into internal communication, public diplomacy, corporate diplomacy, government communication, nonprofit communication, crisis communication and social media, but these streams are often discussed separately. Second, the dominance of corporate and Western research raises questions about the explanatory reach of current models in public institutions, development organisations and non-Western settings. Third, newer scholarship increasingly challenges simple dyadic models by showing that relationships are affected by culture, identity, intergroup dynamics, crisis conditions and institutional constraints. Fourth, the field needs a synthesis that connects theoretical foundations, measurable antecedents, communication practices and outcomes instead of treating them as isolated findings.

This review addresses these issues through a PRISMA 2020-guided systematic literature review of peer-reviewed journal scholarship published from 2000 to 2025. It does not claim that all relationship scholarship can be reduced to a single causal model. It instead examines the degree to which the accumulated evidence supports a relational understanding of public relations, identifies where the evidence is strongest, and specifies where existing assumptions require further testing. The review also places particular attention on public-sector, development and non-Western applications because these areas are important for testing whether theories developed largely in corporate settings travel effectively across institutional and cultural contexts.

2. Review Objectives and Research Questions

The review has four objectives: to trace the theoretical development of public relations as relationship management during 2000 – 2025; to identify the principal antecedents and indicators of organisation-public relationship quality; to synthesise evidence concerning relational outcomes and communication practices across organisational settings; and to identify methodological, institutional and geographical gaps that should guide future research.

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RQ1. How did relationship management and OPR scholarship develop theoretically and methodologically between 2000 and 2025?

RQ2. Which communication practices and relational antecedents are most consistently associated with relationship quality?

RQ3. Which organisational, attitudinal and behavioural outcomes are associated with strong OPRs?

RQ4. How do organisational type, cultural context, digital communication and crisis conditions shape relationship-management processes?

RQ5. Which gaps limit the present evidence base, and what research agenda follows from those gaps?

3. Method

3.1 Review design and reporting framework

The review adhered to PRISMA 2020 principles (Page et al., 2021). PRISMA 2020 offers a 27-item reporting framework and revised flow diagrams for transparency in study identification, selection, appraisal, and synthesis. Since this review focuses on heterogeneous social-science studies rather than a single clinical intervention, PRISMA served as a reporting and screening guide, with synthesis remaining qualitative and theory-oriented. The review was not prospectively registered; this is explicitly stated since retrospective registration would not enhance transparency. The search was conducted from January 3 to July 18, 2026, covering publications from January 1, 2000, to December 31, 2025.

3.2 Information sources and source credibility

The search employed three discovery methods: first, SciSpace's peer-reviewed scholarly index was searched with six structured topic queries covering relationship management, OPR measurement, cultivation strategies, dialogue, digital engagement, internal relationships, and public/nonprofit/international contexts. Second, Google Scholar was used as a supplementary source for discovery and citation tracing. Third, official publisher platforms and journal websites were checked to verify bibliographic details, journal provenance, and DOI information. The final corpus mainly included publications from Taylor & Francis, Elsevier, Emerald, and SAGE. Manuscripts, dissertations, theses, conference papers, book chapters, and unverified uploads were excluded, even if found in discovery searches, so inclusion depended on verifying peer-reviewed journal publication through a credible publisher or journal.

The review did not claim a direct export from Scopus or Web of Science, as such exports were unavailable. Publisher or institutional links were used for verification, not as evidence of systematic searches. The final corpus includes reputable public relations and communication journals, such as Journal of Public Relations Research, Public Relations Review, and others.

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3.3 Search strategy

Search concepts were derived from review questions and OPR literature, combining public relations and relational terms, antecedents, communication, and institutional applications. Both British and American spellings of organisation/organization were included. Because SciSpace employs semantic retrieval, we also used natural-language Boolean expressions. Exact search strategies are detailed below for reproducibility in databases like Scopus and Web of Science.

Table 1: Search strategy and documented record capture. The captured-record column represents the review log used for screening, not the total number of hits available in each discovery service.

Search set	Core search expression	Purpose	Captured records
S1	"public relations" AND "relationship management"	Core theoretical literature	10
S2	("organization-public relationship*" OR "organisation-public relationship*")	OPR concept and measurement	10
S3	"relationship cultivation" AND "public relations"	Cultivation strategies and maintenance	10
S4	(trust OR transparency OR authenticity OR openness OR engagement) AND "organization-public relationship*"	Relational antecedents and outcomes	10
S5	("dialogic communication" OR "two-way symmetrical" OR interactivity) AND "public relations" AND relationship*	Dialogue and digital relationship processes	10
S6	("employee-organization relationship*" OR government OR nonprofit OR "public diplomacy") AND "public relations" AND relationship*	Institutional and contextual extensions	10
Supplementary	Google Scholar exact-phrase and author/title searching	Citation chasing and omitted studies	20
Publisher/ Citation chasing	ScienceDirect, Taylor & Francis, Emerald and SAGE DOI/journal pages plus backward/forward references	Verification and additional eligible records	26

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3.4 Eligibility criteria

Table 2: Inclusion and exclusion criteria.

Criterion	Inclusion	Exclusion
Publication period	Journal articles dated 2000 – 2025 inclusive	Before 2000 or after 2025; older foundational works could be cited only as background
Publication status	Peer-reviewed journal article or peer-reviewed systematic/meta-analytic review	Book chapters, books, dissertations, theses, conference papers, editorials, repository-only manuscripts
Substantive focus	Relationship management, OPRs, relationship quality, cultivation, dialogue, engagement, employee-organisation relationships or directly related relational constructs in PR/strategic communication	Marketing/customer relationship studies without a public-relations or strategic-communication relationship construct
Outcomes/constructs	At least one relational antecedent, process, dimension or consequence	Communication studies that mentioned relationships only incidentally
Language	English	No accessible English bibliographic/abstract information
Source verification	Journal and bibliographic details traceable to an established publisher or journal record with DOI where available	Unverifiable journal or publication provenance

3.5 Study selection and PRISMA flow

The review log recorded 106 records: 60 from six SciSpace searches, 20 from Google Scholar, and 26 from publisher searches and citation chasing. After removing 37 duplicates, 69 unique records remained for screening. Thirty-one were excluded for being outside the focus or non-journal items. Thirty-eight reports advanced to eligibility assessment; eight were excluded for not focusing on relationship management or for being non-peer-reviewed, resulting in 30 studies for qualitative synthesis as detailed below.

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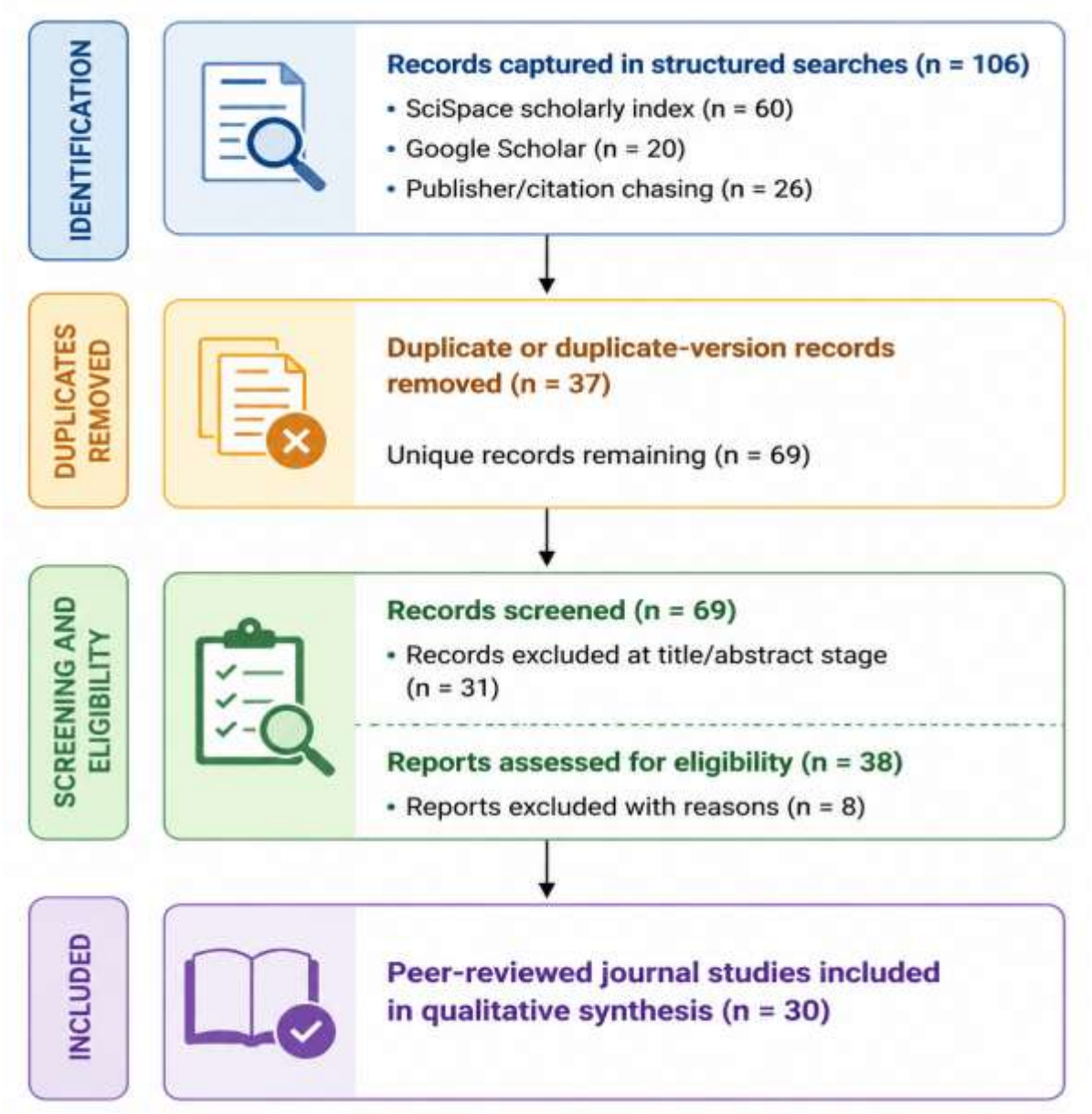

Figure 1: PRISMA 2020-compatible flow of the documented screening set.

3.6 Data extraction and synthesis

The review extracted data from each study, including year, journal, context, research design, sample or analysis unit, relational construct, key findings, and contribution to relationship-management theory. Studies were compared via thematic synthesis, with initial codes covering theoretical development, measurement, cultivation strategies, digital/dialogic communication, internal relationships, contexts, and outcomes. These were refined to find recurring mechanisms and disagreements. Meta-analytic effect sizes were not re-estimated because of study heterogeneity and existing recent meta-analyses synthesising the main correlational evidence.

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3.7 Methodological appraisal The corpus includes various study types like articles, scale studies, surveys, models, content analyses, experiments, interviews, reviews, and meta-analyses. A single risk-of-bias tool would be inappropriate across these designs. Instead, five design-sensitive questions guided appraisal: clarity of research question, description of sampling, transparency of operationalised relational constructs, alignment of analysis with design, and acknowledgement of limitations. No studies were excluded due to methodological weaknesses. Appraisals influenced the weight given to findings, with cautious interpretation of single-organisation, cross-sectional, self-report studies compared with replicated or meta-analysed studies. This approach aligns with Cheng's (2018) note that such designs dominate OPR research.

4. Results

4.1 Characteristics of the evidence base

The 30 studies show a shift from conceptualisation and measurement towards application, comparison, and synthesis over time. From 2000–2004, the focus was mainly on measurement and theory. Between 2005–2009, the emphasis expanded to validation, relationship types, dialogue, and strategies. From 2010–2014, scholarship linked OPRs to politics, social media, and cross-cultural contexts. From 2015 onward, research increasingly explored dialogue, nonprofit relationships, public diplomacy, and digital platforms. The 2020–2025 period, which includes the largest portion of studies, features crisis/pandemic research, government PR, bibliometric mapping, corporate diplomacy, meta-analysis, CSR/intergroup studies, and PR consultancy relationships. This pattern aligns with Ki, Ertem-Eray, and Hayden's (2023) evidence of sharp growth in relationship-management publications after 2010.

The final corpus covers five journals: Journal of Public Relations Research (n=16), Public Relations Review (n=8), International Journal of Strategic Communication (n=4), Journal of Communication Management (n=1), and International Journal of Business Communication (n=1). All records were verified via publisher or official pages.

Publication period	Studies (n)	Relative bar
2000–2004	3	■■■
2005–2009	7	■■■■■■■
2010–2014	6	■■■■■■
2015–2019	5	■■■■■
2020–2025	9	■■■■■■■■■

Figure 2: Distribution of the 30 included studies by publication period. Each square represents one included study.

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Table 3: Characteristics and contributions of the 30 included studies.

Study and Journal	Design, context and relational focus	Principal contribution
Huang (2001) Journal of Public Relations Research	Design/context: Cross-cultural scale development; surveys n=535 plus 32 interviews Relational focus: OPRA; trust, satisfaction, commitment, control mutuality and cultural dimensions	Established a validated cross-cultural measurement approach and demonstrated that relationship quality could be operationalised systematically.
Ledingham (2003) Journal of Public Relations Research	Design/context: Conceptual/theoretical review Relational focus: Relationship management as general theory	Argued that relationship management provides a coherent general theory linking public relations processes to relational states and outcomes.
Bruning & Galloway (2003) Public Relations Review	Design/context: Survey; n=135; factor analysis Relational focus: Expanded OPR scale and commitment	Identified five relational dimensions and reinforced the need to measure personal and structural commitment.
Jo, Hon, & Brunner (2005) Journal of Communication Management	Design/context: Measurement validation in university setting Relational focus: Trust, satisfaction, control mutuality, commitment, exchange and communal relationships	Supported the reliability of a six-factor OPR instrument in a university-public context.
Hung (2005) Journal of Public Relations Research	Design/context: 40 qualitative interviews across multinational companies in China/Taiwan Relational focus: Relationship types	Identified mutual, communal, covenantal, contractual, symbiotic, manipulative and exploitative relationship types, extending simple communal/exchange distinctions.
Jo (2006) Journal of Public Relations Research	Design/context: Manufacturer-retailer validation study, South Korea Relational focus: Cross-cultural OPR measurement	Found trust, satisfaction and commitment to travel across contexts, while personal network captured culturally specific relational features.
Ki & Shin (2006) Public Relations Review	Design/context: Content analysis/review of OPR scholarship Relational focus: State of OPR research	Documented rapid development of OPR research and called for replication, extension and cumulative theory building.

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Huang (2008) Journal of Public Relations Research	Design/context: Crisis communication study Relational focus: Trust and relational commitment	Showed that prior relational conditions and crisis responses affect trust and commitment, linking relationship management to crisis contexts.
Bruning, Dials, & Shirka (2008) Public Relations Review	Design/context: Empirical survey study Relational focus: Dialogue and relationship attitudes	Found that relationship attitudes and dialogue positively influenced organisational evaluations and intended behaviour.
Ki & Hon (2009) Journal of Public Relations Research	Design/context: Scale development/validation Relational focus: Relationship cultivation strategies	Developed a reliable multi-item measure of day-to-day cultivation strategies, allowing relationship maintenance to be tested empirically.
Seltzer & Zhang (2011) Journal of Public Relations Research	Design/context: Telephone survey; registered voters n=508 Relational focus: Political OPRs	Found that trust, mediated/interpersonal communication and dialogue predicted the strength of citizen-party relationships.
Men & Hung (2012) International Journal of Strategic Communication	Design/context: Qualitative elite interviews/conceptual integration Relational focus: OPRs in strategic management	Demonstrated how OPRs contribute to analysis, formulation, implementation and strategic control through information, support and feedback.
Men & Tsai (2013) International Journal of Strategic Communication	Design/context: Survey/model testing; Chinese social networking users Relational focus: Social media engagement and relational outcomes	Supported an integrated model linking social media dependency, parasocial interaction and community identification to engagement and relational outcomes.
Pratt & Omenugha (2014) International Journal of Strategic Communication	Design/context: Comparative theory-informed case analysis; Sudan and Nigeria Relational focus: Relationship management in ethnoreligious conflict	Applied relationship management to African conflict settings and argued for communication strategies capable of engaging divided stakeholder groups.

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Men & Stacks (2014) Journal of Public Relations Research	Design/context: Employee survey/SEM Relational focus: Leadership, transparency and employee-organisation relationships	Found that authentic leadership encouraged symmetrical and transparent communication, which strengthened employee trust, commitment, satisfaction and control mutuality.
Men & Tsai (2014) Journal of Public Relations Research	Design/context: Survey/model testing of corporate social networking sites Relational focus: Engagement, authenticity, transparency, advocacy	Found positive effects of engagement on authenticity, transparency, OPR quality and advocacy; OPRs linked engagement to advocacy.
Yang, Kang, & Cha (2015) Journal of Public Relations Research	Design/context: Two online surveys; n=704 Relational focus: Organisation-public dialogic communication scale	Validated a 28-item dialogic communication measure and demonstrated significant links between dialogue, trust and distrust.
Pressgrove & McKeever (2016) Journal of Public Relations Research	Design/context: Stakeholder survey; n=660 Relational focus: Nonprofit stewardship, loyalty and behaviour	Extended nonprofit OPR models by linking cultivation strategies and relationship quality to loyalty and behavioural intentions.
Storie (2018) Journal of Public Relations Research	Design/context: 32 in-depth interviews with public-diplomacy communication officers Relational focus: Public diplomacy relationship cultivation	Confirmed established cultivation dimensions but also showed that goals, trust and inter-organisational competition shape public-diplomacy relationships.
Wirtz & Zimbres (2018) Journal of Public Relations Research	Design/context: Systematic analysis of 79 peer-reviewed studies Relational focus: Digital dialogic communication	Found heavy dependence on content analysis and warned researchers not to equate digital features with genuine dialogue.
Cheng (2018) Public Relations Review	Design/context: Comprehensive review of 156 OPR studies Relational focus: OPR antecedents, outcomes, process, structure	Identified dyadic assumptions, cross-sectional dominance, unilateral self-report and measurement limitations; proposed contingent OPR thinking.

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Marschlich & Ingenhoff (2021) Journal of Public Relations Research	Design/context: 25 in-depth interviews; United Arab Emirates Relational focus: Corporate diplomacy, cultivation and legitimacy	Connected relationship cultivation and cultural responsiveness to organisational legitimacy in corporate diplomacy.
Huang, Lynn, Dong, Ni, & Men (2023) International Journal of Business Communication	Design/context: Content analysis: 756 Weibo and 645 Twitter/X posts from Fortune 500 firms Relational focus: Cross-cultural social media cultivation during COVID-19	Found that openness and access affected engagement differently across China and the United States, demonstrating cultural contingency in digital cultivation.
Dong, Zheng, & Morehouse (2023) Public Relations Review	Design/context: Systematic review/bibliometric analysis of 155 GPR articles Relational focus: Government public relations	Found government PR to be growing but under-theorised, with strong roots in relationship management and substantial contextual research needs.
Ki, Ertem-Eray, & Hayden (2023) Public Relations Review	Design/context: Bibliometric analysis; 219 articles and 22,926 citations Relational focus: Development of relationship-management scholarship	Confirmed strong post-2010 growth and identified frameworks, measurement and theory advancement as dominant intellectual themes.
Zhan & Zhao (2023) Journal of Public Relations Research	Design/context: Meta-analysis Relational focus: Openness, engagement and OPRs	Reported corrected mean correlations of .52 –.72 between openness and OPR dimensions and .30 –.42 between engagement and OPRs, with contextual moderation.
Ma, Ma, & Liu (2023) Public Relations Review	Design/context: Meta-analysis; 454 correlations, 67 studies, N=30,223 Relational focus: Antecedents and consequences of OPRs	Confirmed strong links between OPRs and engagement, authenticity, transparency, interactivity, symmetrical communication, reputation, advocacy and other consequences.
Ghorbanzadeh et al. (2023) International Journal of Strategic Communication	Design/context: Survey/SEM; 287 hotel employees in Iran Relational focus: Internal communication, emotional culture and EORs	Found that symmetrical and responsive communication strengthens emotional culture and employee-organisation relationships, which supports employee advocacy.

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Xu (2024) Public Relations Review	Design/context: Experiment with moderated mediation Relational focus: CSR, identity and OPRs	Showed that CSR can influence relational outcomes through identity congruity and self-expansion, while intergroup identity threat changes the indirect effect.
Ziegele (2025) Journal of Public Relations Research	Design/context: Literature synthesis plus qualitative practitioner analysis Relational focus: Consultancy-client relationship quality	Extended relationship-quality thinking to consultancy-client relationships and proposed a multidimensional framework beyond conflict-based evaluation.

4.2 Theme 1: Theoretical consolidation and the measurement of relationship quality

Post-2000 studies focused on quantifying the relational perspective, with Huang's (2001) OPRA scale which combined theory with cross-cultural measurement, with indicators showing that relational research extends beyond impressionistic claims. Validation centred on trust, satisfaction, commitment, and mutual control (Jo et al., 2005; Jo, 2006). Bruning and Galloway (2003) added personal and structural commitments, community improvement, professional benefits, and alternative comparisons. Though dimensions vary, these studies agree that public relations builds value by enhancing relationship quality and stability, not just awareness.

Ledingham's (2003) contribution expanded the meaning of measurement efforts, suggesting relationship management becomes a broad theory when relationships link organisational behaviour, communication, and outcomes. While later literature supports this, it also complicates it. Hung (2005) identified different relationship types, from mutual and covenantal to manipulative and exploitative, indicating that high scores on a generic scale do not necessarily reflect moral character, benefit distribution, or power. Cheng (2018) argued that dominant OPR models can idealise mutual benefit and overlook changing, multi-party, and contingent relations. Recent research on consultancy-client relationships (Ziegele, 2025) shows relational quality must sometimes be tailored to professional contexts rather than universally applied.

The field's maturation is visible in synthesis research. Ki et al. (2023) found 219 relationship-management articles across six major public relations journals and showed that the field's intellectual centre consists of framework development, scale validation, and theory testing. Ma et al. (2023) then provided meta-analytic confirmation that the familiar dimensions of trust, satisfaction, commitment and control mutuality have accumulated substantial empirical support. The theoretical issue is therefore no longer whether relationship quality can be measured. A more demanding question concerns whether existing measures capture changing relationship forms, power differences, multiple publics, cultural expectations and long-term relational change.

4.3 Theme 2: Cultivation strategies, openness, dialogue and symmetrical communication

The literature distinguishes relationship quality from communication practices that cultivate relationships. Ki and Hon (2009) developed strategies like access, openness, assurance, networking, positivity, and shared tasks to test their link to OPR quality. Work on dialogue supports this logic; Bruning et al. (2008) showed dialogue and positive attitudes improved

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evaluations and intentions. Yang et al. (2015) created a dialogue scale tied to trust and distrust. These studies indicate dialogue is more than an ideal; it can be operationalised and linked to relational states.

Two-way symmetrical communication explains these findings by suggesting that organisations learn from publics and stay open to change, rather than one-way persuasion. Men and Stacks (2014) found that transparent internal communication enhances employee relationships. Seltzer and Zhang (2011) found that dialogic, interpersonal, and mediated communication predict stronger citizen-party ties. The value of two-way communication therefore lies in creating access, responsiveness, information, and mutual influence, not just message exchange.

The strongest current evidence on openness and engagement shows they positively relate to OPRs. Zhan and Zhao's (2023) meta-analysis found correlations between openness and OPR dimensions from .52 to .72, and between engagement and OPRs from .30 to .42, varying by organizational context. Ma et al. (2023) concluded that engagement, authenticity, interactivity, transparency, and communication types all strongly connect with OPRs. These findings suggest that communication fosters relationships when publics perceive it as open, authentic, interactive, and responsive.

4.4 Theme 3: Digital relationship management and the limits of technological interactivity

Digital platforms transformed organisation-public interactions. However, literature warns against equating technical interactivity with relational dialogue. Men and Tsai (2013) found social media engagement links media dependency, parasocial interaction, and community identification to trust, satisfaction, and commitment. Their later study showed engagement with corporate social networking pages boosts perceived authenticity and transparency, with OPR quality influencing advocacy behaviour (Men & Tsai, 2014). These findings suggest digital communication supports relationship management when publics see it as socially meaningful, not just plentiful.

Wirtz and Zimbres (2018) identified a weakness in digital dialogic research, noting that most of 79 studies relied on content analysis, often inferring dialogue from website or social-media features. However, features like comment boxes or social accounts do not confirm listening, response, or change. Relationship management requires distinguishing communication tools from relational processes, as technically interactive entities may still communicate hierarchically, while less advanced ones can build stronger relationships through responsiveness and access.

Cross-cultural research supports this. Huang et al. (2023) analyzed 756 Weibo posts and 645 Twitter/X posts from Fortune 500 companies in China and the U.S. Both groups used openness, but it was more effective in the U.S., while access was more important in China. Their China-focused research showed access predicted engagement during COVID-19. Digital strategies vary across cultures, as platform features interact with cultural norms, crises, and relationships.

4.5 Theme 4: Internal communication and employee-organisation relationships

Relationship management extends inward as employees, though organisational members, are strategic publics whose trust and advocacy impact performance and reputation. Men and Stacks (2014) linked authentic leadership to transparent internal communication, fostering trust, commitment, satisfaction, and mutual control. This model shows relationship quality mediates

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leadership communication outcomes, as trust is influenced by accountable, participatory communication environments, not just frequent speech.

Ghorbanzadeh et al. (2023) extended this argument in an Iranian hotel context. Symmetrical and responsive leadership communication supported a positive emotional culture, which strengthened employee-organisation relationships and employee advocacy. The study broadens relationship management in two respects. First, it provides evidence from a non-Western organisational environment. Second, it introduces emotional culture as an intervening mechanism. Employee relationships therefore depend on more than information flow. They are also shaped by affective conditions and by whether employees interpret organisational communication as responsive and respectful.

Internal relationship research highlights a methodological concern: many studies rely on cross-sectional surveys, making causal claims hard. Consistent associations across samples are promising, but longitudinal studies are needed to see if communication affects relationship quality over time and if improvements lead to advocacy, retention, or performance. This mirrors the field's dependence on self-report designs identified by Cheng (2018).

4.6 Theme 5: Political, government, nonprofit and international relationship management

Relational theory has expanded from corporate contexts to broader areas. Seltzer and Zhang's (2011) political OPR model showed that citizens can assess political parties via relational factors and outcomes. Storie (2018) found that public diplomacy relies on trust, organisational goals, and inter-organisational competition. Marschlich and Ingenhoff (2021) linked relationship cultivation to legitimacy in UAE corporate diplomacy. These studies indicate that relationship management extends beyond corporate stakeholders, and that institutional purpose shapes what defines a successful relationship.

Government communication is vital because public institutions operate under democratic, legal, and public-good constraints that differ from corporate settings. Dong, Zheng, and Morehouse (2023) reviewed 155 government PR articles from 1976 to 2021, and found that while government PR is growing, it remains under-theorised, with strong roots in relationship management. For government bodies, relational effectiveness involves accountability, public value, political contestation, equity, legitimacy, and communicating with citizens.

Nonprofit scholarship makes a similar contribution. Pressgrove and McKeever (2016) extended OPR models to loyalty and behavioural intentions among nonprofit stakeholders. Their work shows that relational outcomes can predict behaviours that matter directly to mission-driven organisations, including continued support. However, nonprofit and development organisations also depend on communities whose expectations may involve participation, representation and fairness, not only loyalty. This is one reason public-sector and development research should not simply import corporate scales without testing their conceptual fit.

The African evidence remains limited. Pratt and Omenugha (2014) applied relationship management to ethnoreligious conflict in Sudan and Nigeria, demonstrating the relevance of stakeholder engagement to nation-building and conflict management. This contribution matters because it situates relationship theory in environments marked by political division and social conflict. However, a small number of African studies cannot establish whether dominant OPR

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measures capture local understandings of trust, authority, community obligation, state legitimacy or public participation. The imbalance between the size and diversity of African public institutions and the small amount of relationship-management research centred on them remains a significant research gap.

4.7 Theme 6: Relational consequences: reputation, advocacy, loyalty and legitimacy

The field's strongest claim is that relationship quality holds great significance because it predicts outcomes that organisations and publics value. Ma et al. (2023) found strong connections between OPRs and reputation, attitudes, positive word-of-mouth, purchase intentions, advocacy and information seeking. Pressgrove and McKeever (2016) linked nonprofit relationship management to loyalty and behavioural intentions. Men and Tsai (2014) positioned OPR quality as an important mechanism through which social-media engagement influences advocacy. Marschlich and Ingenhoff (2021) connected cultivation practices to organisational legitimacy. These results collectively support the strategic value of relationship management, although the specific outcome depends on organisational purpose.

Trust is both a relationship quality and a communication outcome. Huang (2008) linked relational conditions to crisis trust and commitment, while Yang et al. (2015) connected dialogic communication to trust and distrust. In internal communication, transparency and symmetrical communication predict employee trust. Trust is an ongoing relational state influencing future perceptions and can be strengthened or weakened by new experiences, making longitudinal studies essential.

Recent work extends beyond traditional reputation outcomes. Xu (2024) found that CSR influences relational outcomes through identity congruity and self-expansion, with identity threat modifying these effects. Relationship quality depends on interactions among organisations, issues, and publics. Publics assess relationships based on organisational communication and the meanings of actions for their identities and other groups. This challenges the view that OPRs are independent dyads and supports a networked, socially embedded relationship management model.

5. Integrated Interpretation

Across 30 studies, relationship management is a conditional pathway, not just a simple communication-effects model. Institutional and cultural conditions influence which communication practices publics see as appropriate. Practices like openness, access, transparency, authenticity, listening, interactivity, and symmetrical communication foster dialogue, engagement, and participation. These processes affect relationship quality, mainly trust, satisfaction, commitment, and mutual control, though relationship type and cultural dimensions also matter. Relationship quality then impacts outcomes like reputation, advocacy, loyalty, legitimacy, supportive behaviour, and information seeking, which in turn shape expectations during crises or organisational change.

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Stage	Constructs represented in the synthesis
Context	Culture; organisational type; public-sector constraints; crisis; issue identity; power
Communication practices	Openness; transparency; authenticity; access; symmetrical communication; responsiveness
Relational processes	Dialogue; engagement; listening; participation; interaction; cultivation
Relationship quality	Trust; satisfaction; commitment; control mutuality; communal/exchange or context-specific qualities
Outcomes	Reputation; legitimacy; advocacy; loyalty; supportive behaviour; information seeking

Figure 3: Integrated relationship-management pathway derived from the synthesis. The model is recursive: stakeholder outcomes and organisational behaviour shape subsequent relational expectations.

6. Discussion

The review shows that relationship management is more than a metaphor for good public relations. It now has a recognised theory, validated measurement methods, cultivation strategies, digital and internal uses, public-sector extensions, and meta-analytic support. Ledingham's (2003) idea that relationship management could be a general public relations theory is well-supported. The theory persists because it explains a key issue: public relations builds organisational value over time through relationships, not just immediate knowledge gains or media visibility.

Relationship management should not be seen as a closed theory. While trust, satisfaction, commitment, and control mutuality are useful, studies by Hung (2005), Jo (2006), Cheng (2018), and Xu (2024) show that relationships vary by culture, type, context, and interactions among publics. The field must differentiate between core principles and context-specific aspects. For example, trust is broadly relevant, but behaviours that convey trustworthiness differ across settings like corporate, government, political, and community. Similarly, control mutuality assumes publics value influence, but its meaning varies among customers, employees, citizens, and communities affected by development.

The review clarifies the link between Relationship Management Theory and the Two-Way Symmetrical Model, which sees symmetry as one communication approach that supports relationship quality, not a full replacement for relationship theory. Meta-analyses show symmetry and two-way communication relate to OPRs (Ma et al., 2023), while studies show transparency, dialogue, and responsiveness foster trust and commitment. However, symmetry does not mean organisations and publics have equal resources or power. Public relations can provide access, feedback, and opportunities for adjustment, even when power is unequal, which is especially important in government, development, and crisis situations.

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Excellence Theory adds a layer by emphasising that public relations creates more value when communication professionals engage in decision-making, environmental scanning, and organisational learning. Men and Hung (2012) support this by showing how OPRs assist with strategic analysis, formulation, implementation, and control. Relationship management explains how excellent PR boosts organisational effectiveness, as strong relationships supply information, support implementation, identify conflicts, and provide feedback. Relationships are not just communication outcomes; they are resources that enhance strategic sensing and adaptation.

Digital communication presents both opportunities and challenges. Social media enables observation and provides behavioural data; however, Wirtz and Zimbres (2018) indicate that much digital research quantifies features rather than dialogues. Men and Tsai illustrate that engagement can enhance authenticity, transparency, relationship quality, and advocacy, provided that the engagement is meaningful. Huang et al. (2023) reveal that cultivation strategies differ across cultures. Future research should prioritise responsiveness, active listening, follow-through, and stakeholder influence rather than focusing only on technological features.

Public-sector research requires a more substantial theoretical extension. Dong et al. (2023) show that government public relations is strongly linked to relationship management but lacks a fully developed identity. This gap matters because public institutions differ from corporations in their obligations. A government institution must communicate with supportive, indifferent and hostile publics; it must act under legal constraints; and it often has coercive or regulatory power. A citizen's relationship with a government institution therefore cannot be understood simply as a voluntary exchange. Relationship quality in government should incorporate procedural fairness, accountability, responsiveness, voice and public value alongside trust and satisfaction.

Development organisations face questions about resource dependency, political structures, long timelines, and expertise gaps. Public relations should be seen as ongoing consultation, explanation, feedback, and response. An evaluation should focus on stakeholder access to decision-makers, responsiveness to complaints, transparency about constraints, and perceived credibility. These measures link public relations to legitimacy and effectiveness.

The geographic distribution of evidence shows that relationship management research is not limited to Western contexts, with studies from China, Taiwan, South Korea, Iran, and the UAE supporting this. However, the body of research still hinges largely on U.S.-developed theories, scales, and samples. African research is limited despite its importance to public institutions, humanitarian efforts, conflicts, extractive industries, and development. Pratt and Omenugha (2014) highlight relational theory's potential in Sudan and Nigeria, but more comparative studies are needed. Future African research should carefully test existing scales and explore relational dimensions tied to local political, social, and cultural contexts.

The literature has made significant progress but still relies heavily on cross-sectional surveys. While scale validation and structural equation modelling improve construct measurement, they cannot establish causation. Relationships are inherently longitudinal, with trust, commitment, crises, and repeated responses shaping future perceptions. Panel studies, repeated measures, longitudinal fieldwork, and multi-wave digital trace designs are especially valuable. Dyadic data should also expand, measuring both organisational and public perceptions simultaneously and examining discrepancies.

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The review supports shifting from dyadic to networked relationship management. Xu (2024) shows intergroup identity can alter effects. Governments and organisations interact with multiple groups that influence each other. Communities assess institutions partly through their treatment of others; employees affect reputation; activists reshape information environments. Techniques like network analysis, multi-level modelling, and comparative case studies help move beyond the idea that each organisation-public dyad operates independently.

The evidence suggests ethical quality warrants greater focus. Extensive communication can exist in manipulative or exploitative relationships. Relationship management must differentiate engagement from ethics. Trustworthy public relations need alignment between communication and behaviour. Transparency alone, without accountability, risks superficiality, and dialogue without response can cause consultation fatigue. Future theories should consider ethical conduct, fairness, and commitment fulfilment as core to relationship quality.

7. Research Agenda

Table 4: Proposed research agenda for relationship-management scholarship.

Priority	Research direction
Longitudinal relationship dynamics	Replace one-time surveys with panel, repeated-measure and longitudinal qualitative designs that can show how trust, satisfaction and commitment change after organisational actions, crises and policy decisions.
Public-sector and development contexts	Develop and validate relationship measures for government institutions, development commissions, humanitarian organisations and public service institutions, including accountability, procedural fairness, voice and public value.
African and other under-represented settings	Test the cultural validity of dominant OPR measures across African countries and examine locally meaningful dimensions of legitimacy, communal obligation, authority, trust and participation.
Multi-public and networked relationships	Move beyond isolated dyads by studying how relationships among publics, stakeholder coalitions and organisational networks shape OPR outcomes.
Behavioural and organisational data	Combine surveys with response-time data, complaint records, consultation outcomes, digital interaction traces, retention, participation and advocacy behaviour.
Power and ethics	Examine whether access, dialogue and transparency produce actual stakeholder influence and whether relationship cultivation is supported by fair organisational behaviour.

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Artificial intelligence and mediated relationships	Study how chatbots, generative AI, automated service agents and algorithmic communication affect authenticity, trust, transparency and perceptions of organisational listening.
Comparative institutional research	Compare corporations, governments, nonprofits and development organisations using common core measures while allowing institution-specific relational dimensions.

8. Practical Implications

For public relations, communication volume should not be the main success indicator. Organisations should measure relational outcomes directly, tracking trust, satisfaction, commitment, influence, openness, responsiveness, and access over time and across stakeholder groups. When trust drops, practitioners should examine underlying organisational behaviours rather than assuming more messaging can fix the relationship.

Digital engagement strategies should be evaluated by relational quality, not just follower counts. Response rate, listening, resolution, and changes after feedback show relationship management. Internal communicators should treat employees as relational publics and promote transparent, participatory communication. Government and development communicators should focus on access, explanation, complaint response, inclusion, and visible follow-through, as legitimacy depends on stakeholders feeling communication leads to action.

The integrated pathway guides evaluation by helping practitioners identify contextual conditions, control communication practices, measure dialogue and engagement, assess relationship quality, and examine outcomes. It links communication to relational mechanisms and distinguishes communication issues from broader organizational problems.

9. Limitations of the Review

This review has limitations. It relied on a search combining scholarly discovery tools, Google Scholar, and citation chasing, not direct exports from databases like Scopus or Web of Science. So, it only reports records captured and screened, not all articles from 25 years. English-only eligibility may under-represent non-English research. The broad scope required synthesis across diverse designs, making a single quantitative estimate inappropriate. While publisher and abstract details verified provenance and methods, some paywalled full texts were inaccessible. These limits suggest cautious interpretation.

10. Conclusion

Since 2000, evidence shows relationship management is a key area in public relations, evolving from defining and measuring organisation-public ties to testing strategies, digital and internal communication, and extending into political and governmental contexts, with studies highlighting trust, satisfaction, commitment, openness, transparency, engagement, authenticity, and communication as crucial. Strong relationships boost reputation, advocacy, loyalty, legitimacy, and supportive behaviours.

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Theoretical maturity does not mean completion, as research still relies too heavily on cross-sectional self-report data and mainly reflects corporate and Western contexts. Public institutions, development organisations, humanitarian actors, and African settings offer key opportunities to test theory because their relationships involve accountability, political constraints, community participation, and unequal power. Future research should shift from applying established scales universally to developing comparative, longitudinal, and context-sensitive relationship models.

Public relations is best seen as strategic relationship management that links communication to listening, responsiveness, and behaviour. It adds value not just by creating messages, but by helping organisations understand stakeholder expectations, build credible interaction, respond to conflict, and maintain relationships that support organisational and public goals.

References

Broom, G. M., Casey, S., & Ritchey, J. (1997). Toward a concept and theory of organisation-public relationships. *Journal of Public Relations Research*, 9(2), 83–98. https://doi.org/10.1207/s1532754xjprr0902_01

Bruning, S. D., Dials, M., & Shirka, A. (2008). Using dialogue to build organisation-public relationships, engage publics, and positively affect organisational outcomes. *Public Relations Review*, 34(1), 25–31. https://doi.org/10.1016/j.pubrev.2007.08.004

Bruning, S. D., & Galloway, T. (2003). Expanding the organisation-public relationship scale: Exploring the role that structural and personal commitment play in organisation-public relationships. *Public Relations Review*, 29(3), 309–319. https://doi.org/10.1016/S0363-8111(03)00042-0

Cheng, Y. (2018). Looking back, moving forward: A review and reflection of the organisation-public relationship (OPR) research. *Public Relations Review*, 44(1), 120–130. https://doi.org/10.1016/j.pubrev.2017.10.003

Dong, C., Zheng, Q., & Morehouse, J. (2023). What do we know about government public relations (GPR)? A systematic review of GPR in public relations literature. *Public Relations Review*, 49(1), 102284. https://doi.org/10.1016/j.pubrev.2022.102284

Ghorbanzadeh, D., Chandra, T., Akhmadeev, R., Aleynikova, M. Y., & Muda, I. (2023). Enhancing emotional culture through internal communication: Impact on employee-organisation relationships and employee advocacy. *International Journal of Strategic Communication*, 17(5), 475–495. https://doi.org/10.1080/1553118X.2023.2231435

Grunig, J. E., & Hunt, T. (1984). *Managing public relations*, Holt, Rinehart and Winston.

Hon, L. C., & Grunig, J. E. (1999). *Guidelines for measuring relationships in public relations*, Institute for Public Relations.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Huang, Q., Lynn, B. J., Dong, C., Ni, S., & Men, L. R. (2023). Relationship cultivation via social media during the COVID-19 pandemic: Evidence from China and the U.S. *International Journal of Business Communication*, 60(2), 512–542. https://doi.org/10.1177/23294884211067805

Huang, Y.-H. (2001). OPRA: A cross-cultural, multiple-item scale for measuring organisation-public relationships. *Journal of Public Relations Research*, 13(1), 61–90. https://doi.org/10.1207/S1532754XJPRR1301_4

Huang, Y.-H. (2008). Trust and relational commitment in corporate crises: The effects of crisis communicative strategy and form of crisis response. *Journal of Public Relations Research*, 20(3), 297–327. https://doi.org/10.1080/10627260801962830

Hung, C.-J. F. (2005). Exploring types of organisation-public relationships and their implications for relationship management in public relations. *Journal of Public Relations Research*, 17(4), 393–426. https://doi.org/10.1207/s1532754xjprr1704_4

Jo, S. (2006). Measurement of organisation-public relationships: Validation of measurement using a manufacturer-retailer relationship. *Journal of Public Relations Research*, 18(3), 225–248. https://doi.org/10.1207/s1532754xjprr1803_2

Jo, S., Hon, L. C., & Brunner, B. R. (2005). Organisation-public relationships: Measurement validation in a university setting. *Journal of Communication Management*, 9(1), 14–27. https://doi.org/10.1108/13632540510621434

Ki, E.-J., Ertem-Eray, T., & Hayden, G. (2023). A bibliometric analysis of relationship management as a scholarly field from 1997 to 2022. *Public Relations Review*, 49(1), 102286. https://doi.org/10.1016/j.pubrev.2023.102286

Ki, E.-J., & Hon, L. C. (2009). A measure of relationship cultivation strategies. *Journal of Public Relations Research*, 21(1), 1–24. https://doi.org/10.1080/10627260802520488

Ki, E.-J., & Shin, J.-H. (2006). Status of organisation-public relationship research from an analysis of published articles, 1985–2004. *Public Relations Review*, 32(2), 194–195. https://doi.org/10.1016/j.pubrev.2006.02.019

Ledingham, J. A. (2003). Explicating relationship management as a general theory of public relations. *Journal of Public Relations Research*, 15(2), 181–198. https://doi.org/10.1207/S1532754XJPRR1502_4

Ledingham, J. A., & Bruning, S. D. (1998). Relationship management in public relations: Dimensions of an organisation-public relationship. *Public Relations Review*, 24(1), 55–65. https://doi.org/10.1016/S0363-8111(98)80020-9

Ma, X., Ma, L., & Liu, B. F. (2023). Should relationships be at the heart of public relations? A meta-analysis of the antecedents and consequences of organisation-public relationships. *Public Relations Review*, 49(5), 102388. https://doi.org/10.1016/j.pubrev.2023.102388

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Marschlich, S., & Ingenhoff, D. (2021). The role of public relations in corporate diplomacy: How relationship cultivation increases organisational legitimacy. *Journal of Public Relations Research*, 33(2), 86–105. https://doi.org/10.1080/1062726X.2021.1981332

Men, L. R., & Hung, C.-J. F. (2012). Exploring the roles of organisation-public relationships in the strategic management process: Towards an integrated framework. *International Journal of Strategic Communication*, 6(2), 151–173. https://doi.org/10.1080/1553118X.2011.605778

Men, L. R., & Stacks, D. W. (2014). The effects of authentic leadership on strategic internal communication and employee-organisation relationships. *Journal of Public Relations Research*, 26(4), 301–324. https://doi.org/10.1080/1062726X.2014.908720

Men, L. R., & Tsai, W.-H. S. (2013). Toward an integrated model of public engagement on corporate social networking sites: Antecedents, the process, and relational outcomes. *International Journal of Strategic Communication*, 7(4), 257–273. https://doi.org/10.1080/1553118X.2013.822373

Men, L. R., & Tsai, W.-H. S. (2014). Perceptual, attitudinal, and behavioural outcomes of organisation-public engagement on corporate social networking sites. *Journal of Public Relations Research*, 26(5), 417–435. https://doi.org/10.1080/1062726X.2014.951047

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, 372, n71. https://doi.org/10.1136/bmj.n71

Pratt, C. B., & Omenugha, K. A. (2014). "My God is not your God": Applying relationship management theory to managing ethnoreligious crises in Sub-Saharan Africa. *International Journal of Strategic Communication*, 8(2), 100–125. https://doi.org/10.1080/1553118X.2014.882338

Pressgrove, G. N., & McKeever, B. W. (2016). Nonprofit relationship management: Extending the organisation-public relationship to loyalty and behaviours. *Journal of Public Relations Research*, 28(3–4), 193–211. https://doi.org/10.1080/1062726X.2016.1233106

Seltzer, T., & Zhang, W. (2011). Toward a model of political organisation-public relationships: Antecedent and cultivation strategy influence on citizens' relationships with political parties. *Journal of Public Relations Research*, 23(1), 24–45. https://doi.org/10.1080/1062726X.2010.504791

Storie, L. K. (2018). Relationship cultivation in public diplomacy: A qualitative study of relational antecedents and cultivation strategies. *Journal of Public Relations Research*, 29(6), 295–310. https://doi.org/10.1080/1062726X.2018.1437443

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - *E*- ISSN: 3156-5492 | *P*- ISSN: 3156-5514

Wirtz, J. G., & Zimbres, T. M. (2018). A systematic analysis of research applying principles of dialogic communication to organisational websites, blogs, and social media: Implications for theory and practice. *Journal of Public Relations Research*, 30(1–2), 5–34. https://doi.org/10.1080/1062726X.2018.1455146

Xu, S. (2024). Connecting issues, CSR, and OPRs: Unpacking identity mediators of the effect of CSR on relationship and the moderating role of intergroup dynamics. *Public Relations Review*, 50(1), 102421. https://doi.org/10.1016/j.pubrev.2023.102421

Yang, S.-U., Kang, M., & Cha, H. (2015). A study on dialogic communication, trust, and distrust: Testing a scale for measuring organisation-public dialogic communication (OPDC). *Journal of Public Relations Research*, 27(2), 175–192. https://doi.org/10.1080/1062726X.2015.1007998

Zhan, M. M., & Zhao, X. (2023). Fostering organisation-public relationships through openness and engagement: A meta-analysis. *Journal of Public Relations Research*, 35(2), 86–112. https://doi.org/10.1080/1062726X.2022.2160335

Ziegele, D. (2025). Cultivating effective agency-client relationships: Reviewing the field and proposing a novel framework to measure relationship quality in public relations. *Journal of Public Relations Research*, 37(3), 280–296. https://doi.org/10.1080/1062726X.2024.2433240

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Eco-Identity in Children's Literature: Ben Okri's '*Every Leaf a Hallelujah*' through Bronfenbrenner's Ecological Framework

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DOI : https://doi.org/10.5281/zenodo.22901278

Abstract
With ecosystems facing unprecedented anthropocentric threats, it is crucial to empower children to develop an eco-identity. Such awareness stresses the need to equip children to become change agents in the fight to achieve an ecocentric future. Creating an ecocentric future entails providing opportunities for children to constructively process the environmental realities of the Anthropocene. This is achieved through children's literature, which serves as a formative medium for developing eco-awareness and equipping children as members of society to speak out for the environment. This study analyses how ecological narratives drive children's eco-identity and consciousness using Ben Okri's '*Every Leaf a Hallelujah*'. This study employs qualitative content analysis and Bronfenbrenner's Ecological Systems Theory to explore how the various systems combine to shape children's eco-identity. The findings reveal that the text is a rich source of eco-literary narrative. It clearly frames the child not merely as a passive observer but an active participant in the collective responsibility towards ecological preservation. The findings demonstrate that children's literature can reimagine the human-nature relationships and affirm that children's literature can cultivate eco-identity, promote ecological awareness, and nurture an ecocentric generation.

Keywords: Eco-identity, Children's literature, Bronfenbrenner's Ecological Systems Theory, *Every Leaf a Hallelujah*, Eco-awareness

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1 Introduction

Industrialisation and consumerism have exacerbated environmental crises, such as deforestation, climate change, global warming, and pollution. These stem from the consequences of an anthropocentric worldview that positions humans above nature (Buell, 2005; Davari, 2025; Ogedengbe & Adams, 2025). As a result, the ecosystem has continued to deplete and erode the bond between humans and nature. Doughty et al. (2025) describe this as the result of "ecocidal mindsets" that have driven the planet into "an abyss of destruction," a reality that affects not only adults but also young people. To address this crisis, Doughty et al. (2025) suggest that adults and children must collaborate to challenge the "divisive and unproductive binaries" that separate humans from nature and children from adults (p. 3). In this light, children's literature becomes a critical tool for reimaging relationships between humanity and the environment. Yet, Bradford (2003: p. 111) observes that many children's stories are still shaped by "metanarratives of progress or development" and often end with apocalyptic visions of ecological collapse.

Despite this constraint, when global concerns about climate change are discussed, children are rarely granted such an opportunity to lend their voices. One might ask, what do children really have to offer in the fight to preserve the ecosystem? Scholars such as Carrington (2021, as cited in Doughty et al., 2025) respond that young people contribute far more than a "blah, blah, blah". Their contribution, if heard, can be meaningful, much like Mangoshi in Ben Okri's *Every Leaf a Hallelujah* (2021). There is, therefore, an urgent need for parents, educators, scholars and policy-makers to foster ecological consciousness in children. This consciousness develops when children are exposed to environmental stories, outdoor learning, and critical thinking. Doughty et al. (2025) and Cutter-Mackenzie-Knowles et al. (2020) emphasise that children's literature and environmental crises often position children as sources of hope. Encouraging this hope requires creating opportunities for children to process the realities of the Anthropocene constructively and to envision ways to sustain life on our shared planet.

This study aims to contribute to the growing field of *ecolinguistics* by examining how children's literature can serve as a medium for the creation of eco-identity. It also situates African children's literature within global environmental discourse, illustrating how indigenous worldviews and storytelling can enrich children's ecological thoughts (Kibera, 2021). By analysing *Every Leaf a Hallelujah* through Bronfenbrenner's ecological systems theory, this research provides a framework for understanding how children's literature can cultivate eco-identity and be a transformative educational tool that nurtures the development of *eco-identity*.

Objectives of the Study

The specific objectives of this paper are to:

i. analyse how Bronfenbrenner's ecological systems can be harnessed to shape a child's eco-identity in Ben Okri's *Every Leaf a Hallelujah*.

ii. demonstrate how children's literature can function as a pedagogical tool for fostering eco-identity and environmental awareness among young readers.

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2 Literature Review

2.1 Ecolinguistics and the Anthropocene

This study aligns closely with **ecolinguistics**, a field that explores the relationship between language, humans and the environment by stressing how ecological identity and language use influence actions towards the environment (Ogedengbe et al., 2025). In supporting this view, Steffensen & Fill (2014) reinforced the view that ecolinguistics investigates how humans, whether as individuals, groups, or species, interact to exploit their environment using language. Language is central to ecolinguistics; without it, the investigation of the relationship between how individuals think and conceptualise the environment will be impossible. In this light, Alexander & Stibbe (2014) broaden this idea to view how discourses about the ecosystem can instantiate cultural values, beliefs and behaviours that can either sustain or harm ecological balance. Thus, ecolinguistics serves not only as a field but a critical framework for revealing how language can promote ecological consciousness, reshape destructive narratives, and foster more sustainable human–nature relationships.

The *Anthropocene* is characterised by human activities combined with climate change, which have become the dominant narratives that shape Earth's ecosystems (Crutzen, 2002; Ogedengbe & Adams, 2025). While adults have been primarily responsible for most environmental crises, children are among the most vulnerable victims. Although they possess the capacity to become change agents in the reimagining of human-nature relations (Nikolajeva, 2014). The idea of *eco-identity* represents an essential step in building an ecocentric generation that views nature not only as a resource to exploit but as a living system to nurture (Thomashow, 1995).

2.2 *Construction of Eco-Identity*

Eco-identity reflects one's attitude and behaviour towards nature-related issues within the natural environment (Lei, 2023; Clayton & Opotow, 2003). Thomashow (1995) explains it as the ways people construe themselves in relationship to the earth, as manifested in personality, values, actions, and sense of themselves. When applied to children, it describes the process through which young readers cultivate a sense of environmental self-awareness by interacting with nature and ecological stories. Individuals, especially children, who see themselves as interdependent on nature are more likely to act in environmentally responsible ways, whereas those who view themselves as separate from nature tend to exploit it (Crompton & Kasser, 2009; Doughty et al., 2025). Stibbe (2015) reiterates that the 'stories we live by' are embedded in literature, media, and discourse to either sustain or harm the ecosystems. Consequently, children's eco-identity, thus, can be strengthened or weakened by external and internal influences, but when this identity is exposed to conflicting anthropocentric ideas, it is weakened or destroyed.

To understand eco-identity, the concept of ecosophy is key. According to Thomashow (1995), "each person's path to ecological identity reflects his or her cognitive, intuitive and affective perceptions of ecological relationships", which are the building blocks for ecosophy. Ecosophy is evident in language and actions, as language plays a crucial role in shaping beliefs and ideologies, especially those related to environmental protection (Ogedengbe & Adams, 2025; Ammeh et al., 2026). Gottschalk (2001) argues that our sense of who we are not only influences how we portray identity but also determines how we act in everyday life. This is what Nikolajeva (2014) terms "life-to-text and text-to-life' (p. 25). To help a child develop the right eco-identity

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by combining awareness with their experiences, it is imperative, according to Stibbe (2015), that every member of society take "concrete steps necessary to achieve that vision". One such way is through storytelling for children, which functions as an interactive bond to foster growth.

To reframe a child's early awareness from fear into empathy or indifference into appreciation, the agents identified in Figure 1 are responsible for the development of eco-identity in children.

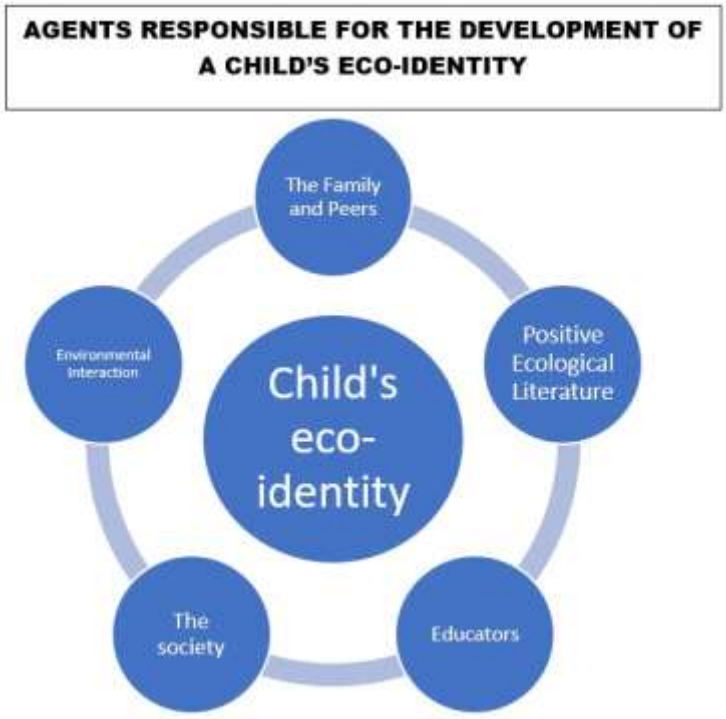

Figure 1: Agents responsible for eco-identity in children (Researchers' idea

As Audley et al. (2020) observe, when teachers engage children in safe conversations about nature, it helps them cultivate compassion for non-human life, which is a basic aspect of eco-resilience. Society and the environment are not left out. Positive eco-literature further guides children to refocus their emotions, curiosity, and creativity in ways that can help them connect with the current climate crisis. In this way, these agents contribute significantly to the development of children's ecocultural identity, as it nurtures their ability to see themselves as part of a broader ecological community rather than separate from or superior to it.

2.3 *Children's Literature and Eco-Identity*

As a platform, eco-identity in children fosters a resilient sense of self built on ecological and cultural awareness (Gaard 2009). This resilience, according to Gaard, emerges from nurturing a relationship with nature alongside fostering empathy. However, children's environmental literature often generalises its audience by assuming that all children share the exact ecological issue and resources to address climate challenges, while overlooking the diverse geographical

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realities that shape their ecological understanding. Van der Beek & Lehmann (2022) agree, stating that such an issue is "a potential trap for children's environmental literature which lies in its tendency to simplify the complex issue of climate change and to offer potential ways for fighting climate change which are not accessible to all readers". (p. 143)

To achieve a long-term result to environmental degradation in children's literature, there is a need to analyse and develop stories that can serve as educational tools for building children's eco-identity into actions, resilience, empathy, etc. To Stibbe, "the stories that underpin unequal and unsustainable societies and searches for inspirational forms of language that can help rebuild a kinder, more ecological world" are key. Children's literature is a form of eco-pedagogy that seeks to develop ecological awareness and sustainable behaviour among young readers (Gaard, 2009; Cutter-Mackenzie-Knowles et al., 2020, & Doughty et al., 2025). According to Stibbe 2015, this awareness is the start to explore new "stories to live by to bring into being the kind of ecological society that they want to see", especially in children. Similarly, Pelo (2009) opines that nurturing eco-identity involves giving children "a profound sense of place… inviting them to braid their identities together with the place where they live" (p. 124) to perceive themselves as connected to nature. This metaphor of "braiding identities" illustrates how personal the process of ecological learning can be. One that fosters a sense of belonging to their environment et al enables them to integrate their personal identities with the places where they live. To this end, Adewale and Fidelix (2025) add that when young readers understand these stories, they cultivate critical-thinking skills that help them see themselves as protectors of their world.

2.4 *Eco Identity in Every Leaf a Hallelujah*

Ecological identity in Okri's *Every Leaf a Hallelujah* (2021) is exemplified through ecological storytelling. The narrative centers on Mangoshi, a young girl who ventures into the forest in search of a healing leaf for her ailing mother. Her journey becomes a transformational one with a thoughtful understanding of the sacred relationship between man and the environment. As Fashal & Madhi (2022) observe, the stories that shape an individual's experiences form the basis of their ecological identity, one that links the lessons of the past to the unfolding possibilities of the future and is revealed in the present. Okri uses symbols and imagery of nature to elevate the story beyond a moral fable, which transforms into an ecosophical reflection for Mangoshi. By positioning a child at the ecological center of his narrative, Okri heightens the child's role as a guardian of the earth.

3 Theoretical Framework

This study is guided by Urie Bronfenbrenner's (1979) *Ecological Systems Theory* to examine the development of eco-identity in Okri's 'Every Leaf a Hallelujah'. This model situates children as key characters in ecological development within a series of interrelated environmental systems, which Bronfenbrenner refers to as a "set of nested structures, each inside the next, like a set of Russian dolls. At the innermost level is the immediate setting in which the developing person is situated. This can be the home, the classroom, or, as often happens, for research purposes" (1979: p. 3). To Nabavi (2012), these structures "provide a detailed analysis of environmental influences… on developing person" and they include the *microsystem*, *mesosystem*, *exosystem*, *macrosystem*, and *chronosystem as presented in Figure 2*.

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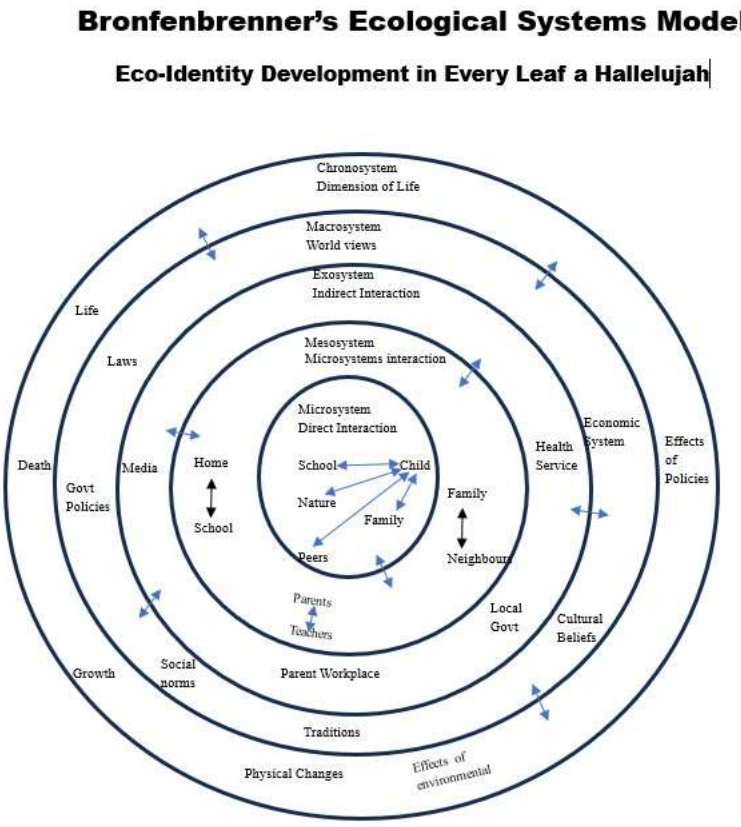

Figure 2: Bronfenbrenner's Ecological System Theory (1979)

Applying Bronfenbrenner's framework is particularly apt for this study because it mirrors ecological interdependence and "how environments change, and the implications of this change for the human beings who live and grow in these environments" (Bronfenbrenner, 1979: p. 439). Just as this framework consists of interconnected systems, children's psychological development unfolds through reciprocal relationships with their environments. In *Every Leaf a Hallelujah*, these interactions manifest through Mangoshi's connection with her family, school, community, government policy and cultural heritage. The text, therefore, reflects the multilayered ecological and social systems that inform a child's understanding of the natural world.

4 Methodology

Research Design

This study adopts a qualitative content analysis approach within the framework of Ecolinguistics. A qualitative content analysis, as explained by Preiser et al. (2021), "seeks to find and examine patterns of sense-making and meaning creation in the communicative characteristics of language". This approach is suitable for this study because it allows for an in-depth exploration of how eco-identity is constructed through linguistic resources, particularly in children's literature. Drawing on Okri's novel, lexical choices, descriptive expressions, evaluative language, representations of human-nature relationships, and other communicative features contribute to ecological meaning-making. Through this approach, the study investigates how literary discourse challenges anthropocentric views and promotes ecocentric values.

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Source of Data

The source of data for this study consists of Okri's *Every Leaf a Hallelujah*, a children's text selected because of its explicit engagement with environmental concerns, ecological consciousness, and the relationship between humans and the natural world. The text provides a suitable context for examining how eco-identity is represented and developed within children's literature. As the sole source of data, the text serves as the basis for investigating the linguistic and narrative construction of ecological awareness.

Sampling Procedure

The study employs purposeful sampling to select data relevant to the research objectives. Following a repeated close reading of *Every Leaf a Hallelujah*, twenty-two excerpts were extracted based on their explicit representation of environmental values, relationships, stewardship, and interactions between the child protagonist and the natural environment. These excerpts constitute the primary data for the analysis because they provide rich illustrations of the processes through which eco-identity is constructed in the narrative.

Data Collection

The relevant excerpts collected which reflect ecological themes were highlighted, extracted and compiled into a data set for the analysis. The selection process focused on excerpts that contain linguistic and narrative elements that depict interactions among the child, society, and the environment, as well as those that contribute to the formation of ecological identities.

5 Data Analysis

The excerpts were subjected to qualitative content analysis using Bronfenbrenner's Ecological Systems Theory as the analytical framework. The analysis was conducted in three stages. First, linguistic and narrative features relevant to eco-identity construction were identified within each excerpt. These features include lexical choices, evaluative expressions, representations of environmental responsibility, and interaction between human and non-human entities.

Second, the excerpts were coded and classified according to Bronfenbrenner's Ecological Systems. This categorization enabled the study to examine how different ecological layers contribute to the development of eco-identity within the text.

Third, the coded excerpts were interpreted within an ecological framework to reveal the meaning, values and ideological assumptions embedded in the narrative. Particular attention was paid to how the text constructs eco-identity, promotes ecological awareness, and encourages environmentally responsible attitudes among young readers.

6 Results and Discussion

6.1 *Microsystem: Eco-identity in Every Leaf a Hallelujah*

At the **microsystem level**, the child's immediate environment comprises family, peers, school, and the natural environment. It helps to form the foundation for a child's social, emotional, and moral development. Within this system, interaction is **reciprocal**; that is, while a child is directly influenced by parents and the environment, the child in turn also shapes them**.**

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Excerpt 1: "*Her parents were sad she had lost it, but were happier to have their daughter back home, safe and well. She ate her dinner and listened to a story her mother told her. It was the story of a hunter's strange experience in the forest. The story was so fascinating that she fell into the story and found herself talking with the hunter and wandering about in the forest*".

Excerpt 2: "*She went to school, and learnt many things, and came home, and helped her mother around the house".*

Excerpt 3: *"Now I know what your secret is," she said one day to her friend, the old baobab tree. "What is it?" "All the trees radiate love," said Mangoshi, "and every leaf is a hallelujah".*

Excerpt 4: *"But tell me, why is this tree your friend?" "He only wants to help us. He gives us air. All trees are our friends. They are good to us. Without them, we will die*."

Excerpt 5: "*This tree is my friend," Mangoshi said. The other children were charmed by this, and they looked at the old baobab tree with wonder. The tree looked at them too, but did not speak. It kept quiet and was happy that the little children played around it."*

Table 1: Formation of Eco-Identity at the Microsystem level in *Every Leaf a Hallelujah*

Excerpt	**The Microsystem Level**	**Key Lexical Items**	**Formation of Eco-identity**
1	The child interacts at home	"happier", "back home", "safe", "well", "ate", "listen"	A peaceful and loving environment that provides for a child's physical needs leads to the development of eco-identity.
2	The child's interactions at school	"went to school", "learnt", "home", "help", "mother"	A sense of belonging builds a positive eco-identity.
3	The Child and Nature	"secret", "her friend", "trees radiate love"	A healthy relationship develops a good biocentric bond in a child.
4	The Child and Environment	"your friend", "help us", "gives", "without them we die"	A child's knowledge of the importance of the environment builds a confident eco-identity.
5	The child and Peers	"my friend", "children played"	A child's positive social awareness develops a joyful eco-identity.

Okri's narrative presents Mangoshi's eco-identity as emerging directly from her microsystem, illustrating that children's ecological awareness begins with what they see, hear, and perceive in their immediate environment. In Table 1, Excerpt 1, the lexical items convey emotional security;

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as Mangoshi "listens" to her mother's story, she develops an imaginative frame that Bronfenbrenner terms a 'developmental transaction', an interaction that shapes thoughts and empathy. The "safe" atmosphere enables her to internalise the values of respect for nature. Excerpt 2 reinforces the point that daily interactions in learning at "school" and at "home" can stabilise environmental awareness. In Excerpt 3, this awareness extends into the relational realm, where Mangoshi's interactions with "her friend" reflect an emerging biocentric connection and the awareness that "trees radiate love". Excerpt 4 deepens this relationship with Mangoshi's statement that "without them, we will die". Her recognition in Excerpt 4 reflects her developed concept of ecosophy as the relationship between the self and the environment. As the other children observe Mangoshi's relationship with the baobab tree, they also learn to appreciate the marvel of nature. In sum, Okri depicts children's literature as a means to cultivate eco-identity.

6.2 Mesosystem: Eco-identity in *Every Leaf a Hallelujah*

At the Mesosystem, Bronfenbrenner connects the interactions of members of the microsystem, that is, the home, school, peers, and community, with how they relate to affect the child's immediate environment (Bronfenbrenner, 1979). The interaction reveals a network that links two or more microsystems.

> Excerpt 6: "*My mother is ill. The village is sick. I have been sent to bring back a special flower that will heal my people*."
>
> Excerpt 7: *"There's nothing we can do by ourselves. We talk to human beings, but they don't hear us."*
>
> Excerpt 8*: "At an important meeting of the elders, this is what she said: The trees are guardians".*
>
> Excerpt 9: *"One last thing," her father said, as he walked her to the edge of the village, "the most important thing you have to do is to let the earth guide you."*
>
> Excerpt 10: "*Human beings have not been good to the earth. But you will see." He paused again. "The forest is not the same forest you went to before. If you get lost there, if it's difficult to find your way back, there is only one thing to remember. If you bring back the flower, the flower will save the village. And if you save the village, the village will save the forest."*

Table 2: Formation of Eco-Identity at the Mesosystem level in *Every Leaf a Hallelujah*

Excerpt	The Mesosystem Level	Key Lexical Items	Formation of Eco-identity
6	The home/ community/environment interaction	"mother", "the village", "my people", "sick", "special flower**",** "heal",	The link between family, community and nature shows that the child's knowledge of environmental care is tied to human survival.

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7	Human-Nature Communication Breakdown	"nothing we can do", "talk", "human beings", "don't hear us"	Exposure to the disconnect between humans and nature fosters in the child an awareness of the need to respect the natural world.
8	Community Beliefs	"meeting", "elders", "trees", "guardians	The exposure to the relationship with social authority and beliefs educates the child to see the environment as worthy of protection.
9	Family Guidance	"father", "walked her", "guide", "earth"	The transfer of ecological values helps the child to depend on nature as a guide.
10	Community-Environment Reciprocity	"human beings", "not been good", "forest", "save", "village", "flower"	The mutual dependence between man and nature, though severed, can be shaped by the child's understanding of ecological roles.

As shown in Table 2, the model operates through the interconnected relationships among Mangoshi, her home, community, and the environment, revealing how ecological wisdom is transmitted through social constructs. The lexical items highlight interactions, breakdowns, restoration, and interrelationships among members within this domain. For example, the task of finding a "special flower" functions as a cultural metaphor for ecological restoration, implying that human healing is linked to the well-being of the earth. The lament in Excerpt 7 shows a breakdown in communication across the mesosystems. Yet this disruption becomes the task the protagonist seeks to restore. Excerpt 8 expands the mesosystem to include the "meeting of elders" and their recognition that "the trees are guardians", positioning trees as a key cultural rubric of the society. Excerpts 9 and 10 illustrate the transfer of ecological values within the mesosystem. Her father's advice, in Excerpt 9, extends parental teaching to include nature as a spiritual guide.

From (Excerpts 6-10) Okri constructs a web of influences where the mesosystem interact to form the foundation of a child's ecological identity. Mangoshi's journey is not just a child's act of heroism but a way to encourage other children to respond to ecological self-awareness.

6.3 Exosystem: Eco-identity in *Every Leaf a Hallelujah*

In Ecological systems theory, the exosystemic level represents the *larger social structures* that indirectly affect a child's life. The child has no direct participation but is largely influenced by the decisions, policies, or laws. Examples of such 'social structures' are: a parent's workplace, effects of media, government laws, or the economic systems (Bronfenbrenner, 1979).

> Excerpt 11: "*How can a tree be a friend? Do you know what we do with trees? We build houses with them, and furniture, and with some trees we make books. We have to do our work. Go home!"*

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Excerpt 12: *"The manager offered the girl money, but she would not take any. He threatened her. He said he would call the police and have her taken away, but she was not afraid. "You are not going to kill my friend," she said.*

Excerpt 13: *They had come in large numbers and they had even more machines and equipment. When Mangoshi saw them, her heart sank. "Be brave," the eldest tree said to her. "Stand firm. Never show fear. You are small, but your very smallness is powerful.*

Excerpt *14*: *"The world does not care," the manager said. "They have all cut down their own forests. Where do you think we are sending the wood from these trees?"*

Excerpt 15: "*I am the governor of this state. We want you to stop work on this forest." "But you ordered it," the manager said. "Now we want you to stop," the governor said. "The people are protesting about the forest. Stop all work for now."*

Table 3: Formation of Eco-Identity at the Exosystem in *Every Leaf a Hallelujah*

Excerpt	The Exosystem level	Key Lexical Items	Formation of Eco-identity
11	Economic systems for resource utilization	"we", "build houses", "furniture", "books", "work", "trees"	Economic necessity has trivialized the essence of nature's resources
12	Institutional Authority	"manager", "offer", "money", "threatened", "police", "kill"	Institutional authority can interfere with or develop a child's eco-identity.
13	Industrial System Intrusion	"machines", "equipment", "large numbers", "powerful"	Large-scale industrial machines for environmental exploitation only expose a child to negative ideas.
14	Global Economic Discourse	"world", "cut down", "forests", "sending the wood"	The system of global control of deforestation exposes the child to recognize widespread ecological harm.
15	Government Policies	"governor", "stop work", "ordered", "protesting"	Demonstrates the role of policies in showing the child how environmental protection can be achieved through the right civic pressure.

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As shown in Table 3, the formation of eco-identity in a child at this level is shaped through indirect exposure to social structures such as Economic systems, Excerpt 13; Global Economic/Political Discourse, Excerpt 14 and government policies, Excerpt 15. Excerpt 11 introduces the voice of exploitation in a rhetorical question. The worker's dismissal, "*We have to do our work*", reveals how economic necessity has trivialised the essence of nature's resources. Excerpt 12 also illustrates how authority can interfere with a child's ecological identity; the manager's threat to *"call the police*" reveals the backing received from the security agency to protect such an institution, and Mangoshi's refusal to be intimidated reveals her bravery in resisting institutional pressure. Excerpt 13 presents the power of members of this system to exert unwieldy power with the representation of "*large numbers*" and "*more machines*". In Excerpt 14, Okri introduces global systems as part of the exosystem. The manager's remark that *"The world does not care... They have all cut down their own forests,"* situates the local deforestation within global economic networks but exposes the consumer's culture beyond national boundaries as a form of environmental degradation. In Excerpt 15, Okri portrays the governor's order to halt deforestation under public pressure as the power of collective involvement to influence policy. Through this, Okri introduces global systems as part of the Exosystem to reveal that a child can develop an eco-identity grounded in awareness and understanding that environmental outcomes are influenced by larger systems of governance. From the lexical items, as shown in Table 3, the tensions between exploitation and protection position the child within a broader socio-political discourse where decisions are made beyond her control, yet it deeply affects her world

6.4 Macrosystem: Eco-identity in *Every Leaf a Hallelujah*

Okri presents this level in the form of communal myths, unwritten codes and ritualised language about the forest. At this level, the wider cultural or social forces, such as cultural values and beliefs, ideologies, social norms, etc., indirectly affect the child.

Excerpt 16: *"Then the trees started weeping. It was a very solemn sound. It was as if achurch were full of people and all the people in it were sad because something terrible had happened and they couldn't stop crying. Mangoshi was sad with them and began weeping as well."*

Excerpt 17*: "...the wise man of the village said that only the special flower which lived in the heart of the forest could cure her, the same flower that Mangoshi had failed to bring back the year before."*

Excerpt 18: *"Her parents realized that they had sent her too early last year and they should have consulted with the wise man before she set off"*

Excerpt 19: *"Mangoshi," he said, "there is a special reason why we are allowing you to go. Only a girl of seven years old can find this flower. No one else can do it."*

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Table 4: Formation of Eco-Identity at the Macrosystem Interactions in *Every Leaf a Hallelujah*

Excerpt	Macrosystem Level	Key Lexical Items	Formation of Eco-identity
16	Cultural Beliefs	"trees weeping", "solemn", "church", "sad", "crying", "Mangoshi was sad"	Constructs nature as emotionally and spiritually alive, encouraging the child to view the environment as a sacred whole.
17	Myths/Traditions	"wise man", "village", "special flower", "heart of the forest", "cure"	Ecological knowledge within cultural authority teaches the child that nature heals and must be protected.
18	Cultural norms	"parents realized", "consulted", "wise man", "before she set off"	Reinforces respect for traditional ecological systems that shape the child's eco-identity through obedience to cultural practices and environmental values.
19	Communal belief	"special reason", "girl of seven years", "only…can find this flower"	An acceptable cultural narrative that values children's innocence in nature positions the child as an active agent.

As presented in Table 4, Okri infuses the aspects of cultural beliefs, myths and tradition, norms to create a mental picture of the forest's grief, the trees "*weeping*", and the comparison to *"a church… full of people*" transforms environmental damage into a congregational suffering in Excerpt 16. Excerpt 17, Mangoshi's eco-identity is shaped by grounding her experiences in the community's shared beliefs and cultural expectations about nature as represented in *"special flower"* and the *"heart of the forest*". The wise man's statement that a special forest flower holds healing power reflects a cultural belief that nature is a living source of wisdom and medicine. This belief positions the forest as sacred. Also, Excerpt 18 shows how traditional beliefs guide decision-making; her parents' regret highlights the social norms of seeking communal knowledge before engaging with nature. In Table 4, Excerpt 19, the belief that only a seven-year-old child can find the flower points to the cultural narrative that values children's innocence in nature. This gives Mangoshi a sense of purpose within her community and helps her see herself as an active participant in ecological care. Through these, the macrosystem transmits respect for the natural world, encourages humility in the face of ecological wisdom, and shapes a child's eco-identity by making environmental stewardship a core part of belonging to the community.

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6.5. Chronosystem: Eco-identity in *Every Leaf a Hallelujah*

This level is related to the inevitable changes that affect a child's life over time, such as physical, societal, and historical changes.

Excerpt 20: *"Mangoshi knew it was time to go home. But before she left she said goodbye to her friend, the old baobab tree."*

Excerpt 21: *"What is this place?" she asked. "This is a paradise of trees. Nothing dies here. Everything lives in simple joy," said the old baobab*.

Excerpt 22: *"Mangoshi fell asleep while she wept. And in her dream, she saw that all the trees in the world had gone. The world seemed empty. Then the people, too, began to disappear."*

Excerpt 23: "*But as time passed, she noticed small changes in their lives. The harvests grew poorer, and they had less to eat. Strange animals appeared in the village. It became very hot in the daytime. Then people began falling ill, and no one knew where the illness came from".*

Table 5: Formation of Eco-Identity at the Chronosystem Interactions in *Every Leaf a Hallelujah*

Excerpt	Chronosystem level	Key Lexical Terms	Formation of Eco-identity
20	Temporal Transition	"time to go home", "goodbye", "old baobab tree"	The child's evolving relationship with nature over time fosters emotional attachment.
21	Future Environmental Loss	"dream", "trees…gone", "world seemed empty", "people…disappear"	Projects the consequences of ecological destruction by instilling the awareness that human survival depends on environmental preservation.
22	Gradual Environmental Change	"as time passed", "small changes", "harvests grew poorer", "very hot", "falling ill"	Demonstrates long-term environmental degradation and its impact on human life, helping the child to understand ecological processes.

As summarized in Table 5, a child develops eco-identity at this level by comprehending the evolving nature of time in Excerpt 20, the awareness of its importance in Excerpt 21, the projection of ecological destruction in Excerpt 22 and the long-term environmental degradation in Excerpt 23. All these expose the child to the fleeting changes in life. The lexical items such as "*time to go home", "people…disappear"*, and "*as time passed*" highlight the transitions of events that link environmental conditions with human survival. These temporal markers help the child to develop eco-identity. Excerpt 22 portrays ecological harm as progressive rather than sudden,

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resulting from long-term neglect of nature and human survival. At this level eco-identity is developed over time through special moments and memories that link the past, present and future.

7 Conclusion

This study analyses how literature can shape a child's eco-identity, using Mangoshi in Every Leaf a Hallelujah, through Bronfenbrenner's ecological systems. It examines eco-identity in children's literature through interactions across multiple systems, including the microsystem, mesosystem, exosystem, macrosystem, and chronosystem. With literature as a tool, it further reveals that children's literature serves as a powerful means of fostering environmental consciousness, challenging anthropocentric narratives, and nurturing a positive eco-identity in children. Through storytelling and environmental exposure, the text offers a creative opportunity for children to learn empathy, responsibility, and ecological awareness. Literature, therefore, becomes both a mirror that reflects ecological values and a safe ground for children to practise them and respond positively to ecological challenges. The research contributes to ecolinguistics by integrating Bronfenbrenner's ecological systems theory with literary analysis, while offering practical implications for education and environmental awareness. However, its single-text study limits generalisability, suggesting the need for further comparative and empirical studies to deepen understanding of eco-identity formation.

References

Adewale, P. S., & Fidelix, Q. I. A. (2025). Effect of eco-linguistics activities on environmental awareness and vocabulary acquisition of early-age school children in Lagos State. *Journal Tatsqif, 23*(1), 23-27. Doi:10.20414/jtq.v22i1.14438

Alexander, R., & Stibbe, A. (2014). From the analysis of ecological discourse to the ecological analysis of discourse. *Language Sciences, 41*, 104-110.

Ammeh, F. O., Ogolekwu, O., & Ogedengbe, B. E. (2026). Pragma-stylistic strategies in President Donald Trump's speeches on the "Christian genocide" in Nigeria. *International Journal of Sub-Saharan African Research, 4*(1), 151-165. Doi: 10.5281/zenodo.19151558

Audley, S., Stein, N. R., & Ginsburg, J. L. (2020). Fostering children's ecocultural identities within eco-resiliency. In T. Milstein & J. Castro-Sotomayor (Eds.), *Handbook of ecocultural identity* (pp. 445-460). Routledge.

Bradford, C. (2003). The sky is falling: Children as environmental subjects in contemporarypicture books. In R. McGillis (Ed.), *Children's literature and the fin de siècle* (pp. 111-120). Praeger.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press.

Buell, L. (2005). *The future of environmental criticism: Environmental crisis and literary imagination*. Blackwell.

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Clayton, S., & Opotow, S. (Eds.). (2003). *Identity and the natural environment: The psychological significance of nature*. MIT Press.

Crompton, T., & Kasser, T. (2009). *Meeting environmental challenges: The role of human identity*. WWF-UK.

Crutzen, P. J. (2002). Geology of mankind. *Nature, 415*(6867), 23. Doi:10.1038/415023a

Cutter-Mackenzie-Knowles, A., Malone, K., & Barratt Hacking, E. (2020). *Research handbook on childhood nature: Assemblages of childhood and nature research*. Springer.

Davari, H., Hassani, G., Iranmehr, A., & Ghorbanpour, A. (2025). Environmental communication through language education: Iranian teachers' perceptions on integrating environmental communication pedagogy into English language teaching. *Environmental Communication, 19*(7), 1342-1358. Doi:10.1080/17524032.2025.2464171

Doughty, T., Deszcz-Tryhubczak, J., & Grafton, J. (2025). *Children's literatures, cultures, and pedagogies in the Anthropocene*. Bloomsbury Academic.

Fashal, S. K., & Al Shamari, S. M. K. (2022). Investigating ecological identity in Haig's children's books: An ecolinguistic analysis. *International Journal of Early Childhood SpecialEducation, 14*(5). Doi:10.9756/intjecse/V14i5.492

Gaard, G. (2009). Children's environmental literature: From ecocriticism to ecopedagogy. *Neohelicon, 36*(2), 321-334. Doi:10.1007/s11059-009-0003-7

Gottschalk, S. (2001). The greening of identity: Three environmental paths. *Studies in Symbolic Interaction, 24*, 245-271.

Kibera, L. (2021). Eco-spirituality and African worldviews: Rethinking environmental consciousness in African literature. *Journal of African Cultural Studies, 33*(2), 174-188.

Lei, L. (2023). Exploring ecological identity from the perspective of systemic functional linguistics. *Journal of World Languages, 7*(3), 487-514.

Nabavi, T. R. (2012). *Perspective of humanistic theory (Bronfenbrenner's and Piaget's theories).*Doi:10.13140/2.1.3733.3440

Nikolajeva, M. (2014). *Reading for learning: Cognitive approaches to children's literature*. John Benjamins.

Ogedengbe, B. E., & Adams, S. O. (2025). Wetlands in the Anthropocene: An ecolinguistic study of framing and metaphors in national wetland policies. *Journal of English Scholars' Association of Nigeria, 27*(2).

Ogedengbe, B. E., Tiamiyu, A. J., & Adams, S. O. (2025). Investigating the effect of semantic broadening and narrowing on ecological terminologies. *Jalingo Journal of Linguistics and Literary Studies, 9*(1), 98-108.

Okri, B. (2021). *Every leaf a hallelujah*. Other Press.

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Pelo, A. (2009). A pedagogy for ecology. In B. Bigelow & T. Swinehart (Eds.), *A people's curriculum for the earth: Teaching climate change and the environmental crisis* (pp. 30-38). Rethinking Schools.

Preiser, R., Gracia, M. M., Hill, M., & Klein, L. (2021). Qualitative content analysis. In *TheRoutledge handbook of research methods for social-ecological systems* (pp. 270-281). Routledge.

Steffensen, S. V., & Fill, A. (2014). Ecolinguistics: The state of the art and future horizons. *Language Sciences, 41*, 6-25. Doi:10.1016/j.langsci.2013.08.003

Stibbe, A. (2015). *Ecolinguistics: Language, ecology and the stories we live by*. Routledge.

Thomashow, M. (1995). *Ecological identity: Becoming a reflective environmentalist*. MIT Press.

Van der Beek, S., & Lehmann, C. (2024). What can you do as an eco-hero? A study on the ecopedagogical potential of Dutch non-fictional environmental texts for children. *Children's Literature in Education, 55*, 141-161.

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AI Reliance as Predictors of Study Habits, and Problem-Solving Skills of Science Education Undergraduates: A Case study of Imo State University Students

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DOI : https://doi.org/10.5281/zenodo.22901539

Abstract
This study determined how reliance on AI predicts study habits, and problem-solving skills of science education undergraduates in Imo State University. The study adopted a survey and predictive correlation research design. The study's population comprised 321 science education undergraduate students. The researcher utilized census sampling i.e. using the entire population as the study's sample. For data collection, a researcher-made rating scale titled "AI reliance, Study Habits and Problem-solving skills of science education Undergraduates" was employed. Cronbach alpha statistics was used to ascertain the instrument's reliability which yielded a coefficient of 0.81. The research questions were answered using descriptive statistics (mean and standard deviation) while the null hypotheses were tested using simple linear regression statistics at 0.05 level of significance. The findings showed that there is an above average level of reliance on AI tools among undergraduates of science education (mean = 2.51); majority of the science education undergraduates under study have good study habits (mean = 3.31); undergraduates' reliance on AI tools did not significantly predict their study habits (Beta =, p = 0.110); majority of the science education undergraduates under study have good problem-solving skills (mean =3.21) and their reliance on AI tools significantly predicted their problem-solving strategies (Beta = 0.468, p = 0.002). The researcher recommends that lecturers should clearly teach their students to distinguish between the tasks which need AI assistance and those which require their independent input.

Keywords: *Artificial Intelligence (AI), Science Education, Undergraduate students*

Introduction

Artificial intelligence tools have rapidly spread through the 21st century and this spread is currently changing and restructuring how undergraduate students seek information, study, and solve problems. The use of AI tools among students especially in the science related disciplines, supports a variety of academic tasks such as explanation of concepts, research, analysis and even problem solving (Almasri, 2024). This evident change has obviously led to important questions being asked as to how far students are to rely on AI and its implication for lifelong learning and cognitive development in the long run (Hassen, 2025).

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A cursory observation at the daily routines of undergraduate students in various tertiary institutions, will reveal a strong attachment otherwise, growing reliance on AI. Students clearly use these tools many times in a day for explanation of concepts, writing assignments and designing workflows to meet deadlines (Fošner, 2024). Studies by Labadze et al (2023) and Ward et al (2024) have revealed that students perceive AI to be integral to their routine study strategies and processes. AI tools are no doubt seen as assets given the efficiency, ease of personalization and prompt support it provides to users.

AI shapes students' study habits in various ways, such as giving summaries and paraphrasing; concept clarification (Lyu et al, 2024); and assignment drafting. These lead to shorter study times, less textbook use, heavier task outsourcing and faster completion of assignment (Olanrewanju et al, 2025). Proper use of AI can improve students' critical thinking and problem-solving skills (Rashed et al., 2026). At the same time high reliance on AI has been linked to reduced critical thinking and problem-solving ability and sometimes, high cases of academic laziness (Zhai et al, 2024; Çela et al., 2024).

Weakness in independent reasoning has been linked to over-reliance on AI (Hou et al., 2025). It is essential to strike a balance in the use of AI tools so as to ensure that AI serves as an augmentation to students' knowledge and not complete cognitive atrophy (Hassen, 2025). This balance will also inform policies on academic integrity and ethical use of AI. Students in science related majors are among the major users of AI for academic purposes (Buniel et al., 2025; El-Fathi et al., 2025). The study of over-reliance on AI is very relevant to science education majors who are future teachers because they must teach students to balance use and avoid over-reliance of AI in their academic endeavors (Almasri, 2024). Also, these teachers have the responsibility of designing AI-enhanced learning environments that preserve the creativity and inquiry nature of science courses (Lin & Chen, 2024).

AI tools have become a central piece in the approaches university students use to study and solve problems especially in science-related fields. There are recorded benefits of AI use such as efficiency and engagement in higher-order thinking. However, when reliance on AI becomes highly excessive, it poses risks to the academic life of students. The excessive use of AI by undergraduates has recently come under some level of scrutiny. Some studies have shown that over reliance on AI can impact the study habit of students negatively in that students' ability to think critically is reduced when they outsource most of their assignments and classwork to AI. Furthermore, there is a growing concern on students' ability to solve problems independently since they automatically receive help from AI. While many authors have raised the aforementioned concerns, there is a dearth of evidence on the extent to which reliance in AI reliance predicts the study habits and problem-solving skills of students, especially among undergraduate science education students in the southeastern part of Nigeria, who will eventually become key players in moulding the future of the next generation of science experts (students). It is therefore on this premise, that the researcher bases the relevance of studying AI reliance as a predictor of study habits and problem-solving. The findings would fill this gap in knowledge and give insights as to how science education undergraduates can use AI for improved academic outcomes.

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Objectives of the study

The study specifically set out to determine:

i. the extent of reliance in AI tools among undergraduates in science education
ii. science education undergraduates' current study habits
iii. science education undergraduates' current problem-solving strategies
iv. if reliance on AI tools predicts the quality of undergraduate students' study habits.
v. if reliance on AI tools predicts undergraduate students' problem-solving strategies

Research Questions

1. To what extent do science education undergraduates rely on AI tools?
2. What are the current study habits of science education undergraduates?
3. What are the current problem-solving strategies of science education undergraduates?

Hypotheses

Ho1: Reliance on AI tools does not significantly predict the quality of undergraduate students' study habits.

Ho2: Reliance on AI tools does not significantly predict undergraduate students' problem-solving strategies.

Literature review

The field of artificial intelligence has advanced very rapidly and has penetrated almost every aspect of human life. Academia is certainly not an exception. AI has since its inception, constantly played unique roles in academia. Studies have shown that AI influences the learning process of students which has led to raised concerns about learners' critical thinking (Abuzar et al., 2025).

Recently, there is a thrilling experience of a unique impact of AI tools usage on students' educational processes and even their achievement. These impacts bring about changes which are noticed in students' overall development i.e cognitive, affective and personal/interpersonal aspects. As a result of these experiences, students at various levels strive to improve their AI literacy levels to gain and maintain a competitive edge in the digital world (Bećirović et al., 2025).

Artificial intelligence has been used increasingly by students to help gain clarity on concepts presented in the classrooms or during their private study. It also offers a wide variety of learning experiences for students, putting into consideration the distinct learning styles of the students as are presented in students' AI prompts. AI use is not only beneficial to students but educators have also come to benefit from it in terms of planning their instruction and automating tasks such as grading and reviewing of papers (Labadze et al., 2023).

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Undergraduates use AI in different ways which may be beneficial to their learning or just for the purpose of completing assignments with little or no contribution on their part. One significant use of AI in academics is the use of Conversational Tutoring Systems (CTSs), which is characterized by providing learning experiences which are dialog-based and specifically tailored to the individual need of the students (Black & Tomlinson, 2025). A good example of the CTSs is the use of generative AI such as ChatGPT, Gemini, Perplexity AI etc where these systems assume the role of tutors and engage students in organized discussions for the purpose of answering questions, giving clarity to students on the concepts they present and guiding them through problem solving.

Previous studies have shown the use of AI to be beneficial in improving students' academic outcomes and motivation. For example, El-Fathi et al., (2025) investigated the effectiveness of using ChatGPT as a supplemental pedagogical tool for engineering undergraduates and recorded that students who were taught using structured chatGPT conversations and prompts outperformed students who were taught traditionally with great improvement observed in their conceptual understanding.

In the same vein, a study by Labadze et al (2023) revealed that students primarily gained from AI-driven chatbots in three major areas viz: assistance in homework and personal study, a personalized learning experience, and the development of various skills. They also revealed a major advantage for educators which is improved instruction.

Conversely, a study by Kaabi, (2025) revealed adverse effects of AI use on the critical thinking and academic outcomes of undergraduates in a higher technical college with 94.5% of the sampled students reporting detrimental effects on critical thinking and linguistic skills. Furthermore, overreliance on AI has been linked with post-task trust and over satisfaction with AI chatbots while appropriate reliance on AI tools has been linked to self-efficacy in programming skills and balanced need for cognition among higher education students (Pitts et al., 2025).

This study is anchored on two theories viz: the Technology Acceptance Model (TAM) by Davis (1989) and the Cognitive Offloading / Extended Mind Theory (Clark & Chalmers, 1998). The technology acceptance model propounded by Davis in 1989 suggests that there are two major factors which determine an individual's adoption of a specific type of technology. These factors are: Perceived usefulness and perceived ease of use. In other words, when a specific type of technology is seen as useful and quite easy to use, individuals are naturally prone to make use of such technology. This theory is directly related to the current study as it explains why science education undergraduates rely on AI. When students view AI as being a useful tool in their academic endeavor and also the ease with which AI tools are readily accessible on phones and various gadgets, they are more likely to rely on these AI tools which may directly or indirectly shape the way students approach their class problems.

The Cognitive Offloading / Extended Mind Theory was propounded by Clark and Chalmers (1998) and this theory largely argues that the human mind has a way of delegating cognitive tasks to available physical or digital tools. This theory plays a central role in this study as it provides the basis for analysing whether relying on AI leads students to offloading their critical thinking

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and problem-solving abilities (implying atrophy) or enhancing their problem-solving capacity by freeing up cognitive capacity for higher order synthesis.

These theories, together with the reviewed studies, give a clear view as to how and why AI is being used by undergraduate students in various institutions and provides a premise to check whether this reliance predicts the study habits and problem-solving skills of undergraduate science students.

Methods

The study was carried out using a survey and predictive correlation (predictive analysis) design. The study was carried out in Imo State University Owerri. The population of the study is made up of all the science education students (Education Biology, Education Physics, Education Chemistry, Education Mathematics and Education Agric Science) in the 2024/2025 academic session comprising 321 students (100 level to 400 level). The researcher utilized census sampling technique given that the population was not excessive, as such, the entire population was used as the sample size. The instrument for data collection is researcher-made rating scale divided into 3 different sections to elicit information on students' extent of reliance on AI tools; study habits; and problem-solving approaches. The rating scale was designed in a 4-point Likert format of strongly agree (4 points), agree (3 points), disagree (2 points), and strongly disagree (1 point). The instrument was validated by 3 specialists (one in educational measurement and evaluation and two in science education). The instrument's reliability was determined using Cronbach alpha statistics which yielded a joint coefficient of 0.81 for the three sections. The rating scale was distributed to the students using carefully created google forms which required answers for every item to avoid missing data. Responses were received from 268 students giving a response rate of 83.5%. The research questions were answered using mean and standard deviation while the hypotheses were tested using simple linear regression statistics at 0.05 level of significance.

Results and discussion

Table 1: Extent of Reliance on AI tools among science education undergraduates

S/N	Items	Mean	Std. Deviation	Remarks
1	I find it difficult to start a science assignment without first consulting an AI tool for ideas	2.62	.921	High
2	I rely on AI to explain complex scientific concepts rather than searching through my textbooks	2.62	.973	High
3	I use AI tools to generate the step-by-step procedures for my laboratory reports	2.38	.590	Low
4	I cross-check my personal solutions to science problems with AI to ensure they are correct	2.90	.768	High

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5	A significant portion of my study time is spent interacting with AI chatbots	2.62	.805	High
6	I prefer using AI-generated summaries of research articles over reading the full original papers for writing my assignments.	2.67	.796	High
7	I feel less confident in my academic work if I do not have access to AI tools	1.90	.625	Low
8	I often submit AI-generated suggestions as my primary answer for my assignments	2.33	.856	Low
	Mean of item means	**2.51**		

Table 1 shows the undergraduates' mean responses on their extent of reliance on AI tools.

The responses are rated in a four-point Likert scale format, giving a criterion mean score of 2.50. From the table, it is seen that items 3, 7, and 8 have their mean responses below 2.50, indicating that majority of the respondents do not: use AI to generate step-by-step procedures for their laboratory reports; feel less confident if they have no access to AI tools, and submit AI-generated suggestions as primary answers to their assignments. On the other hand, the rest of the items have their mean scores above 2.50 showing agreement with the corresponding statements. The mean of item means is 2.51 which is slightly above the criterion mean of 2.50. This clearly implies that there is an above average level of reliance on AI tools among undergraduates of science education in the studied University with students particularly struggling to start assignments without consulting AI and preferring AI-generated summaries over original texts. Notably, the students demonstrated lower agreement with submission of AI-generated suggestions as primary answers and feeling less confident without AI access, and this suggests that they are quite aware of academic integrity boundaries in the use of AI. This finding of above-average AI reliance (mean = 2.51) among science education undergraduates is in consonance with the swift progression of regularization of generative AI use among students in higher education. Current studies have shown that a huge population of undergraduate students use generative AI in some form. Previous findings from Ward et al. (2024) reported a sort of balanced integration of AI tools in students' study time. They further reported that 56% of students use AI tools for 26-50% of their study time, maintaining a mix of traditional and AI-assisted methods.

This finding further revealed that students are reluctant to use AI for generating step-by-step laboratory report; rarely submit AI-generated suggestions as primary answers, and do not feel less confident without AI access and this suggests strategic AI use rather than over-reliance. This finding is in contradiction with previous findings by Zhai et al. (2025) who raised concerns about cognitive offloading as a result of overdependence on AI. In their study, they recorded that heavy AI reliance was seen to diminish decision-making and critical analysis abilities of individuals. This difference in findings may be explained by environmental context in that Ododo et al. (2024) reported that vocational education students in Akwa Ibom State, Nigeria, showed significant concerns about AI reducing cognitive engagement through passive acceptance of information.

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The fact that the students maintained confidence without AI access particularly contrasts with Habib et al. (2024), who found that over-reliance on AI suggestions led to "lower creative confidence" among undergraduate students in creative thinking courses. This finding therefore means that science education undergraduates in Imo state university may possess stronger AI literacy and the required instructional scaffolding that promotes critical engagement rather than passive consumption of information from AI. This further implies that a combination of high AI literacy and organized instructional design/strategies may produce positive outcomes in terms of problem-solving.

Table 2: Study Habits of science education undergraduates

S/N	Items	Mean	Std. Deviation	Remarks
1	I have a specific daily schedule or timetable dedicated to studying my science courses	3.10	.889	Good
2	I take comprehensive notes in my own words during lectures and private study sessions	3.71	.463	Good
3	I review my previous lessons consistently, even when an examination is not close	3.24	.625	Good
4	I can maintain focus on my schoolwork for long periods without getting distracted by my phone	2.90	.889	Good
5	I utilize digital databases to find extra reading materials	2.95	.973	Good
6	I set specific learning goals for myself at the beginning of every study session	3.48	.512	Good
7	I engage in group discussions with my peers to better understand difficult science topics	3.48	.680	Good
8	I practice self-testing or active recall to ensure I remember what I have studied	3.57	.507	Good
9	I create summaries or concept maps to organize the information I learn in class	3.43	.598	Good
	Mean of item means	**3.31**		

Table 2 shows the mean scores on the self-rating of the undergraduates on their study habits. The mean responses on all the items are above the criterion mean of 2.50. This indicates that the majority of the students are in agreement with the corresponding statements, indicating a good self-rating of healthy study habits. The mean of item means is 3.31 which is also greater than 2.50 and implies that majority of the undergraduates under study have good study habits. This finding shows that despite the above average reliance in AI tools reported in the previous findings, the students have remarkedly good study habits from their responses. The high mean score for study habits (3.31) indicates that students maintain healthy study practices despite AI integration. This finding is in tandem with that of Ward et al. (2024), who reported in a similar

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study that students reported enhanced efficiency as a result of using AI tools while cautioning against over reliance on the tools. The Student Perceptions of AI 2025 survey reported by the National centre for AI study (2025) similarly noted that there was a reevaluation of approach to study by students who initially used AI as their major resource and experienced a decline in their work. Consequently, better study habits were picked after reevaluation of mode of AI use.

Corresponding hypothesis

Table 3: Summary of simple regression statistics showing how reliance on AI tools predicts study habits

Model Summary						
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**F**	**p-value**
1	.359[a]	.129	.083	4.009	2.808	.110

a. Predictors: (Constant), Reliance score

Table 3 shows how reliance on AI tools predict study habits of undergraduate science education students. Generally, the model summary gives a relationship coefficient of 0.359 which is a low and positive relationship. The coefficient of determination (R square) is 0.129 which implies that only 12.9% of the students' study habits can be accounted for by their reliance on AI tools. Consequently, a p-value of 0.110 was gotten, which is not statistically significant and this implies that undergraduates' reliance on AI tools did not significantly predict their study habits.

This finding partially contradicts Zhai et al. (2025), who in a similar study, recorded that the problem-solving skills and cognitive engagement of students greatly decreased with over-reliance on AI tools for academic tasks. Science education students as a result, may sustain healthier study habits due to their use of AI as complementary tool and not a replacement for the actual learning process.

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Table 4: Problem-solving strategies of science education undergraduates

S/N	Items	Mean	Std. Deviation	Remarks
1	I break down complex science problems into smaller, manageable parts before attempting them	3.05	.669	Good
2	I can explain the underlying logic behind the steps I take to solve a problem or assignment	3.19	.602	Good
3	I actively look for connections between new science problems or concepts and concepts I have learned previously	3.05	.669	Good
4	When faced with a confusing result in laboratory practicals, I systematically review my process to find the error	3.43	.507	Good
5	I prefer to work out the solution to a problem myself before looking for the answer elsewhere	3.43	.746	Good
6	I use diagrams or mental models to visualize concepts when I try to answer exam or test questions or when solving assignment problems	3.24	.700	Good
7	I evaluate the "reasonableness" of my final answer to ensure it makes sense	3.43	.507	Good
8	I enjoy the challenge of solving problems that do not have a straightforward answer	2.86	.964	Good
	Mean of item means	**3.21**		

Table 4 shows the mean scores on the self-rating of the undergraduates on their problem- solving strategies. The mean responses on all the items are above the criterion mean of 2.50. This indicates that the majority of the students are in agreement with the corresponding statements. This invariably implies that the undergraduates rate their problem-solving skills as good. The mean of item means is 3.21 which is also greater than 2.50 and implies that majority of the undergraduates under study have good problem-solving skills.

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Corresponding hypothesis

Table 5: Summary of simple regression statistics showing how reliance on AI tools predicts problem solving strategies

Model Summary						
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**	**F**	**p-value**
1	.645[a]	.416	.385	2.370	13.523	.002

a. Predictors: (Constant), Reliance score

Table 5 shows how reliance on AI tools predict problem solving strategies of undergraduate science education student. The model summary shows a moderate and positive relationship which in 0.645, implying that there is a strong relationship between students' reliance on AI tools and their problem-solving strategies. The coefficient of determination (R square) is 0.416 which implies that 41.6% of the students' problem-solving strategies can be accounted for by their reliance on AI tools. The corresponding p-value is 0.002 which is less than 0.05 (statistically significant), leading to the rejection of the null hypothesis. This invariably means that undergraduate students' reliance on AI tools significantly predicts students' problem-solving strategies.

This is perhaps the most outstanding finding of the study. This moderate-to-strong positive relationship suggests that students who rely more on AI tools report better problem-solving strategies. This finding aligns with a systematic review of 158 studies (2021-2024) which revealed that 94% of the studied works reported substantial advances in cognitive skills of AI users including problem-solving as a result of the personalized learning and feedback nature of most AI tools (Freeman, 2025).

However, this positive correlation contradicts a considerable number of previous literatures which raised concerns on the risk of cognitive offloading enhanced by AI use. For example, Kosar et al. (2024) and Krupp et al. (2024) found that students' reliance on AI for immediate solutions increased their likelihood of exempting themselves from vital and deep cognitive processes on which effective learning is built. Similarly, Correia et al. (2024) showed that over-reliance on AI-based answers reduces students' critical thinking and metacognitive reasoning. The positive relationship in this study may reflect self-perception bias i.e. students may rate their problem-solving strategies based on AI-assisted outcomes rather than independent capability. Giving credence to self-perception bias, Jose et al. (2025) identified in their study that AI can assume amplify cognition while also inhibiting it.

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Implications and recommendations

The study's finding poses significant implications for educational practice. The results showed a sort of limitation in AI dependence among the undergraduates and this for lecturers/educators, imply that undergraduate students can actually be guided on how to use AI in a beneficial way. Lecturers should clearly teach their students to distinguish between the tasks which need AI assistance and those which require their independent input.

The finding that reliance on AI tools positively predicts problem solving strategies suggests that curriculum can be designed in a way that integrates AI tools into problem-based learning and at the same time, limiting the use of AI for assessment so as to check progress of students in the use of their independent abilities.

The study showed that AI reliance did not predict study habits. This clearly implies that maintenance of good study practices for the science education undergraduates goes beyond AI use but mediations such as introduction of study skills workshop for undergraduates, training in time management and provision of motivational support by lecturers would go a long way in influencing their study habits.

Conclusion

This study showed that undergraduates science education students rely on AI but in a strategic manner, playing cautionary roles in the use of AI for high-risk tasks. From the study, it was seen that AI reliance did not significantly predict study habits, but predicted problem-solving strategies. This is to say that, the science education students have carefully learned how to use AI tools as a support for their study and not entirely rely on AI for their studies. This largely indicates that exploration of various AI tools and how to ethically use them can be encourages among science education undergraduates. These findings align with a balanced approach to AI use where students use AI tools as a cognitive enabler rather than substitute for their intellect. Future research may examine the longitudinal effects of AI use on science education undergraduates' cognition. Also, a further look into how the study habits and problem-solving skills of undergraduates in other education non-science subjects are influenced by their reliance on AI tools would go a long way in providing generalization of the present study's findings across education.

References

Abuzar, M., Mahmudulhassan, & Muthoifin. (2025). University students' trust in AI: Examining reliance and strategies for critical engagement. *International Journal of Interactive Mobile Technologies (iJIM)*, *19*(07), 70–82. https://doi.org/10.3991/ijim.v19i07.52875

Almasri, F. (2024). Exploring the impact of artificial intelligence in teaching and learning of science: A systematic review of empirical research. *Research in Science Education, 54*, 977 - 997. https://doi.org/10.1007/s11165-024-10176-3

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Bećirović, S., Polz, E., & Tinkel, I. (2025). Exploring students' AI literacy and its effects on their AI output quality, self-efficacy, and academic performance. *Smart Learning Environments, 12 (29), 1-25*. https://doi.org/10.1186/s40561-025-00384-3

Black, R. W., & Tomlinson, B. (2025). University students describe how they adopt AI for writing and research in a general education course. *Scientific Reports, 15* (1), 8799. https://doi.org/10.1038/s41598-025-92937-2

Buniel, J., Intano, J., Cuartero, O., Grustan, K., Sumaoy, R., Reyes, N., Calipayan, J., Arreo, R., Duero, D., Rosil, I., Agustin, S., Diron, T., Pingol, R., Sapuras, J., Miranda, K., Julve, J., Josol, M., Mercado, K., Latoja, L., Cubillan, J., Fallado, P., Duran, E., Ambray, F., Miranda, M., Etchon, F., Ramoso, M., Rubenial, J., Ganancias, F., Orozco, L., Gracia, J., Notado, N., Darao, G., & Cortes, S. (2025). Modeling the influence of AI dependence to research productivity among STEM undergraduate students: case of a state university in the Philippines. *Frontiers in Education*. 10, 1535466. https://doi.org/10.3389/feduc.2025.1535466

Çela, E., Fonkam, M., & Potluri, R. (2024). Risks of AI-assisted learning on student critical thinking. *International Journal of Risk and Contingency Management*. 12 (1), 1-19. https://doi.org/10.4018/ijrcm.350185

Correia, A., Água, P., & Lobo, V. (2024). Adaptive learning design: integrating AI to personalize critical thinking education. *EDULEARN24 Proceedings*, 7733–7741. DOI: https://doi.org/10.21125/edulearn.2024.1816

El-Fathi, T., Saad, A., Larhzil, H., Lamri, D., & Ibrahmi, E. (2025). Integrating generative AI into STEM education: Enhancing conceptual understanding, addressing misconceptions, and assessing student acceptance. *Disciplinary and Interdisciplinary Science Education Research, 7, 6*. https://doi.org/10.1186/s43031-025-00125-z

Fošner, A. (2024). University students' attitudes and perceptions towards AI tools: Implications for sustainable educational practices. *Sustainability*, 16 (19), 8668. https://doi.org/10.3390/su16198668

Freeman, J. (2025). Student generative AI survey 2025 (HEPI Policy Note 61). Higher Education Policy Institute. https://www.hepi.ac.uk/wp-content/uploads/2025/02/HEPI-Policy-Note-61-2.pdf

Habib, S., Vogel, T., Anli, X., & Thorne, E. (2024). How does generative artificial intelligence impact student creativity? *Journal of Creativity, 34, 100072*. DOI: https://doi.org/10.1016/j.yjoc.2023.100072

Hassen, M. (2025). The impact of AI on students' reading, critical thinking, and problem-solving skills. *American Journal of Education and Information Technology*. 9 (2), 82-90. https://doi.org/10.11648/j.ajeit.20250902.12

Hou, C., Zhu, G., & Sudarshan, V. (2025). The role of critical thinking on undergraduates' reliance behaviours on generative AI in problem-solving. *British Journal of Educational Technology*. 56 (5), 1919- 1941. https://doi.org/10.1111/bjet.13613

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Jose, B., Cherian, J., Verghis, A. M., Varghise, S. M., S, M., & Joseph, S. (2025). The cognitive paradox of AI in education: between enhancement and erosion. *Frontiers in Psychology, 16:1550621*. DOI: https://doi.org/10.3389/fpsyg.2025.1550621

Kaabi, S. A. (2025). Reliance on AI and its effects on critical thinking and graduate readiness: Evidence from UAE higher education. *International Journal of Learning, Teaching and Educational Research*, 24 (8), 17. https://doi.org/10.26803/ijlter.24.8.17

Kosar, T., Ostoji´c, D., Liu, Y. D., & Mernik, M. (2024). Computer science education in chatgpt era: Experiences from an experiment in a programming course for novice programmers. *Mathematics*, 12(5), 629.

Krupp, L., Steinert, S., Kiefer-Emmanouilidis, M., Avila, K. E., Lukowicz, P., Kuhn, J., ... & Karolus, J. (2023). Unreflected acceptance–investigating the negative consequences of chatgpt-assisted problem solving in physics education. *Hybrid Human AI Systems for the Social Good, Frontiers in Artificial Intelligence and Applications*, *386*, 199-212.

Labadze, L., Grigolia, M., & Machaidze, L. (2023). Role of AI chatbots in education: systematic literature review. *International Journal of Educational Technology in Higher Education,* 20*,* 56 . https://doi.org/10.1186/s41239-023-00426-1

Lin, H., & Chen, Q. (2024). Artificial intelligence (AI) -integrated educational applications and college students' creativity and academic emotions: students and teachers' perceptions and attitudes. *BMC Psychology, 12, 487*. https://doi.org/10.1186/s40359-024-01979-0

Lyu, W., Wang, Y., Chung, T., Sun, Y., & Zhang, Y. (2024). Evaluating the effectiveness of LLMs in introductory computer science education: A semester-long field study. *Proceedings of the Eleventh ACM Conference on Learning @ Scale*. Pgs 63- 74. https://doi.org/10.1145/3657604.3662036

National Centre for AI in Education. (2025). Student Perceptions of AI 2025. *Jisc Involve*. May 21, 2025.nationalcentreforai.jiscinvolve

Ododo, E. P., Iniobong, U. B., Udoessien, A. I., Ukpe, I. U., & James, O. D. (2024). Artificial intelligence in the classroom: perceived challenges to vocational education student retention and critical thinking in tertiary institutions. *American Journal of Interdisciplinary Innovative Research, 6*, 30–39. DOI: https://doi.org/10.37547/tajiir/volume06issue09-05

Olarewaju, Y., Lukman, A.H., & Opeyemi, A.R. (2025). Impact of artificial intelligence tools on student initiative. *Journal of Contemporary Education Research*. 7 (8). https://doi.org/10.70382/hujcer.v7i8.012

Pitts, G., Rani, N., Mildort, W., & Cook, E.-M. (2025). Students' reliance on AI in higher Education: Identifying contributing factors. *Computers and Society:* arXiv, 2506, 13845. https://doi.org/10.48550/arXiv.2506.13845

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - *E*- ISSN: 3156-5492 | *P*- ISSN: 3156-5514

Rashed, T., Kashada, A., & Alfared, R. (2026). The impact of AI on critical thinking and problem-solving on student skills in higher education: An empirical study. *International Science and Technology Journal*. https://doi.org/10.62341/darc1943

Ward, B., Bhati, D., Neha, F., & Guercio, A. (2024). Analyzing the impact of AI tools on student study habits and academic performance. *2025 IEEE 15th Annual Computing and Communication Workshop and Conference (CCWC)*, 00434-00440. https://doi.org/10.1109/ccwc62904.2025.10903692

Zhai, C., Wibowo, S., & Li, L. (2024). The effects of over-reliance on AI dialogue systems on students' cognitive abilities: a systematic review. *Smart Learning Environments, 11, 28*. https://doi.org/10.1186/s40561-024-00316-7

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Communicating Power and Resistance: Africa in the Era of Artificial Intelligence

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DOI : https://doi.org/10.5281/zenodo.22901829

Abstract
Globally, the domination of one group by another has usually been met with resistance because humans were born free and desire to exercise their political, economic, and religious freedom without restriction. This informed the declaration of American States in 1776 that men were created equal and endowed by their maker with certain inalienable rights among which are life, liberty and the pursuit of happiness. This study analysed power and resistance in Africa in relation to the Western world from the lens of Artificial Intelligence which extant literature has shown is a tool for domination and digital colonialism by the advanced nations against the developing nations like African countries. The study is anchored on Technological Determinism theory and adopted library research method. The study argues that while historical colonialism was concerned with territorial acquisition, domination, exploitation of the colonized people and appropriation of their land by the coloniser, digital colonialism seeks total control of the lives of the people in a subtle way by acquiring their data for the benefits of the global technology companies and corporations. The study recommends that Africa should adopt alternative technologies, ideologies and models that promote democracy, human rights and socio-economic justice among other things.

Key words: Communication, Power, Domination, Resistance, Artificial Intelligence

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Introduction

The place of Africa in relation to Western Nations with regards to Artificial Intelligence (AI) can be likened to the New World Information and Communication Order (NWICO) debate in which the countries of Africa, Asia and Latin America argued that it was impossible to have a free and balanced flow of information between unequal partners (Udeze, 2005). This, according to them, stems from the sophisticated communication infrastructure at the disposal of the Western World but lacking in the Third World (Udeze, 2005). The global power understands the vulnerability of Africa and Third World nations and this accounts for "the social classification of world's population around the idea of race, a mental construction that expresses the basic experience of colonial domination and pervades the more important dimensions of global power, including its specific rationality: Eurocentrism" (Quijano 2000, p. 533). Quijano (2000) observes that this model of power that prevails in the world today is reminiscent of colonialism. Historians recognize three ages of colonialism with first corresponding with the period of mercantilism and the second being the outcome of the Industrial Revolution whereas the third resulting in the partition of Africa, among other things (Mbembe, 2021) .

Accordingly, Mollema (2024) contends that the development and deployment of Machine Learning and Artificial Intelligence culminates in AI colonialism and passes as a form of injustice. While using AI colonialism and data colonialism interchangeably, Mollema (2024) notes that there is the need to decolonise AI for political, ecological and epistemic reasons. The scholar observes that, politically, AI colonialism enforces digital capitalism's hegemony, ecologically, impacts the environment adversely through the intensification of the extraction of natural resources and energy consumption and epistemic ally, reinforces Western universalism on the global South through the imposition of Western colonial values which reflect in the digital ecosystem as a form of capitalism. Mbembe (2022) is right when he argues that the situation of Africans seems to equate with living in the periphery of extremes culminating in both irreversible environmental metamorphosis and the increase in a new form of colonialism- techno-molecular colonialism. Corroborating Mbembe (2022), Mollema (2024) observes that most powerful companies and states globally reinforce themselves through the development and deployment of AI technologies.

Kwet (2019) describes digital colonialism as a structural form of domination implemented through centralised ownership and control of the three main pillars of digital ecosystem namely hardware, software and network connectivity which afford the United States tremendous political, economic and social power. This suggests that the enormous power wielded by the United States and other dominant global power centres in the digital environment enable them to subjugate Africa and other countries in the Global South on political, economic and social fronts. Kwet (2019) observes that assimilation into the technology products, models and ideologies of foreign powers are tantamount to 21st century colonialism but notes the existence of alternative technologies, models and ideologies for fashioning out a digital society that is in tandem with democracy, human rights and socio-economic justice with decentralized ownership and control of the three main pillars of digital ecosystem as criteria. Kwet (2019) asserts that while the colonialism of the old concentrated on land conquest, the current colonisation is corporate in nature in which case big technology corporations colonise digital technology. In fact, United States multinational corporations dominate the digital space with Goggle, Alphabet, Facebook,

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Apple and Microsoft (GAFAM) standing as the five wealthiest corporations globally with a combined market cap above $3 trillion (Kwet, 2019).

In addition, while the imperialist powers are protecting their technologies, on the contrary, the exploited nations grant unhindered access to their most priceless 21st century commodity-technology **(**De Melo, 2025), a situation that calls for the resistance of the imperialist domination by the dominated. This was why Spivak (1990) described the erstwhile colonies as the post-colonial neo-colonised world in relation to the Global North because the Western World occupies the pride of place in the global power hierarchy while the Global South remains at the bottom (Ndlovu-Gatsheni, 2013). Ndlovu-Gatsheni (2013, p. 4) observes that in the post-colonial neo-colonised world, Africa and the Western world "meet under highly racialised, hegemonic, hierarchical and unequal terms". Consequently, this study attempts to explain this unequal relations between the Western nations and African nations with a view to showing what Africa should do to liberate herself and relate with Western world as an equal partner in the AI industry.

Conceptual Clarifications

Power

Many scholars have defined power in several ways. Wrong (2017, p. 2) conceptualises power as the "the capacity of some persons to produce intended and foreseen effects on others". This presupposes that, in the exercise of power, people's actions affect others in some kind of way. However, Wrong (2017) notes that five problems are associated with the conceptual analysis of power such as the intentionality of power, the effectiveness of power, the latency of power, asymmetry and balance in power relations as well as the nature of effects produced by power. Taking his cue from the dictionary which defines power as the capacity to do things and the possession of the capabilities to affect the behaviour of others to get those things done, Nye (2004) observes that power is the ability to influence the behaviour of others in order to get one's desired outcomes.

Corroborating Nye (2004) who argues that influencing others' behaviour to achieve desired outcomes can be realised through threats, inducements, attraction or co-opting, Wrong (2017, p. 21) notes that many writers have conceptualised power "as the capacity to impose, or to threaten successfully to impose, penalties or deprivations for noncompliance". Power therefore has two faces namely hard power and soft power. Whereas hard power relies on threats or inducements (stick or carrot approach), soft power depends on the attractiveness of the person, organisation or country influencing the behaviour of others which is anchored on their culture and values that those whose behaviour is being influenced desire or work towards attaining. Power relations are expressed through three models such as power over, power with and power to (Berger, 2005). Power over relations takes the traditional dominance model of decision-making epitomised by control, instrumentalism and self-interest. This type of power relations exemplifies a win-lose situation in which one takes the power from another person and deploys it as an instrument of domination while preventing others from having it (Nwodu & Emechebe, 2023). By contrast, power with scenario depicts an empowerment model characterised by inclusion, dialogue, negotiation and shared power (Berger, 2005). This type of power relations epitomises democratic power relations as it provides room for inclusivity and democratic practices. The power to relations challenges the power over relations dominance model because it takes the form of

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activism and resistance which Africans can deploy to resist the colonial and imperialistic tendencies embedded in Artificial Intelligence.

Resistance

Scott (1985, p. xvi) conceptualises everyday form of resistance as "the prosaic but constant struggle between the peasantry and those who seek to extract labor, food, taxes, rents, and interest from them". Although this form of resistance avoids open confrontation with the authority, it requires little or no co-ordination or planning but deploys implicit understandings and informal networks, represents self-help and weaponises foot dragging, dissimulation, desertion, false compliance, pilfering, feigned ignorance, slander, arson, sabotage among others (Scott, 1985). Even with its deficiencies, the scholar notes that this form of resistance has proved to be the most significant and most effective in the long run. This means that resistance goes beyond demonstrations or protests. In Africa, the history of resistance is seldom separated from the history of colonialism in which case, the history of Africa was written as the history of White men's mission to 'civilise' the 'natives' who were engrossed with tradition (Willems & Obadare, 2014).

However, a new wave of historiography emerged to challenge the Eurocentric or Westernised history of Africa that ended up glorifying the West and demonising Africa by emphasising the contributions of Africa to global civilisation. Consequently, postcolonial African historiography accentuated the heroic attempts of Africans in resisting oppression, domination and subjugation and liberating themselves from colonialism (Willems & Obadare, 2014). According to Willems & Obadare (2014), whereas the anti-colonial resistance dominated 1960s and 1970s in Africa, a new paradigm surfaced in the 1990s to challenge the postcolonial indigenous governments that were majorly intolerant of opposition and reminiscent of the colonial state. As a result, a new wave of resistance namely civil society dominated the 1990s. Civil Society Organisations (CSOs) also called not-for-profit organisations, Non-Governmental Organisations (NGOs) and Community Based Organisations (CBOs) served the purposed of resisting autocratic regimes in Africa (Willems & Obadare, 2014).

Artificial Intelligence

Artificial Intelligence denotes systems that act intelligently through the analysis of their environment and responding with a measure of autonomy in order to achieve specific goals (European Commission's Communication on AI, 2018). The Commission argues that AI systems could be software-based such as voice assistants, image analysis software, search engines, speech and face recognition systems or embedded in hardware devices like advanced robots, autonomous cars, drones or Internet of Things applications. It observes that expansion in computing power, availability and progress in algorithms have transformed AI into one of the most strategic technologies of the 21st century. Similarly, Leslie, Burr, Aitken, Cowls, Katell and Briggs (2021) conceptualize AI systems as algorithmic models which perform cognitive and perceptual functions which were tasks previously reserved for thinking, judging and reasoning humans. Jaldi (2023) observes that AI technology is growing across Africa with over 2,400 companies specialising in AI 41% of which are startups. In fact, South Africa, Nigeria, Egypt, Kenya, Morocco, Ghana and Tunisia have 726; 546; 246; 204; 126; 115 and 103 companies each

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specialising in AI (Jaldi, 2023). While the numbers look good and encouraging for the continent, AI systems have colonial values embedded in them. It therefore becomes necessary to decolonise them by developing homegrown AI systems that cater to the needs and aspirations of Africans and protect and promote African values.

Theoretical Foundation

This study is anchored on Technological Determinism theory. Originally attributed to Thorstein Veblen, the theory holds that technology is the main initiator of societal metamorphosis (Hauer, 2017). Therefore, the proponents of technological determinism contend that technology, communications technology, technological development and the media control social changes (Hauer, 2017). Two brands of technological determinism theory have been identified such as radical or hard technological determinism and moderate or soft technological determinism. Whereas radical version of the theory holds that technologies represent a criterion for societal transformation, the moderate version holds that technology serves only as a factor which may or may not initiate societal changes (Hauer, 2017). Héder (2021) identifies two pillars of technological determinism. The first pillar, according to the scholar, is the perceived unavoidability of technological progress with a tendency for higher efficiency and any long term attempt to resist it will amount to a wild goose chase. The second pillar, the scholar observes, is that the predetermined nature of the evolution of technology serves as an external force that causes societal transformation. Technological determinism explains the relationship between technology and society as well as the impact of technology on society (Koniakou, 2019). This theory was adopted for this study because Artificial Intelligence is the prevailing technology which shapes the political, social and economic relations between Africa and the countries in the Global South.

Methodology

This study adopted library research method. This is because it is an analytical study. Therefore, it relied on books, journal articles and other documents as sources of information used. The secondary data obtained from the scholarly works utilized in the study provided the basis for the position taken in the discourse.

Artificial Intelligence: An Equaliser or a Hegemonic Tool?

Communication today is automated with machines such as interactive programmes like chatbots, translation applications and ChatGPT among others assisting humans or working independently in the communication activities (Wee, 2025). It has been argued that the most powerful companies and states globally reinforce themselves through the development and deployment of various AI technologies thereby producing a combination of the exploitative and extractive inclinations of colonialism (Mollema, 2024). Colonialism according to Butt (2013) denotes domination, cultural imposition and exploitation. Similarly, Mohamed, Png and Isaac (2020) characterise colonialism with territorial appropriation, exploitation of the natural environment and human labour as well as direct control of social structures. Elucidating on the subject further, Butt (2013) contends that colonialism involves the imposition of the colonial power's cultures and customs on the colonised as a result of the belief in either racial and or cultural superiority of the coloniser, the evangelical motive of spreading religious or cultural practices or a

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mechanism for putting in place or consolidating political control over the colonised. The United Nations General Assembly's Resolution 1514 of 1960 demolishes colonialism when it declares among other things that, "The subjection of peoples to alien subjugation, domination and exploitation constitutes a denial of fundamental human rights", as "all peoples have the right to self-determination" in order to "freely determine their political status and freely pursue their economic, social and cultural development" and therefore, "inadequacy of political, economic, social or educational preparedness should never serve as a pretext for delaying independence" under any guise. Yet, apologists for colonialism have tried unsuccessfully to rationalise and justify colonialism but Césaire (1972) contends that colonialism was neither aimed at evangelisation, philanthropy, entrenchment of rule of law nor efforts to checkmate ignorance, disease or tyranny among the colonised by the coloniser. Césaire was right because evidence abounds of how the colonial powers ended up appropriating the resources of the colonised peoples and deploying them to develop their own countries to the detriment of the colonised nations. We argue that the creation and deployment of Artificial Intelligence currently negates the ideals of inclusive institutions advanced by Acemoglu and Robinson (2012) as responsible for the prosperity of nations but promote the extractive institutions which the scholars note, account for the poverty of nations. Therefore, Africa is disadvantaged in its power relations with the Western powers with regards to Artificial Intelligence.

Similarly, Butt (2013) observes that international relations is replete with violent efforts of a community to subjugate another. While this captures colonialism during the period the Western World colonised African nations and other places, colonialism through AI is subtle unlike what obtained in the past. Whereas Césaire (1972) recognises the historical coloniser as the adventurer, the pirate, the ship owner and the gold digger etc., Couldry (2023) notes that today's colonisers are not conquistadors, governors of provinces but those corporations that offer what appear like services for living like social media platforms, platforms for children learning and for our health monitoring among others. Moreover, Hao (2022) argues that just as the European colonialism centred on violent capture of land, extraction of resources, and exploitation of the people through slavery for the economic benefit of the colonising country, the AI industry is re-enacting the same violence today through a more insidious way for the economic enrichment of the wealthy and powerful nations to the detriment of the poor ones. Couldry and Mejias (2019) argue that four components underpin historical colonialism such as appropriation of resources, unequal economic and social relations, unequal global allocation of the benefits of the appropriated resources and the spread of ideologies to explain the pernicious enterprise of colonialism. Differentiating historical colonialism from data colonialism, Couldry and Mejias (2019) observe that whereas historical colonialism enlarged by appropriating geographical territory and the resources of the area for exploitation, data colonialism enlarges by appropriating the layers of human life for exploitation. They however note that mere appropriation of data does not constitute data colonialism as one can approve the appropriation of one's data for one's purposes but once there is an external appropriation of one's data on terms that are partly or wholly beyond the control of the person to whom the data belong, it becomes data colonialism. They further note that resisting data colonialism is the sure means to guarantee a future of human freedom that capitalism claims to avail.

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During historical colonialism, the colonial powers dispossessed the natives of valuable resources, took control and ownership of their infrastructure, extracted their raw materials through exploited labour and shipped to the country of the coloniser while importing cheap machine-made products to the country of the colonised (Kwet, 2019). But under digital colonialism, colonising powers led by the United States are planting digital infrastructure designed to suit their needs of economic and cultural domination of the countries in the Global South by producing digital technology that guarantees their dominance of the critical functions in the technology ecosystem (Kwet, 2019). The fear of some African leaders who led the decolonisation struggles that colonial powers were awake and would return if not completely tamed, has materialised through Artificial Intelligence which they are using to dominate, emasculate, manipulate and subjugate Africa and her citizens. Their current strategy is subtle like the divide and rule policy deployed in the continent during the days of colonialism. Through divide and rule, the Western powers created divisions among African native communities, kingdoms, tribes and nationalities that before then existed as brothers thereby making them enemies. As the brothers fought, the coloniser was busy looting African resources. Today, they are hiding under technology to extract African resources in the form of data without commensurate and consequential benefits to Africans and African nations.

Resistance and Decolonisation of Artificial Intelligence in Africa

Africa and the Global South must vehemently resist this new brand of colonialism in order to ensure their human freedom. Just as they decolonised their countries politically, they should free themselves from digital colonialism. One way to do that is by embracing Free Software Movement founded in 1983 by Richard Stallman. The Free Software Movement is defined by four fundamental freedoms namely freedom to run the programme the way you like, freedom to know how a programme works and change it if need be, freedom to redistribute verbatim copies of the programme and freedom to distribute the modified versions of the programme to others (Kwet, 2019). Mohamed, Png and Isaac (2020) argue that decolonisation could either be territorial or structural. According to them, territorial decolonisation is concerned with the dissolution of colonial relations whereas structural decolonisation revolves around dissolving the colonial mechanisms of power, economics, language, culture, and thinking that shape modern life: questioning the provenance and legitimacy of the prevailing forms of knowledge, values, norms and assumptions.

Mohamed, Png and Isaac (2020) situate the decolonisation role under three views namely the decentralising view, an additive-inclusive view and an engagement view. The decentralising view rejects in entirety the imitation of the West in all areas of life and called for the assertion of the unique identities by the colonised while the additive-inclusive view welcomes the continuation of existing knowledge which accommodates the flourishing of new and alternative ways of knowledge creation. In addition, the engagement view calls for a critical view of science by examining scientific practice from the periphery in order to place the needs of the marginalised populations at the centre of design and research process and interrogates the source of knowledge, those included and excluded and in whose interest science is applied, who is silenced and what unacknowledged hypotheses might be playing out. Besides, making digital sovereignty policies, strengthening data protection and privacy laws, investing in digital infrastructures, supporting

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local digital contents, promoting open-source technologies and entering into balanced trade agreements are necessary steps to reducing digital colonialism in Africa (Salami, 2024).

Should Decolonising Artificial Intelligence in Africa be a Priority?

There is an argument as to whether AI is already decolonised in Africa or not. There are two strands to the argument. One side of the argument holds that AI is already decolonised whereas the other side holds that AI is not yet decolonised. Although the proponents of decolonised AI school of thought may argue that some AI tools could perform some tasks using indigenous African languages, it is important to note that decolonising AI goes beyond using indigenous African languages to train AI. Decolonising AI consists in the structural dissolution of the colonial mechanics of power, culture, thinking, etc. that change modern life. The question therefore is whether African countries can compete favourably as an equal partner with the advanced countries of the world in the AI industry. If African countries are still being eclipsed by the major players in the AI industry, we argue that AI needs to be decolonised. If African countries are still struggling to catch up with the advanced nations who control the AI industry, we argue that AI in Africa needs to be decolonised.

An example to buttress the position above will suffice. According to Pricewaterhousecoopers (PWC) (2017), by 2030 the global Gross Domestic Product (GDP) could be $15.7 trillion (14%) higher as a result of Artificial Intelligence thereby presenting the highest commercial opportunity in the fast dynamic global economy. Of the total sum, PWC notes that $6.6 trillion and $9.1 trillion respectively would come from improved productivity and consumption-side effects. The body projects that China will be the greatest beneficiary with a likely improvement of 26% followed by North America with a likely boost of up to 14%. Lamentably, Africa, Oceania and other Asian markets will have their GDP improved by 5 6% amounting to $1.2 trillion only. The data show that Africa is dominated in the global AI power relations hence the need to have AI decolonised in Africa.

Ayana et al. (2024) observe that there are disparities in the adoption and influence of AI which favour the Global North against the Global South which Africa is part and needs to be confronted head-on to correct it to ensure equal distribution of the benefits accruing from it. Ayana et al. assessed 10 Sub-Saharan African countries using the following indicators: (1) Does the country have an institution to guide AI governance? (2) Does the country have a national AI governance strategy? (3) Is 'sovereignty' a priority in the country's AI governance strategy? (4) Does the country have data protection regulations? (5) Does the country necessitate or oblige the use of local data for AI tools used in the country? Based on the above indicators, the scholars rated countries as follows: (I) Decolonisation-Resistant: Accepts AI governance colonization and does not do anything. (II) Decolonisation-Blind: Ignore AI decolonisation governance and do not do anything. (III) Decolonisation-Aware: Acknowledge AI governance decolonisation but do not work toward decolonisation. (IV) Decolonisation-Responsive: Acknowledge and consider decolonisation's specific needs. (V) Decolonisation-Transformative: Address the causes of decolonisation and work to transform AI governance decolonisation. According to the results of the study, 80% of the selected Sub-Saharan African countries examined were decolonisation-aware whereas 10% each were decolonisation-responsive and decolonisation-blind respectively. The only country that was decolonisation-responsive was Rwanda while the only country that

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was decolonisation-blind was Cameroon but other countries such as Nigeria, South Africa, Kenya, Seychelles, Mauritius, Senegal, Ghana and Ethiopia are all decolonisation-aware. If these above named countries that should be considered as major players in the AI industry in Africa were merely decolonisation-aware not even decolonisation-responsive some two years ago in AI governance, we argue that AI in Africa is far from being decolonised. Looking at the foregoing, we argue that decolonising Artificial Intelligence should be prioritised by all African nations.

Conclusion and recommendations

This study examined how Western technology companies deploy Artificial Intelligence to dominate the third world nations particularly in Africa. It basically examined the power relations between the technologically advanced nations of the world who dominate the technology and AI industry and the less technologically developed African societies who are playing the catching up game in the AI industry. The study indicates that in the face of domination, the dominated usually revolt in order to reclaim their God-given freedom. The study shows that the third world countries especially African nations are technologically disadvantaged as against their western counterparts. Therefore, there is the need for Africa to adopt a combined approach which accommodates the decentralising, additive-inclusive and engagement views to AI decolonisation process. Also, Africa should embrace the Free Software Movement initiated by Richard Stallman in 1983 in order to free herself from the stranglehold of the global technology corporations. Similarly, African nations should embrace alternative technologies, models and ideologies which promote democracy, human rights and socio-economic justice while possessing decentralised ownership and control of the three main pillars of digital ecosystem such as hardware, software and network connectivity. African countries therefore, should prioritise decolonising AI in order to dismantle the western-centric ideas, biases, prejudices and structures that undermine Africa's efforts to operate as equal partners with the advanced nations in the global AI industry. This can done through stakeholder involvement like national governments and indigenous AI experts among others.

References

Acemoglu, D. & Robinson, J.A. (2013). *Why nations fail: The origins of power, prosperity and poverty*. London: Profile Books.

Ayana, G., Dese, K., Nemomssa, H. D., Habtamu, B., Mellado, B., Badu, K., Yamba, E., Faye, S. L., Ondua, M., Nsagha, D., Nkweteyim, D. & Kong, U. D. (2024). Decolonizing global AI governance: Assessment of the state of decolonized AI governance in Sub Saharan Africa. *Royal Society Open Science*, (11): 231994. https://doi.org/10.1098/rsos.231994

Berger, B. K. (2005). Power over, power with, and power to relations: Critical reflections on Public Relations, the dominant coalition, and activism. *Journal of Public Relations research*, *17*(1), 5–28.

Césaire, A. (1972). *Discourse on colonialism*. Monthly Review Press.

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Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions on Artificial Intelligence for Europe, Brussels, 25.4.2018 COM(2018) 237 final.

Couldry, N. & Mejias, U. A. (2019). *The costs of connection: How data is colonizing human life and appropriating it for capitalism*. Stanford University Press.

De Melo, J. C. (2025). Decolonial AI: A perspective on the imperialist states' colonizing quest for labor applied in the development of Artificial Intelligence. *Brazilian Journal of Political Economy*, 1-20.

General Assembly Resolution 1514 (xv) (December 10, 1960). Declaration on the Granting of Independence to Colonial Countries and Peoples. https://www.ohchr.org/en/instruments-mechanisms/instruments/declaration-granting-independence-colonial-countries-and-peoples

Hao, K. (2022). Artificial intelligence is creating a new colonial world order. Available at: https://www.technologyreview.com/2022/04/19/1049592/artificial-intelligence-colonialism/

Hauer, T. (2017). Technological determinism and new media. *International Journal of English, Literature and Social Science (IJELS)*, 2 (2), 1-4.

Héder, M. (2021). AI and the resurrection of Technological Determinism. *Információs Társadalom* XXI (2) 119–130. https://dx.doi.org/10.22503/inftars.XXI.2021.2.8

Jaldi, A. (2023). *Artificial intelligence revolution in Africa: Economic opportunities and legal challenges*. Policy Center for the New South.

Koniakou, V. (2019). Revista Publicum Rio de Janeiro, v. 5, n. 2, p. 36-72, 2019 http://www.epublicacoes.uerj.br/index.php/publicum DOI: 10.12957/publicum.2019.47200

Kwet, M. (2019). Digital colonialism: US Empire and the new imperialism in the Global South. *Race & Class*, 60(4) 3–26.

Leslie, D., Burr, C., Aitken, M., Cowls, J., Katell, M. & Briggs, M. (2021). *Artificial intelligence, human rights, democracy, and the rule of law: A primer*. The Council of Europe.

Mbembe, A. (2022). The *earthly community*: *Reflections on the last utopia*. V2_Lab for the Unstable Media. https://store.v2.nl/products/the-earthly-community-reflections-on-the-last-utopia

Mbembe, A. (2021). *Out of the dark night*: *Essays on decolonization.* Columbia University Press.

Mohamed, S., Png, M. T. & Isaac, W. (2020). Decolonial AI: Decolonial theory as sociotechnical foresight in Artificial Intelligence. *Philosophy and Technology* (405), 1-28. DOI: 10.1007/s13347-020-00405-8

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Mollema, W. J. T. (2024). Decolonial AI as Disenclosure. Open Journal of Social Sciences, 12, 574-603. https://doi.org/10.4236/jss.2024.122032

Ndlovu-Gatsheni, S. J. (2013). *Coloniality of power in postcolonial Africa: Myths of decolonization*. Council for the Development of Social Science Research in Africa.

Nwodu, G. E. & Emechebe, C. N. (2023). Dominant coalitions, Public Relations and power relations dynamics in ministries, departments and agencies in Nigeria. In A. A. Idachaba, O. E. Ogunyombo, C. Onumah & L. U. Abdulsalam (Eds), *Communication, Media and Power Relations in a Multicultural Society: Context, Issues and Perspectives for Development*. Association of Communication Scholars and Professionals of Nigeria.

Nye, J. S. (2004). *Soft power: The means to success in World politics*. PublicAffairs.

Price Water House Coopers (2017). *Sizing the prize: What's the real value of AI for your business and how can you capitalize?* A Report of the Price Water House Coopers. www.pwc.com/AI.

Scott, J. C. (1995). *Weapons of the weak: Everyday forms of peasant resistance*. Yale University Press.

Salami, A. O. (2024). Artificial intelligence, digital colonialism, and the implications for Africa's future development. *Data & Policy*, (6), 1-12. doi:10.1017/dap.2024.75

Samoili, S., López-Cobo, M., Gómez, E., De Prato, G., Martínez-Plumed, F. & Delipetrev, B. (2020). *AI Watch. Defining Artificial Intelligence. Towards an operational definition and taxonomy of artificial intelligence*. European Union.

Quijano, A. (2000). Coloniality of power, Eurocentrism, and Latin America. *Nepantla: Views from South 1.3*. Duke University Press.

Udeze, S. E. (2005). *After the whirlwind: A discourse on International communication*. Rhyce Kerex Publishers.

Wee, L. (2025). *Automation in communication: The ideological implications of language machines*. Routledge.

Willems, W. & Obadare, E. (2014). African resistance in an age of fractured sovereignty. In W. Willems & E. Obadare (Eds), *Civic Agency in Africa Arts of Resistance in the 21st Century*. James Currey.

Wrong, D. H. (2017). *Power its forms, bases, and uses*. Routledge.

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Comparative Assessment of Conventional and Digital Media Influence on Nigerian Voters' Behaviour During the 2023 Presidential Election in South Western Nigeria

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Abstract

*Mass media paly important role in a democracy as viable sources of information dissemination. But the perceived shift in media influence on political communication from the conventional media to the digital media calls for intellectual inquiry to ascertain whether the proliferation of digital media platforms (X, Facebook and WhatsApp etc.) and subsequent use for political engagements has challenged and altered the dominant influence of conventional platforms (radio, television and newspaper) on electoral behaviour This study interrogates which of the two forms of media- conventional or digital exerts a higher influence on voters' behaviour in the 2023 presidential election in Nigeria. The study adopted mixed methods: survey and in-depth interview with 397 respondents and 14 interviewees drawn from six local government areas of Lagos and Oyo states. Findings show that media have minimal but joint significant influence on the voters' behaviour, but conventional media platforms emerged to have influenced the behaviour exhibited by voters during the 2023 Presidential Election better than digital media. R*adio particularly emerged as the most effective. *The study recommended strong intuitional frameworks to strengthen digital media against abuse. It also advocates that conventional media organizations should further fortify its gate keeping procedure against reputational damage.*

Key words: Digital, Conventional, Media, Presidential Election, Influence,

Introduction

Over the years, scholars have conceptualised media, generally as channels of communication that fussed the world into a single unit (Paul & Rai, 2021). Media simply connote the modern methods of transmitting news, opinion, education, entertainment and mechanism to set agenda for numbers of public (Onuoha, 2021). By its power and influence, media are the determinant and chief interpreters of human life (Hanson, 2022).

Asemah (2020) opines that the mass media may be seen from their functional angle which made people to see media as the society's watchdog, willing to raise concerns in the face of any infraction or abuse. To that extent, media are beacon or flash light bringing to the public what many would prefer to remain hidden. However, Manning, (2014) is of the view that the media

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could be seen from two main perspectives or ages- the broadcast and interactive age. The former represents the age of conventional media, which includes radio, television and print family, mostly newspapers. While the latter stands for era where interactivity was elevated, and popularly known as digital or new media age. Digital media, according to Jungherr, et al., (2020) is an infrastructure which is used to produce and distribute messages and ideas encoded in binary code.

In the view of Ibietan (2023), new media represent a broader spectrum of digital platforms, though often used interchangeably. Ibietan (2023) notes that new media represents the totality of digitally inclined communication that has Internet as its main conduit, the scholar reasoned that social media platforms are a component of new/digital media, but argued that all digital media are not social media, which implies that sociality and interactivity are key defining features of social media- translating to suggest that users are the ones who create values for social media platforms (Valentini & Kruckeberg, 2012).

The concept of digital media in this study includes three major platforms- Facebook, X, formally known as Twitter and WhatsApp. The justification for this position is premised on the findings of Namo, et al., (2024) who held that social media platforms like Facebook, WhatsApp and X (Twitter) are the most utilised social media platforms among Nigerian for political communication.

Whether under broadcast or interactive age, the platforms are generally categorised as media, with cardinal functions as encapsulated by Harol Lasswell (Asemah, 2020). Lasswell in 1948 stated that media performed certain cardinal functions to its audience and society, they include surveillance, correlation, entertainment, and cultural transmission. Lasswell, (1948) as cited in Mohd-Sharif (n.d.) opines that surveillance function suggests that mass communication prevails to inform and observe the public. Therefore, in a democratic setting, that has election as the key process, media have the role to uphold the function of informing members of the public about political activities (Kulachai, et al., 2023). In performing this role, Seibure and Javombo, (2021) aver that media bring to the fore various happenings and developments of an election campaign, giving key players platforms to get their messages to the people.

Before now, these functions were exclusive preserve of conventional media, whereas, in the current era, digital media platforms are altering the dynamics- platforms like X, Facebook and WhatsApp have developed into powerful political communication tools. To this end, the portrayal of the key political actors or their messages and actions by the media can profoundly alter public perceptions and attitudes (Serapşah & Sevgihan, 2023). Although, Usigbe (2023) argued that the role played by the media in influencing election results is generally quite small and negligible. Accordingly, careful analysis of the influence each of the two forms of media is the focus of this paper, this is necessary because notwithstanding the growing nature of digital community in Nigeria, particularly, the perceived increased youthful participation in politics, many of previous studies on the influence of media on voters' behaviour in election (Aririguzoh, 2021; Aririguzoh, 2014; Aliyu & Olowu, 2019; Hanson, 2022; Kulachai, et al., 2023; Dazang, 2022; Fujiwara et al. 2023) have been largely preemptive.

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By querying the interplay between digital and conventional media and their effects on voters' behaviour, this paper laid bare insights into the evolving dynamics of political communication and media influence in contemporary Nigerian democracy. The research sought to answer the following questions.

1. What is the influence of conventional and digital media on voters' behaviour during the 2023 Presidential Election?
2. Which media platform between conventional and digital has higher influence on voter's behaviour during the 2023 Presidential Election?

Literature Review

Conventional Media

Conventional media known as traditional media have been used to disseminate information to members of the public before the emergence of the Internet driven platforms. They include newspaper, magazine, radio and television. (Mittal & Mittal, 2013). Conventional media according to Pratama, et al., (2023) had existed for many decades, they, are often regarded as legacy media, they are predominant and main source of mass communication channels that have existed before the advent of new media. they are divided into two families of print (newspaper and magazine and the broadcast (radio and television). Pratama, et al., (2023) stressed that conventional mass media can exercise some level of control over the production and distribution of its content.

Zhang, (2012) sees conventional media as the medium, which utilizes one-way communication with the audience, conventional media is made up of four media sectors including publishing, radio, film, and television. In so far conventional media takes the form of a one-way communication, it attracts plenty of professionals who create media content for the audience. Pratama, et al., (2023) further explained that among the features of this family of media is its ability to disseminate information to mass audience with jointly and widely dispersed audience in a fairly short time. Similarly, Agbanu (2021) observes that conventional media can be seen from the two main divisions- print and electronic, while newspaper and magazine fall into print, radio and television belong to the electronic media.

Digital Media

This is the 21st Century technology that promotes interactivity among the users. According to Alao and Olayinka (2018), digital media encompasses a wide array of formats, including videos, articles, podcasts, virtual reality, and more, accessible through devices like computers, smartphones, and tablets. The digital age began in the late 20th Century, with the Internet transforming media consumption, making digital communication integral to daily life. Digital media according Jungherr (2020) refers to institutions and mechanisms that produce and circulate information encoded in binary code. Lindgren as cited in Muswede (2022) opines that digital media is a 21st-century expression that defines all communication engagements that related to the internet, it also captures the relationship between technology, images, texts and sound in the context of information production and circulation. Gdnet Research Communication (2011) notes digital that media which is also being referred to as new media as an area of startling growth in

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Africa, which has seen people accessing and disseminating information in ways that were inconceivable a decade ago.

Furthermore, in the view of Alessandro and Adam (2019), digital media encompasses a wide range of technologies capable of facilitating various human activities, extending beyond traditional communication practices including personal computers, mobile devices such as smartphones and tablets, digital cameras, video game consoles among others. according to Rengim (2019), digital media digitised content that can be transmitted over the internet or computer networks. This can include text, audio, video, and graphics. The line of difference between digital, new and social media is blurred, often, one is used interchangeably, however, Valentini and Kruckeberg (2012) asserts that in the current media landscape, digital media channels rely on the framework or structure provided by web2.0, 3.0 mobile communications, computer-aided user gadgets. In this media landscape the term used to represent all technology-based environment that promotes networking, interactive engagements, multimedia and collaboration is digital media. (Scolari, 2009, as cited in Valentini & Kruckeberg, 2012).

Valentini and Kruckeberg (2012) specifically argue that the prefix "new" refers to those technologies that recently emerged, in particular digital technologies. "New" also defines novel applications as well as the technologies that allow original, innovative ways of performing new tasks. the term "new media" should be used to represent technological innovation or in the sphere of information and communication advancements, suggesting that the dissimilarity between the concept of new and social media lies in the network effect, thus, to create value, social media needs network effect, but such is not needed in new media (Penn, 2021)

What this suggests is that new or digital media can be used interchangeably, whereas, social media channels emanated from the format of digital world, meaning that not all digital media are social media, part of the defining features of social media is its interactivity because it does not exist without users (Ibietan, 2023, Valentini & Kruckeberg, 2012)). Therefore, social media usage are platforms that allow users to interact with one another at the virtual space.

Voters' Behaviour

The concept of voter's behaviour is no doubt a wide and complex one. Halidu and Nwosu (2023) conceptualised voter's behaviour as the manner in which electorate choose to behave before the election day and after the election day within and outside the voting area within an electoral context in a political system. The scholars posited further that voter's behaviour may also mean the rationality that shapes the conduct and attitude of an electorate towards a particular electoral process. Kaur (2021) even evinced that voter's behaviour as a concept now used to describe wider political phenomena that were not previously conceived. Accordingly, behaviour during election should not be seen from the narrow standpoint of statistics of voting, records and counting of changes in electoral contests. but encompasses attempt to dissect voter's psychological processes and its connection or association with political actions. According to Kaur (2021), while relying on the authority of Plano and Riggs, voter's behaviour is a body of study relating to how people tend to vote in public elections and the reasons why they vote the way they do.

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In all of the attitude that may be displayed by a voter, it is safe to argue that voting is the most important with far reaching impact in the final outcome of an election, even though the right not to participate is part of the behaviour. Kumar and Kumar (2022) in their analysis of the factors affecting voting behaviour of urban voters and role of media in influencing the voters, did not only examine people who voted but also examined why did some electorate chose not to vote, implying that to vote and to choose otherwise are part of the behaviour of voters in an election.

Media Influence on Election

From advanced democracies to the nascent ones, mass media have been functioning as partners in the democratic endeavours across the globe. Aghamelu (2014) recognises roles of mass media in electoral process chiefly because of its unlimited communication strength and outreach. The pivotal roles of mass media especially television, in shaping opinion and thoughts towards candidates and parties is evinced by Adanlawo and Reddy (2020), thus relationship between election and media in the world today appears inseparable, because elections continue to be focal point of intense media attention and coverage (Najeem & Agboluaje, 2023).

In essence, Chomsky, cited in Nasidi (2022) captured the influence of media on election when the scholar holds that those who control the media, control the minds of the public. Mass media remains valuable institution in democracy across different societies, because it is a major source of information, education and awareness which are essential to healthy democracy, spotlighting the activities of people in government to live up to their oath of offices (Centre for Democratic Governance, 2009 cited in Najeem & Agboluaje, 2023).

In Nigeria the roles of media in political activities extend to campaigns for votes by political parties and candidates rely on radio, television, social media, handbill or even phone messages to engage electorates. Today, politics is generally being practised and reported on the belief that skillful media presentation is important to success in all normal circumstances (McQuail, 2010). Media perform fundamental roles in election across the world, because media is what many scholars have established as the source of oxygen to electoral or democratic activities. According to Asemah, (2020), the press ignites public conscience by placing on the front burner issues and concerns of public interest. It also sets agenda for the public. As agent of public opinion, it elevates sentiment of members of the public on a subject matter, considered worthy by the most informed, intelligent and morally upright persons in the community. While the success of an election is dependent on the conduct of electoral umpire and other key players, the elementary role of the media in electoral process, such as enlightenment and education of the members of the public as well as acting as impartial umpire is no less important (Cairo Institute for Human Right Studies, 2011 cited in Aliyu &Olowu, 2015).

In recent years, the global landscape of political communication has undergone a transformative shift with the advent and proliferation of online platforms. Nigeria, a country known for its dynamic political environment, has not been immune to this trend. Social media networks such as Facebook, Twitter, Instagram, Tiktok and WhatsApp have gained widespread popularity and have become instrumental in facilitating political discourse (Fisher, et al., 2023). Moreso, Nnaane (2023) had established a strong correlation between the use of social media for political mobilisation and the choice being made by electorate in Nigeria. Fisher, et al., (2023) stressed that online platforms have democratised access to information and news, enabling a more diverse

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range of voices to participate in political conversations. This offers citizens real-time updates, analyses, and opinions from various sources, thereby challenging the dominance of traditional media.

Theoretical Framework

Medium theory

Medium theory stands as an exploration of the influences of communication technologies in addition to and from the specific content (messages) they convey. The assumptions underpinning the theory assert that media should not be limited to channels of information transmission, but what they themselves represent (Meyrowitz, 2008). The referenced scholar here, posits that medium theory's emphasis is on the features and characteristics of each medium, which makes it markedly (physically, socially, and psychologically) different from other media. The crux of the assumptions underpinning medium theory according to McLuhan (1964) referenced in Asemah et al., (2017) holds that channels of communication differ, not in terms of their contents but in regards to how they alter thoughts. Asemah et al. (2020) and Asemah et al. (2017) emphasised that medium theory lays emphasis on the features of a medium itself, not necessarily the message it conveys. Meyrowitz (2008) further the explanation by arguing that medium theory tries to explore the influences of such characteristics as the type of sensory information the medium is capable or unable to transmit, the level of immediacy of communication through the medium; whether the medium affords unidirectional or bidirectional, or better still, multidirectional communication; whether interaction through the medium is simultaneous or sequential. The theory sees these features as determinants of each medium and the responses that arises to the same content when exposed to from another media.

The relevant of the theory lies in what each of the media of communication under review represents before the voters, from their physical feature to the level of trust and credibility voters place on them (conventional and digital) media as sources for political discourses, as well as their perception or understanding of what each of the two forms of media represents in the minds of voters, particularly as related to credibility and believability of their contents in relating to the 2023 presidential election discourses. This belief-system is no doubt a key determinant in understanding whether electoral related information coming from any of the two formats of media shaped the behaviour of the voters differently, which is the focus of this study.

Method

Mixed method which combined qualitative and quantitative approaches were deployed in this study, specifically, Survey and in-depth interview were adopted as methods of data collection in the two states of Lagos and Oyo. They were chosen due to their cosmopolitan nature. Particularly, Lagos was one of the battle grounds in the 2023 presidential election and Oyo state is the political headquarters of western Nigeria. Registered voters who collected their permanent voter's cards before the 2023 presidential election formed the population of the study. As contained in the data of the Independent National Electoral Commission, INEC, eight million, nine hundred and seventy-six thousand, three hundred and ninety-one (8, 976, 391) collected their PVCs in the two states.

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A sample size of 405, was taken with the deployment of Chi-square's software and after the administration of the data collection instrument, 397 copies of questionnaire were considered to have been validly filled and adopted as the final sample size. In administering the questionnaire each state was stratified into three constitutional senatorial districts. One local government was randomly selected from list of local government areas in each of the districts, this was replicated at ward level with one ward randomly selected from the list of wards in the local government selected, making the number of the wards to be six. Questionnaire was purposively administered to respondents who have moderate literacy ability to understand the subject matter.

Participants in the qualitative data were drawn from the sample of the quantitative, this was done with their consent sought and gotten. Point of saturation was used to stop at 14th interviewee. Thereafter, descriptive and inferential statistics were used to analyse the quantitative data through the use of Statistical Package for Social Sciences (SPSS). While qualitative data were analysed thematically with help of Atlas.ti software.

Findings

Research Question 1.

What is the influence of media (conventional and digital) on voters' behaviour during the 2023 presidential election.?

This section presents results on influence of conventional and digital media on voters' behaviour during the 2023 Presidential Election. Respondents were asked to assess various factors that influenced their behaviour in the election, and the strength of media, being one of the factors were measured alongside others.

Table 1. Factors influencing voters' behavior during the 2023 presidential election

SN	Items	Response	F (n = 397)	%	x̄
1	Media messages on (radio, television, newspapers, X, Facebook and WhatsApp) influenced my voting behaviour during the 2023 presidential election.	Strongly disagree Disagree Neutral Agree Strongly agree	64 55 50 117 111	16.1 13.9 12.6 29.5 28	3.92
2	Interpersonal conversations with family, friends, political stakeholders and community members played major role in shaping my voting behavior during the 2023 presidential election.	Strongly disagree Disagree Neutral Agree Strongly agree	22 57 67 121 130	5.5 14.4 16.9 30.5 32.7	3.71
3	The political campaigns and rallies, debates I watched shaped significantly my behaviour on my choice of candidate in the 2023 presidential election.	Strongly disagree Disagree Neutral Agree Strongly agree	55 86 59 118 79	13.9 21.7 14.9 29.7 19.9	3.20

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4	My socio-economic status, such as my educational background and occupation, influenced my voting behaviour in the 2023 presidential election.	Strongly disagree Disagree Neutral Agree Strongly agree	44 54 55 108 136	11.1 13.6 13.9 27.2 34.3	3.60
5	The choice of presidential candidates influenced my voting behaviour in the 2023 presidential election.	Strongly disagree Disagree Neutral Agree Strongly agree	21 36 46 130 164	5.3 9.1 11.6 32.7 41.3	3.96
6	My religious belief influenced my voting behaviour in 2023 presidential election.	Strongly disagree Disagree Neutral Agree Strongly agree	57 115 92 62 71	14.4 29 23.2 15.6 17.9	2.94

Majority of the respondents note that the choice of presidential candidates by political parties influenced their behaviour more, precisely their voting behaviour in the election. This accounts for the highest mean score (M = 3.96), implying that more of the respondents' attitudes were shaped by the quality or credentials various presidential candidates. The result also showed that more of the respondents (57.5 %) agreed that media messages on (radio, television, newspapers, X, Facebook and WhatsApp) shaped their voting behaviour during the 2023 presidential election.

Table 2: Linear regression analysis summary table on the factors influencing voters' behaviour

Predictors	**B**	**T**	**P**	**R**	**R^2**	**F**	**P**
Media effectiveness	.13	2.66	< .05	.13	.02	7.06	< .05

Table 2 To be able to able to identify and recognise media influence, a linear regression analysis was run to present further inferential statistics on the influence of media on voters' behaviour. It reveals that media effectiveness had significant influence on voters' behaviour [R = .13; R^2 = .02; F (1, 395) = 7.06; p < .01]. Although, such effectiveness accounted for about 2% variance in voters' behaviour.

From the qualitative data, a wide range of sub-themes were thrown up by respondents that took part in the interview sessions. but media appear as the dominant theme based on the cumulative distribution of the responses. Out of the fourteen respondents, eleven of them responded that media has some modicum of influence on voting behaviour and decision they took in an election. Five themes that were identified from the qualitatively data gathered are captured in

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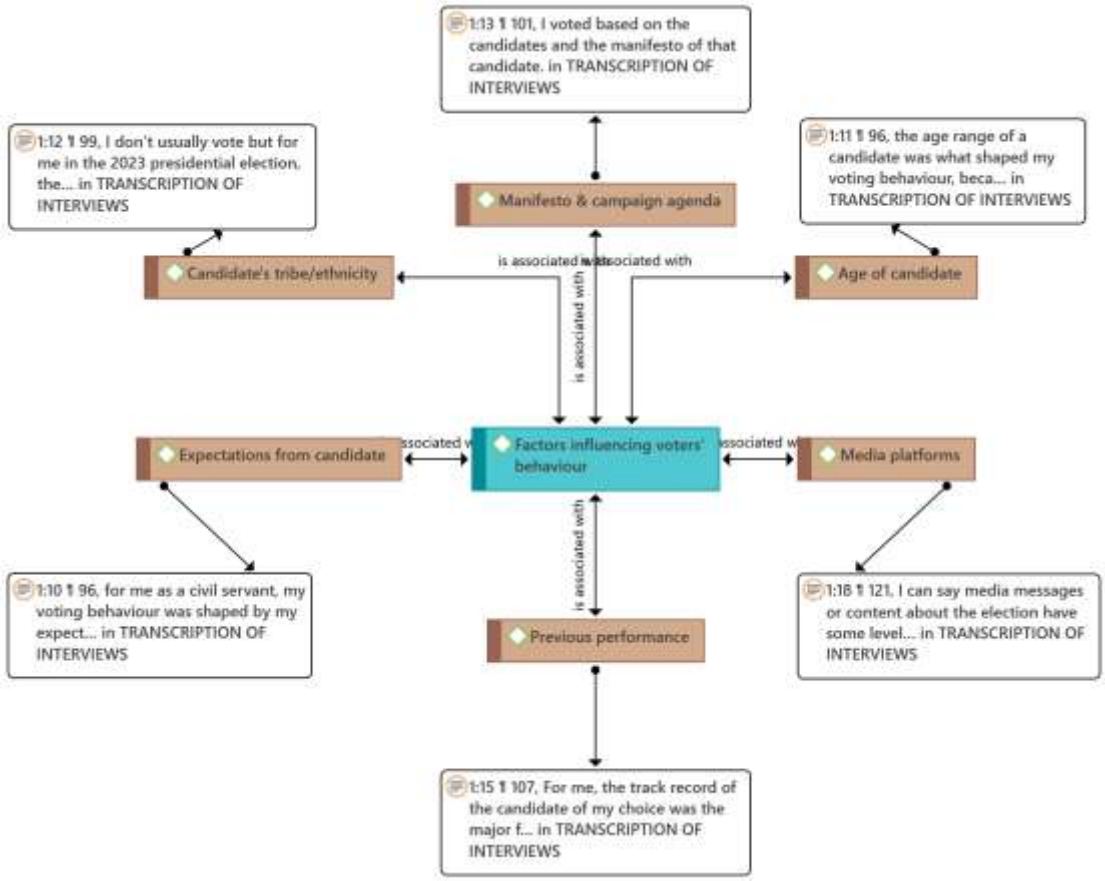
Figure 1: Factors influenced voters' behaviour in an election



Previous Performance

One of the identified factors that some participants considered as determinant of their behaviour was the track record and previous performance of the candidate. Sample excerpts below;

> *"...First and foremost is the candidate, the candidate chosen by the political party actually shaped my behavior in the election, take for instance, what they have done in the past matters…" (Respondent 13)*
>
> *Other respondents including Respondent 10, and 7 maintained same position on the choice of candidate.*

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Manifesto and campaign agenda/expectations

Another factor identified that influenced the voters' behaviour was the manifesto and campaign agenda. Among the excerpts of respondents are captured here:

> *"...I voted based on the candidates and the manifesto of that candidate." (Respondent 3)*

> *"...campaign agenda for people's benefits by the candidates." (Respondent 4)*

Candidate's Demographics (tribe/ethnicity/religion and age)

In addition, candidate's tribe/ethnicity and age was identified as one of the factors that influence the voters' behaviour. Some of the participants excerpts are presented below:

> *"...Secondly, there is no way ethnicity colouration will not be involved, why I said that is that it is the north that has been at the helms of affair for long, so everyone wants things to change, by making sure that power is ceded to the south, so this attracted ethnic colouration." (Respondent 10).*

> *"...Factor shaping my voting behavior are as follows: religious belief on leadership selection..." (Respondent 4)*

Another participant indicated that he/she voted for the youngest participant:

> *"...the age range of a candidate was what shaped my voting behaviour, because I voted for candidate with younger age range." (Respondent 1).*

Media as a factor

Some of the participants indicated that the media was instrumental in providing information and schedules to citizens, starting from the registration and getting of permanent voters' card and voting on election day; excerpts from respondents are captured as follow:

> *"...Yes, media content influenced my voting decision and perception of the candidates. The coverage on TV and radio provided insights into the candidates' policies, leadership styles, and debates, which helped shape my opinion and informed my voting choice." (Respondent 5)*

> *"...I want believe media content has some level of influence because we got to know more about some of the candidates through the media, (Respondent 7)*

But a very important twist was added to the findings by those who rated media factor of influence on the voters. They insisted that media influence was limited to undecided voters. Indicating that influence of media is still minimal on voters in election. few of the respondents held that;

> *"....so media has influence. If it is on political sphere, that's influence on those ones that are indecisive. Those that are indecisive. Yes, they are neutral. They don't really know which and what to go for, which side to go to. But for people*

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like us that, you know, we don't follow the trend, we follow the background of our candidate." (Respondent 12)

Again, another respondent sounded this way:

"...For people who don't have a mind of their own, media content can have a role in their decision making. but it doesn't mean that I cannot be swayed by media. For example, if I've been having admiration for a particular candidate, and that is emphasized by media content that agrees with what I already have in mind. I will not say media contents don't have influence on my decision, but because, by my nature, I think I should know a piece of information that's not correct, if I see one." (Respondent 11).

Research Question 2:

Which media platform between conventional and digital has higher influence on voter's behaviour during the presidential election.?

The table below presents results on the perceived influence of conventional media (TV, radio & newspapers) versus digital media (X, Facebook and WhatsApp) on voters' behaviour, identifying which platform played a more significant role in shaping voting decisions.

Table 3. Comparative assessment of influence of conventional and digital media on voters' behaviour

Platform	Response	F (n = 397)	%
Television	Very ineffective	67	16.9
	Ineffective	34	8.6
	Slightly effective	43	10.8
	Effective	110	27.7
	Very effective	143	36
Radio	Very ineffective	23	5.8
	Ineffective	16	4
	Slightly effective	59	14.9
	Effective	144	36.3
	Very effective	155	39
Newspaper	Very ineffective	51	12.8
	Ineffective	33	8.3
	Slightly effective	119	30
	Effective	116	29.2
	Very effective	78	19.6

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X(twitter)	Very ineffective	92	23.2
	Ineffective	75	18.9
	Slightly effective	94	23.7
	Effective	72	18.1
	Very effective	64	16.1
Facebook	Very ineffective	45	11.3
	Ineffective	70	17.6
	Slightly effective	124	31.2
	Effective	86	21.7
	Very effective	72	18.1
WhatsApp	Very ineffective	82	20.7
	Ineffective	64	16.1
	Slightly effective	111	28
	Effective	80	20.2
	Very effective	60	15.1

The above presents result on the effectiveness of various media platforms in the political decisions and eventual voters' behaviour during the 2023 presidential election in Nigeria, an overwhelming proportion of the respondents 75.3% indicated that the radio was effective and very effective in the influencing their political decision-making process. Similarly, majority of the respondents 63.7% indicated that the TV was effective and very effective in influencing their political decision-making process. However, this outcome contracted responses obtained under X, (twitter), Facebook and WhatsApp.

Table 4: Multiple regression analysis summary table on the perceived influence of media platforms on voters' behaviour

Predictors	**B**	**T**	**P**	**R**	**R^2**	**F**	**P**
				.21	.04	2.99	< .05
Television	.10	1.86	> .05				
Radio	-.14	-2.48	< .05				
Newspaper	.10	1.67	> .05				
X (twitter)	-.04	-.62	> .05				
Facebook	.11	1.62	> .05				
WhatsApp	-.00	-.04	> .05				

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To ascertain the strength of each media platform, multiple regression analysis was run.

And it shows that media platforms had joint significant influence on the voters' behaviour of respondents [R = .21; R^2 = .04; F (6, 390) = 2.99; p < .05]. However, only radio (β = -.14; t = -2.48; p < .05) had significant independent influence on the voting behaviour of respondents.

From the qualitative data, ten (10) out of the fourteen (14) respondents interviewed confirmed that conventional media has the greatest influence on them and behaviour they exhibited during the poll, this was largely because of trust and strong editorial integrity conventional media platforms enjoy. Excerpts from the respondents buttressing this position include the following:

> *"I think conventional media, particularly; radio has the highest influence." (Respondent 2)*
>
> *"…The media with highest influence on voters is conventional media. It is because it carries heavy and reliable information to the voters than that of Digital media." (Respondent 4)*
>
> *"…I think conventional media, such as TV and radio, had the highest influence on voters during the election. This is because they are more widely accessible, trusted, and provided more in-depth coverage of the election" (Respondent 5)*

Other respondents who expressed similar views include Respondent 6, 12, and 13. However, a few respondents still hold on to digital media as the most influential in the decision they took during the poll:

> "*….I will say digital has higher influence. We get information on digital media in minutes, especially X, every second, we got information, making information to be at everyone's fingertip." (Respondent 10).*

Discussion of Findings

This study was anchored on two main objectives The first objective of the study aimed at finding out the influence of both digital and conventional medial on voters' behaviour during the 2023 presidential election. The data revealed a large spectrum of factors that shaped behaviour of voters in the election, among which include choice of presidential candidate. (75%). Interpersonal conversations with acquittances and candidates' demographics. Next to this factor was the media influence. Linear regression analysis further shows that media truly does influence voters; behaviour, but a little- [R = .13; means that there is influence between media messages on election and behaviour exhibited by voters. The p < .01implies that the influence of media and voters' behaviour is statistically significant.

Qualitative data on the same objective reveals almost same trend. Although all the factors (political party's choice of candidate, social economic status of voters, tribe/ethnicity/religion consideration and media) were recognised as source of influence by those participated in the interview sessions, media came out noticeable, but only to undecided voters.

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The finding here aligns with many previous studies that recognised media as a factor shaping political activism, engagement and ultimately shaping behaviour of voters in an election. Olowojolu (2016) notes that through its agenda setting function, media influenced the election results to the advantage of the opposition candidate, General Muhammudu Buhari (retd) during the 2015 presidential election conducted in Nigeria. This is not far from other extant findings that confirmed media as a factor shaping voters' behaviour. Serapşah and Sevgihan (2023)'s finding also amplified this position that media is a source of influence on voters' behaviour through dissemination of political messages. Furthermore, the finding is equally corroborated by another study conducted by Damptey and Akparep (2022) which investigated influence of media on voting behaviour in western north region of Ghana. In it, Damptey and Akparep (2022) found out that media influenced the voting behaviour in the 2020 general elections in the region. Besides, this outcome resonates with result of Kulachai et al. (2023), which identified a wide range of factors that shaped voters' behaviour, including media.

Additionally, the minimal or limited nature of media influence resonates with what Ibietan (2023) reported, when the scholar examined influence of media on voting behaviour of Nigerian in 2015 presidential election. Ibietan confirmed that media only accounts for 6.2%, whereas, other factors, especially, informal engagements with social media influential and political stakeholders commanded higher degree of influence on voting behaviour among Nigerian voters.

The second objective of the study is to compare the perceived influence of conventional with digital media messages on the voters' behaviour during the 2023 presidential election, ultimately. As shown by the percentage and frequent table distribution of respondents, an overwhelming majority of the respondents (75.3%) rated radio as the most effective in influencing their political decision-making process during the election. this was followed by television which garnered 63.7%. Again, another conventional platform- newspaper was rated as effective in influencing voters' behaviour by 48.8 %. On digital media platforms, X, formally twitter came a little distance with 39.8% of effective and very effective source of influence on voters' behaviour during the election. this was followed by other digital platforms.

Qualitative data also resonate with this finding, where, out of the fourteen (14) interviewees, ten (10) confirmed that conventional media platforms, particularly, radio and television had the greatest influence on them and their behaviour during the 2023 presidential election in Nigeria, largely because of the trust the mediums enjoyed. The trend here reinforces many previous studies, such as Waseem and Shabir (2017)'s findings in Pakistan, which showed that conventional media (television) was the prime source of information as well as significant in shaping political behaviors of youth. The result also corroborates other studies such as Nwachukwu (2023), who investigated the influence of promotional efforts from radio on the voting pattern of rural residents in Lagos state. Findings show that radio aids political participation by motivating citizens to vote and be present for manifesto reading, unbiased in their choice of candidates. Similarly, the outcome of this study aligns with what Arede and Oji (2022) discovered in their study that examined the influence of radio broadcasting on political participation among people of south-south Nigeria. where findings reaffirmed a strong link between radio broadcast and behaviour of south-south peoples towards political activities.

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In the regression analysis that provided a deeper picture, radio, a conventional media platform came out as the only medium with a fair degree of influence on voters' behaviour. Although, respondents perceived radio as influential, the result of regression analysis says that the independent effect of radio on voters' behaviour was weak and negative, reflecting a perception-reality gap.

Conversely, none of the digital media platforms measured (X, Facebook, WhatsApp) showed noticeable statistical influence, which suggests in comparative terms, that conventional media, specifically, radio, still commands more influence than digital media in shaping voter behaviour. The result resonates with Gayo-Avello et al., (2023)'s position. The scholars had reasoned that over the years, the idea of predicting elections with social media is highly enticing but results remain elusive, suggesting that social media popularity may after all, not translate into reality of political victory through fidelity of behaviour by voters. Moreover, the rationale for the outcome here might not be unconnected with findings of Onyebuchi et al., (2016), who came to a conclusion in their study that traditional media platforms use to have more acclaim campaign messages than attack messages, whereas, social media platforms accommodated more attack campaigns than traditional media in an election.

Conclusion and Recommendation

The study attempted to understand the influence of media alongside other factors that shaped voters' behaviour in the 2023 presidential election. It also identified which of the two forms of media (digital or conventional) commands higher influence. it is therefore clear that media still influence the way voters behave in an election, though very minimal. Besides, radio continues to remain a force to reckon with above other channels of mass communication as the most preferred and accessible medium for political engagement, followed by television. It can therefore be concluded that conventional media- such as radio, television and newspaper influence voters better than digital media platforms (X, Facebook and WhatsApp). Although, the study is confronted with some limitations, particularly, the use of purposive sampling method to administer data collection instrument, this, no doubt affects the generalisability of its findings beyond the subjects of the study. Nevertheless, the use of interview to support survey has strengthened it substantially. From the foregoing, the study recommended that since media still enjoys some level of influence on voters' behaviour, it thus beholds on media to spotlight political activities for effective participation by the electorate. That conventional media organization should intensify effort to fortify their gate keeping procedure against avoidable infractions that can tannish their reputation and trust.

References

Adanlawo, E. F. and Reddy, M. M. (2020). The role and effect of the mass media during electioneering. https://hdl.handle.net/10520/ejc-aa_jafdis_v3_i2_a5

Agbanu, V. N. (2021). MAC 421 Advanced newspaper/magazine production. Ed. By Enwerem, C. O., & Aliede, J. E. URL: www.nou.edu.ng Published by National Open University of Nigeria.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Alao, A, & Olayinka, S. O. (2028). *Radio and Television in Broadcasting*. Peace Prints.

Alessandro, D. & Adam, A. (2019). *Introduction to Digital Media*. John Wiley & Sons, Inc.

Aghamelu F. C. (2014). The Role of the Mass Media in the Nigerian Electoral Process. UJAH Unizik Journal of Arts and Humanities 14(2):154DOI: 10.4314/ujah.v14i2.8

Aliyu, M. K and Olowu, G. (2019). Influence of the mass media on voters' behaviour during the 2015 General Elections in southwest Nigeria. *ASUU journal of social sciences a journal of research and development 6, (1&2)*; pp. 50 - 73.

Arede, E. & Oji, M. (2022). Influence of Radio Broadcasting on Political Participation among People of South-South Nigeria. DOI: 10.11114/smc.v10i2.5551.

Aririguzoh, S. A. (2010). Influence of television broadcasts on voters' choice of parties, a study of 2007 presidential election. *Journal of NJPE*, 4(1&2), pp.95-124.

Aririguzoh, S. A. (2021). Crystallization Effect of Television Broadcasts on Nigerian Voters during a Presidential Election. In book: Global Perspectives on the Impact of Mass Media.

Asemah, E. S; Nwammuo, A. N & Nkwam-Uwaoma, A.O.A (2020). *Theories and Models of Communication*. Second Edition. University of Jos Press

Asemah, E. S., Nwammuo, A. N., & Nkwam-Uwaomu, A. A. (2017). *Theories and Models of Communication* (revised ed.) Jos University Press.

Damptey, I & Akparep, J. Y. (2022). The influence of media on voting vehavior in Ghana: The case in western north region. *Texila International Journal of Academic Research. DOI: 10.21522/TIJAR.2014.09.03.*

Dazang, N. (2022). Social media and the 2023 general elections. *Vanguard.* https://www.vanguardngr.com/2022/08/social-media-and-the-2023-general-elections/

Fisher, J., Gadjanova, E., & Hitchen, J. (2023). WhatsApp and political communication in West Africa: Accounting for differences in parties' organization and message discipline online. Party Politics, 0(0). https://doi.org/10.1177/13540688231188690.

Fujiwara, T. Muller, K & Schwarz, C. (2023). The Effect of Social Media on Elections: Evidence from the United States. SocialMediaAndElections.pdf

Gayo-Avello, D., Jungherr, A., & Rivero, G. (2023). Social media and electoral prediction: Ten years after. In T. Yasseri (Ed.), Handbook of computational social science. Edward Elgar Publishing.

GDNet-AERC (2012). What is the Media and How does it work? Policy Brief Training Workshop, Workshop Handout. Nairobi, Kenya.

Hanson, R. (2022). *Mass Communication*. SAGE Publications, Inc.

Halidu, A. & Nwosu, E. C. (2023). Assessment of voters' behaviour on 2019 general elections in Nigeria. *Journal of Global Social Sciences September 4(15), pp 34-45.*

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Hanson, R. E. (2019). *Introduction to the Media.* Sage Publications Inc.

Ibietan, O. P. (2023). *Cyber politics: social media, social demography and voting behaviour in Nigeria.* Premium Times Books.

Jungherr, A. Rivero. G. and Gayo-Avello, D. (2020). *Retooling Politics How Digital Media Are Shaping Democracy.* Cambridge University Press.

Kulachai, W., Lerdtomornsakul, U. & Homyamyen, P. (2023). Factors Influencing Voting Decision: A Comprehensive Literature Review. Social Sciences. https:// doi.org/10.3390/socsci12090469.

Kumar, S. & Kumar, R. (2020). Analysing the factors affecting voting behaviour of urban voters and role of media in influencing the voters: a study based on factor analysis. Shodh Sanchar Bulletin. 10(40),pp 179-187.

Kaur, H. (2018). Voting behaviour in India and its determinants. *International journal of current engineering and scientific research (ijcesr).* 5(2), pp.116-120.

McQuail, D. (2010). *Mass Communication Theory*. (6th Edition). SAGE Publications Ltd.

Meyrowitz. J. (2008). Medium Theory. *The International Encyclopedia of Communication*. DOI: 10.1002/9781405186407.wbiecm064

Mohd Sharif, H. (n.d). The Four Roles and Functions of Mass Media According to Harold Laswell and the Current Media Environment in Malaysia. the+four+roles+and+functions+of+mass+media+according+to+harold+laswell+and+the + current+media+environment+in+malaysia+(1).pdf.

Mittal, R. & Mittal, M (2013). Traditional and new media are friends. https://www.researchgate.net/publication/236020643_Traditional_and_new_media_are friends.

Muswede, T. (2022). Impact of Digital Media on Political Campaigns: Towards Disintermediated Political Communication in Africa. DOI: https://doi.org/10.36615/ajpsrasp.v10i1.1152.

Najeem, A. O & Agboluaje, S.A (2023). Television news coverage of the 2019 presidential election in Nigeria A content analysis approach. Doi: 10.52589/BJMCR-XDLXUAPO

Nasidi. I. (2022). *Political Communication in the Post-Truth Era: Concept, Laws, & Strategies.* Noisefree Media Consult

Namo, I. B., Agwadu, L. & Amakoromo, W. T. (2024). Social Media and Youths Voting Behaviour in Nigeria: A Study on Political Science Students of Federal University Wukari 2024. *International Journal of Advanced Research in June, 2024 Public Policy, Social Development and Enterprise Studies.* 5 (1). 10.48028/iiprds/ijarppsdes.v5.i1.09.

Nnaane, B. (2023). Comparative study of social media and political mobilsation in the 2021 and 2023 presidential elections in the Gambia and Nigeria. *Nasarawa Journal of multimedia and communication studies. 5, (1), 15-26.*

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Nwachukwu, P. C. (2023). The Influence of Political Advertising on the Voting Patterns of Rural Residents in Electoral Processes: A Study on the Role of Radio Campaigns. DOI: 10.22178/pos.95

Olowojolu, O. (2016). Role of media in 2015 presidential election in Nigeria. *International Journal of Politics and Good Governance* 7(1) 0976 – 1195.

Onyebuchi, A; Anorue, L. I & Obayi, P. M. (2016). Preying on Platforms: A Comparative Analysis of Social Media and Traditional Mass Media Advertisements in the 2015 Presidential Election Campaigns in Nigeria. *The Nigeria Journal of Communication* 13(1).

Paul, S. & Rai, M. (2021). Role of the Media. https://doi.org/10.1007/978-3-319-74336-3_277-1.

Penn, C. S (2021). What's the Difference Between Social Media and New Media? https://www.christopherspenn.com/2021/11/whats-the-difference-between-social-media- new-media/.

Pratama, F. W., Hasan, K., Jannah, R., Zahara, E., & Syafitri, A. (2023). Conventional mass media versus new media. In Proceedings of the 4th International Conference on Social Science, Political Science, and Humanities (ICoSPOLHUM 2023).

Rengim, S. (2019). What is Digital Media. Turkey: Abant Izzet Baysal University Press. Retrieved from DOI: 10.4018/978-1-5225-5733-3.ch008

Rosencrance, L. (2023). What Does Media Mean? https://www.techopedia.com/definition/1098/media

Seibure, I. & Javombo, A.M. (2021) Role of Media in Creating a Peaceful Electoral Process: A Case of Sierra Leone's General Elections of 2018. https://www.researchgate.net/publication/354533583_Role_of_Media_in_Creating_a_eaceful _Electoral_Process_A_Case_of_Sierra_Leone's_General_Elections_of_2018

Serapşah, G. H. & Sevgihan, M. E, (2023). The Influence of Media on Political Communication: A Review of Literature. *American Journal of Law and Political Science (Online*). 2(3),pp 42 – 54, DOI: https://doi.org/10.58425/ajlps.v2i3.214

Valentini, C. & Kruckeberg, D. (2012). New Media versus social media: A Conceptualization of their Meanings, Uses and Implications for Public Relations In S. Duhé (2012, Ed.), New Media and Public Relations (2nd edition). Peter Lang.

Usigbe, Leon. (2023). Media Agenda-Setting Role and Voting Behaviour in Nigeria's 2011 - 2015

Zhang, S. (2012). The convergence of conventional media and new technology in the cases of The New York Times and National Broadcasting Company (NBC) (Research paper). Southern Illinois University Carbondale.

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Containing the Risk: Architectural Strategies for Fire Compartmentalization in Retail Complexes

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DOI : https://doi.org/10.5281/zenodo.22902643

Abstract
Retail complexes present significant fire safety challenges due to their large open-plan layouts, high occupant densities, and substantial combustible contents. Compartmentalization, the division of buildings into fire-resisting zones remains a fundamental passive strategy for limiting fire and smoke spread, protecting escape routes, and reducing damage. However, its effective application in retail design is often constrained by commercial preferences for spatial openness and, in many developing contexts, by weak enforcement and maintenance practices. This study examines architectural strategies for effective fire compartmentalization in retail complexes. A qualitative approach combining critical literature synthesis with comparative case study analysis of three retail facilities (Jabi Lake Mall and Ikeja City Mall Nigeria, and Dubai Mall in the United Arab Emirates) was adopted. Findings revealed that, while physical compartmentation elements are being frequently provided, their performance is often undermined by the poor maintenance, obstructed exits, and also, unregulated tenant modifications, particularly in the Nigerian cases. In contrast, there is a stronger integration of passive barriers with active systems and rigorous operational management, as demonstrated in the international case, significantly enhancing the fire containment. The study concludes that compartmentalization must be treated as a core architectural strategy rather than just a mere compliance requirement. An effective design requires early integration of fire-rated elements, a clear functional zoning of high-risk areas, robust detailing, and a coordination with means of escape and active protection systems. Priority should be given to a simple and maintainable solutions that can withstand operational realities, contributing to a more resilient and context-sensitive approaches to fire-safe retail design.

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Keywords: Fire compartmentalization; Retail complex design; Passive fire protection; Fire safety architecture; Risk containment

Introduction

Retail complexes are one of the most fire-vulnerable building typologies due to their high occupant densities, extensive open-plan layouts, diverse combustible contents, and also, their multipurpose functions. These characteristics tend to create conditions in which fire can spread very rapidly, producing a large volume of toxic smoke, and severely compromising evacuation routes (Majdalani, 2015; Drysdale, 2011). In environments like this, compartmentalization, which is the strategic division of a building into different zones using walls, floors, doors, and related barriers, is one of the most effective passive fire protection measures that could be used. Compartmentalization provides an adequate time for occupants to evacuate the building and also for emergency response while limiting the overall structural damage and property loss, by containing fire and smoke within limited areas for a prescribed period which is typically 30–120 minutes (British Standards Institution, 2017; NFPA, 2021).

In many developing countries, including Nigeria, the application of compartmentalization principles in retail design is quite inadequate. Recurrent fire incidents in traditional markets and modern shopping complexes have resulted in substantial losses of life, destruction of goods, and also, the disruption of economic activities (Arowolo et al., 2021; Ejale, 2021; Aderonmu & Eghobamien, 2021). Studies of markets such as Abubakar Rimi Market in Kano and Tejuosho Ultra Modern Market in Lagos consistently identifies the absence or a poor implementation of fire-resistant barriers, functional zoning, and a protected means of escape as major contributors to fire severity. An open-plan preferences driven by commercial visibility and customer circulation further complicates the integration of an effective compartmentalization (Arowolo et al., 2021; Aderonmu & Eghobamien, 2021).

Although international codes such as NFPA 101, BS 9999, and the Nigerian National Building Code provides a clear requirement for fire resistance ratings, egress design, and passive protection. But the enforcement and contextual adaptation remain very weak in many Nigerian urban centres (Olagunju et al., 2014). Consequently, there is a pressing need for design-oriented research that translates an established fire safety principle into a practical architectural strategy that is perfectly suited to the realities of Nigerian retail environments, characterized by a mixed formal and informal trading, limited maintenance culture, and varying levels of regulatory compliance.

This study therefore pursues three interrelated objectives:

(1) to synthesise the theoretical and practical principles of fire compartmentalization as an architectural strategy;

(2) to examine, through comparative case-study analysis, how these principles are applied (or compromised) in selected Nigerian and international retail complexes; and

(3) to derive concise, context-sensitive architectural design strategies that balance commercial openness with effective fire and smoke containment.

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The significance of this research lies in its potential to be able to reduce the fire-related risks in high-occupancy commercial buildings, support the development of context-sensitive fire safety guidelines and contribute to a safer, and more sustainable retail environments in Nigeria and similar contexts. The scope is limited to architectural design strategies, with a particular attention to spatial planning, passive fire protection elements, and their coordination with the means of escape. The construction detailing beyond architectural control, active firefighting operations, and post-occupancy management systems fall outside the primary focus of this paper.

Literature Review

Theoretical Framework

This study is framed by the principles of performance-based design (PBD) and risk-informed performance-based fire protection design (Meacham et al., 2005; Meacham & Alvarez-Rodriguez, 2015). In architectural terms, PBD shifts emphasis from rigid prescriptive compliance toward the achievement of explicit performance goals, life safety, property protection, and business continuity, under defined fire scenarios. Within this framework, compartmentalization is understood not merely as a code requirement but as a core spatial and organisational strategy that structures the building-occupant system.

Complementing this is the classic compartment-fire framework (Kawagoe, Thomas, and subsequent developments summarised by Majdalani, 2015; Drysdale, 2011). The framework conceptualises fire behaviour within enclosures as governed by geometry, ventilation, and fuel load, and it underpins the rationale for subdividing large retail volumes into discrete fire-resisting zones. By integrating these two complementary perspectives, performance goals at the building-system level and the physics of enclosure fire behaviour, the study positions compartmentalization as an architectural design generator that must be coordinated from the earliest stages with functional zoning, means of escape, and active systems. This theoretical stance directly informs the case-study analysis and the derivation of design strategies that remain robust under the operational realities of Nigerian retail complexes.

Fire Safety Challenges in Retail Complexes

Retail complexes present a unique fire safety challenges due to their very large floor plates, high occupant loads, mixed-use functions and a substantial fire loads arising from combustible merchandise, packaging, and the interior finishes (Ramachandran & Charters, 2011; Meacham et al., 2005). Open-plan layouts, atria, and interconnected spaces, while commercially desirable for visibility and circulation, tends to facilitate a rapid horizontal and vertical spread of fire and smoke if not properly controlled (Bryan, 2008; Karlsson & Quintiere, 2000). In such environments, the primary design objectives of fire safety architecture, life safety, property protection, and business continuity, becomes so difficult to achieve without a deliberate spatial control strategy.

Building Fire Dynamics and Implications for Design

Understanding fire dynamics is very fundamental to an effective architectural response. A typical enclosure fire progresses through ignition, growth, fully developed, and decay phases (Quintiere, 2006; Drysdale, 2011). Heat transfer occurs through conduction, convection, and radiation, while smoke and toxic gases (notably carbon monoxide and hydrogen cyanide) often pose the greatest

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threat to the occupants (Purser, 2002). Phenomena like a flashover and backdraft can really increase fire severity most especially in spaces that have a high fuel load and a limited ventilation control (Drysdale, 2011).

In retail settings, these dynamics are intensified by large volumes, vertical openings (escalators, atria), and continuous fuel packages. Architectural form therefore directly influences the fire behaviour: high ceilings and open connections can help to promote smoke logging and rapid-fire growth, while strategic barriers can interrupt heat and smoke pathways (Meacham et al., 2005).

Compartmentalization as a Core Passive Fire Protection Strategy

Compartmentalization is a foundational principle of passive fire protection. It involves the sub-division of a building into discrete fire-resisting compartments with the use of walls, floors, doors, and associated seals that maintain a very high level of integrity for specified periods, commonly 30, 60, 90, or 120 minutes (British Standards Institution, 2017; NFPA, 2021). The primary aims are to limit fire incidents and smoke spread, protect the means of escape, provide tenable conditions for evacuation and reduce the area that requires an active fire suppression (Ramachandran & Charters, 2011).

Key elements of an effective compartmentalization include:

- Fire-rated walls and floors that extend fully from the structural floor to the ceiling or the roof;
- Fire doors that are being fitted with self-closers and intumescent seals;
- Penetration seals around the services;
- Fire dampers in the ducts; and
- Coordination with the smoke control measures (Drysdale, 2011; NFPA, 2021).

Horizontal compartmentation controls often spread across the entire floor area, while the vertical compartmentation (via fire-rated floors, shafts, and stair enclosures) tends to limit the multi-level involvement. In atrium or multi-storey retail buildings, additional devices such as smoke curtains, baffles, or fire-resisting glazing are often required (Karlsson & Quintiere, 2000).

Functional zoning further strengthens compartmentation by helping to isolate higher-risk areas (kitchens, generator rooms, storage of flammable goods) from the public circulation and retail zones (Bryan, 2008). When properly coordinated with the means of escape, compartmentation ensures that the exit routes remain protected for the required evacuation time.

Integration with Active Systems and Means of Escape

Although compartmentation is a passive measure, its performance is significantly enhanced when integrated with an active fire protection system. Sprinklers, detection and alarm systems, and smoke control installations operates much more effectively when the fire is confined to limited areas (Meacham et al., 2005). Conversely, poorly maintained or compromised compartment boundaries (for example, fire doors wedged open) can undermine both the passive and the active provisions.

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Means of escape must be designed in tandem with the compartment boundaries so that protected corridors, stair enclosures, and refuge areas remain very tenable. Codes such as NFPA 101 and BS 9999 helps to provide a detailed requirement for travel distances, exit widths, and fire resistance of the escape routes (NFPA, 2021; British Standards Institution, 2017).

Implementation Challenges and Contextual Gaps

Despite the recognised importance of Compartmentalization, an effective execution of compartmentation faces several practical challenges in retail design. The commercial pressure for visual openness and flexible tenancy often conflicts with the need for physical barriers. The cost of fire-rated construction, inadequate maintenance of fire doors and seals, and unregulated fit-out alterations by tenants tends to frequently compromise the integrity of the building (Hasan & Islam, 2019; Olagunju et al., 2014).

In many developing contexts, including Nigeria, these challenges are compounded by a very weak code enforcement, limited technical capacity, and a predominance of informal or semi-formal retail environments (Olagunju et al., 2014; Oladokun & Emmanuel, 2014). While international literature extensively addresses compartmentation in high-rise residential, healthcare, and office buildings, relatively fewer studies focus specifically on large retail complexes, and even fewer examine the adaptation of these principles to African urban markets and shopping centres. This constitutes a significant gap that the present study seeks to address by synthesising the established principles with the context-relevant design considerations.

Methodology

This study adopted a qualitative, exploratory research design aimed at developing architectural strategies for effective fire compartmentalization in retail complexes. The approach was considered appropriate because the research seeks to synthesise existing knowledge, examine real-world applications, and generate design-oriented principles rather than test hypotheses statistically (Groat & Wang, 2013; Creswell & Poth, 2018).

Research Approach

The study combined critical literature synthesis with comparative case study analysis. The literature component established the theoretical foundation of fire dynamics, compartmentalization principles, and passive fire protection. The case study component provided empirical insight into how these principles have been applied (or neglected) in actual retail environments.

Case Study Selection

Three retail complexes were purposively selected to represent different contexts and levels of fire safety performance:

- Jabi Lake Mall, Abuja (Nigeria): a modern formal shopping mall in a major Nigerian city;
- Ikeja City Mall, Lagos (Nigeria): a high-traffic urban mall with documented fire incidents and safety provisions;
- Dubai Mall, Dubai (United Arab Emirates): an internationally recognised large-scale retail complex noted for advanced fire protection systems.

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These cases were chosen to allow comparison between Nigerian practice and international best practice, thereby highlighting transferable lessons and contextual challenges (Yin, 2018).

Data Collection

The data were collected through two primary methods:

Document and Literature Analysis

Architectural drawings (where available), published reports, academic papers, and relevant fire safety codes (NFPA 101, BS 9999, and the Nigerian National Building Code) were reviewed so as to understand the design intentions, fire resistance provisions, and the regulatory requirements.

Observational Analysis

Structured observations were conducted in the Nigerian case studies, focusing on the presence and condition of fire-rated walls and doors, compartment boundaries, means of escape, signage, and evidence of maintenance or compromise of passive systems. Observation checklists were used to ensure consistency.

Data Analysis

Data from the literature and case studies were analysed thematically. Key themes included: effectiveness of physical compartmentation, functional zoning of high-risk areas, coordination with means of escape, integration with active systems, and practical implementation challenges. A SWOT analysis was applied to the case studies to systematically identify strengths, weaknesses, opportunities, and threats related to compartmentalization strategies (Kumar, 2019). Findings from the cases were then synthesised with the theoretical literature to formulate practical architectural strategies.

Limitations

The study is limited by its qualitative nature and the relatively small number of case studies. Access to detailed as-built drawings and maintenance records was restricted in some instances. Nevertheless, the combination of literature synthesis and comparative case analysis provides a robust basis for developing transferable design strategies applicable to retail complexes in similar contexts.

Results

Case Study Findings

The three selected retail complexes revealed different levels of commitment to compartmentalization, and the effectiveness of fire compartmentalization strategies.

Jabi Lake Mall, Abuja

The mall incorporates a basic passive and active fire safety provisions. This includes; smoke detectors, fire alarms, portable extinguishers, and sprinklers in some selected areas. However, observational data and secondary reports also indicated a few inconsistencies in the maintenance of fire doors and escape routes. Some exit doors were found locked or obstructed during peak periods, and staff awareness of fire safety procedures appeared limited (Oladokun & Adegoke, 2017). Compartmentalization was present in principle but compromised in practice due to a very poor operational management.

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Ikeja City Mall, Lagos
This high-traffic mall demonstrated a more comprehensive approach. The mall has a fire hydrant system, sprinklers, a central fire alarm control panel, and clearly marked emergency exits. A recorded electrical fire in 2016 was successfully contained through the combined action of the detection systems and some trained security personnel (Akinyele, 2018). Nevertheless, challenges remained in crowd management during emergencies and in preventing temporary obstructions of escape routes. Horizontal compartmentation between retail units was only partially effective due to the tenant modifications.

Dubai Mall, Dubai
The Dubai Mall exhibited an advanced integration of passive and active systems. High-pressure water mist systems, aspirating smoke detection (VESDA), gas suppression in critical areas, and a sophisticated Building Management System that is being enabled in real-time monitoring and rapid response. A kitchen fire in 2012 was contained effectively with a minimal disruption, demonstrating the value of a well-maintained compartment boundaries combined with the intelligent active systems (Al Nuaimi & Khan, 2014). Vertical and horizontal compartmentation appeared very robust and consistently maintained.

Comparative Insights on Compartmentalization
Across the cases, these are the several patterns that emerged:

A physical compartmentation (fire-rated walls and doors) was more consistently implemented in the international example more than it was in the Nigerian malls.

Functional zoning of high-risk areas (kitchens, storage, plant rooms) was better defined in Dubai Mall.

The greatest weaknesses in the Nigerian cases related not to the complete absence of compartmentation, but to its operational compromise through poor maintenance, locked exits, and unregulated tenant alterations.

Integration between passive compartmentation and active systems was strongest where real-time monitoring and regular testing were institutionalised.

SWOT Analysis of Case Studies

Strengths
There is a presence of fire-rated elements and escape routes in all the cases; advanced detection and suppression systems in Dubai Mall; successful containment of small incidents in the Ikeja City Mall.

Weaknesses
There is an inconsistent maintenance of fire doors and seals; obstructed or locked exits; limited staff training; tenant modifications compromising the compartment integrity (especially in the Nigerian malls).

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Opportunities
Retrofitting of the existing malls; improved staff training and drills; adoption of an intelligent monitoring system; A stronger enforcement of post-occupancy compliance.

Threats
Weak regulatory enforcement; commercial pressure for open-plan flexibility; electrical overload and informal modifications; inadequate public fire safety awareness.

Key Lessons Emerging from the Results

1. Compartmentalization is only as effective as its maintenance and management.
2. Physical barriers must always be supported by a clear functional zoning of high-risk activities.
3. Strong integration between the passive compartmentation and the active systems significantly improves performance.
4. Operational factors (locked doors, obstructed routes, tenant alterations) frequently undermines a well-intentioned design strategy, particularly in the Nigerian context.
5. Advanced monitoring and regular testing, as demonstrated in Dubai Mall, offer a transferable lesson for improving the reliability in large retail complexes.

Discussion
The findings of this study reinforce the critical role of compartmentalization as a primary architectural strategy for containing fire risk in retail complexes, while also revealing the significant gaps between design intention and operational reality.

Interpreting the Case Study Findings
The comparative analysis shows that the physical provision of fire-rated walls, floors, and doors is very much necessary, but it is insufficient on its own. In both Nigerian cases (Jabi Lake Mall and Ikeja City Mall), elements of compartmentation existed, yet their effectiveness was frequently undermined by the poor maintenance, locked or obstructed exits, and unregulated tenant alterations. This aligns with earlier observations by Olagunju et al. (2014) and Oladokun and Emmanuel (2014) regarding the weak enforcement and maintenance culture surrounding fire safety in the Nigerian public buildings.

In contrast, the Dubai Mall demonstrates that when compartmentation is rigorously maintained and intelligently integrated with an advanced active system and a real-time monitoring, fire incidents can be rapidly contained with a minimal disruption. This strongly supports the arguments of Meacham et al. (2005) and Ramachandran and Charters (2011) that an optimal performance is being achieved through the coordinated use of both the passive and the active measures rather than the total reliance on either approach in isolation.

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The Tension Between Openness and Containment

A recurring theme across the cases and the broader literature is the inherent tension between the commercial preference for open-plan, visually continuous retail environments and the technical requirements of effective compartmentation (Bryan, 2008; Karlsson & Quintiere, 2000). Architects are often under an immense pressure to always minimise physical barriers in order to maximise sightlines, customer flow, and leasing flexibility. The results suggest that this pressure frequently leads to a compromised compartment boundary, particularly at the post-occupancy stage.

This study indicates that a successful strategy does not necessarily require abandoning the openness altogether. Instead, they demand a more sophisticated design response, which is a strategic placement of fire-rated elements, the use of fire-resisting glazing and smoke curtains, a clear functional zoning of high-risk activities (kitchens, storage, plant rooms), and a careful coordination with clear means of escape. These approaches allow a degree of spatial continuity while still limiting the fire incidents and smoke spread.

Implications for Architectural Practice

Several practical implications emerge for architects that are designing retail complexes, particularly in the developing contexts:

Compartmentalization must be treated as a core design generator from the earliest stages, not treated just as a compliance exercise that is being added later.

Functional zoning should isolate the higher fire-load or the higher-risk areas from the primary public circulation and escape routes.

Design detailing of fire doors, penetration seals, and junctions requires a greater attention, as these are the points that are most vulnerable to failure when there is a fire incident.

Post-occupancy management and tenant control must also be anticipated in the design; robust, difficult-to-compromise solutions are preferable to those that rely heavily on a perfect human behaviour.

Integration with active systems (detection, suppression, and smoke control) should be planned concurrently with the passive compartmentation to create a layered protection.

Contextual Considerations for Nigeria and Similar Settings

In the Nigerian context, the challenges are being amplified by an inconsistent code enforcement, limited technical capacity among some practitioners and facility managers, and the prevalence of an informal modification after handover. The findings suggest that design strategies for such environments should prioritise robustness, simplicity, and ease of maintenance over a highly complex system that may not be sustained. At the same time, lessons from advanced facilities such as Dubai Mall, particularly regarding monitoring, regular testing, and staff preparedness, remain highly relevant and quite transferable.

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Towards More Effective Strategies

Overall, the discussion points to a shift in approach. The study changed the viewing of compartmentalization as a purely technical or regulatory requirement to understanding it as a very fundamental architectural strategy for risk containment. When it is thoughtfully integrated with spatial organisation, means of escape, and active systems, compartmentation can reconcile the competing demands of commercial openness and life safety. The result of this study provides a foundation for developing a clearer, context-sensitive design principles that can guide architects in achieving this balance.

Recommendations for Future Research

Based on the findings and limitations of this study, the following areas are being recommended for future research:

Performance-Based Evaluation of Compartmentation in Retail Buildings

An empirical study that measures the exact performance of fire compartmentation during real or simulated fire events in retail complexes are very much needed. Such research would move beyond just the design intentions and compliance checklists to assess how effectively the walls, doors, and seals contain fire and smoke under a realistic condition.

Post-Occupancy Evaluation of Fire Safety Systems

A longitudinal post-occupancy studies should examine how compartmentation provisions tend to deteriorate or are being compromised over time due to the maintenance practices, tenant modifications, and the operational management. This is particularly important in developing countries where enforcement is often very weak.

Balancing Open-Plan Design and Fire Containment

Further research is also required to develop and test the innovative architectural solutions that reconcile commercial demands for a visual openness and spatial flexibility with effective fire and smoke containment. Investigations into the use of fire-resisting glazing, automatic smoke curtains, and adaptive compartmentation systems would be very valuable.

Context-Specific Design Guidelines for Developing Countries

There is a strong need for more research that is focused on the unique challenges of retail environments in sub-Saharan Africa and similar contexts, including a mixed formal-informal trading, limited technical capacity, and inconsistent regulatory enforcement. Such studies should aim to produce a practical, robust, and maintainable design guideline.

Integration of Digital Technologies and Intelligent Systems

Future research should explore the potentials of Building Information Modelling (BIM), digital twins, and real-time monitoring systems so as to improve the design, inspection, and the management of fire compartmentation in large retail complexes.

Human Behaviour and Evacuation in Compartmentalised Retail Spaces

More studies are needed on how the occupants (shoppers and staff) should behave during fire incidents in large, compartmentalised retail environments, and how design features also influence wayfinding, decision-making, and evacuation efficiency.

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Conclusion

This study sets out to examine architectural strategies for an effective fire compartmentalization in retail complexes, with a particular attention to the challenges of balancing commercial openness with life safety. Through a synthesis of fire safety principles and a comparative analysis of some selected case studies, the research has demonstrated that compartmentalization remains one of the most reliable passive means of containing fire and smoke, also protecting escape routes, and limiting the fire damage in high-occupancy commercial environments.

The findings also revealed that while physical fire-rated elements are often provided, their performance is frequently undermined by a very poor maintenance, operational compromises, and unregulated alterations, particularly in the Nigerian context. In contrast, examples of best practice show that a robust compartmentation, when properly integrated with functional zoning, means of escape, and an active fire protection system, can significantly enhance the building's resilience.

The central contribution of this paper lies in reframing compartmentalization as not just a merely regulatory requirement, but as a core architectural strategy for risk containment. Effective design must always address the inherent tension between open-plan retail environments and the need for spatial separation, using a thoughtful zoning, appropriate detailing, and a coordinated passive and active measure. In developing contexts, strategies should prioritise robustness, simplicity, and ease of maintenance to ensure a long-term effectiveness.

Ultimately, containing the risk of fire in retail complexes demands more than just compliance; it also require a deliberate architectural decision-making from the earliest design stages through to the post-occupancy management. By treating compartmentalization as an integral part of spatial organisation rather than an afterthought, architects can now create retail environments that are both commercially viable and also fundamentally safer for the people who are going to use them.

References

Aderonmu, P. A., & Eghobamien, O. V. (2021). Didactic analysis of active-passive fire safety measures in Tejuosho Ultra Modern Market Complex, Yaba, Lagos. *IOP Conference Series: Materials Science and Engineering, 1107*(1), 012204. https://doi.org/10.1088/1757-899X/1107/1/012204

Akinyele, A. A. (2018). Fire safety management in public buildings in Lagos, Nigeria. *Journal of Sustainable Development in Africa, 20*(3), 125–137.

Al Nuaimi, M., & Khan, M. I. (2014). Evaluation of fire safety strategies in mega-structures: The case of Dubai Mall. *International Journal of Safety and Security Engineering, 4*(2), 133–144.

Arowolo, T. A., Adewale, A. K., & Owolabi, O. S. (2021). Integration of fire safety performance in market design: Case study of Abubakar Rimi Market, Kano State, Nigeria. *International Journal of Advanced Academic Research, 7*(6).

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

British Standards Institution. (2017). *BS 9999: Code of practice for fire safety in the design, management and use of buildings*. BSI.

Bryan, J. L. (2008). Behavioral response to fire and smoke. In *SFPE handbook of fire protection engineering* (4th ed.). National Fire Protection Association.

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). SAGE Publications.

Drysdale, D. (2011). *An introduction to fire dynamics* (3rd ed.). Wiley-Blackwell.

Ejale, E. A. (2021). *Effectiveness of passive fire measures in the design of a market building, Benin City*.

Groat, L., & Wang, D. (2013). *Architectural research methods* (2nd ed.). Wiley.

Hasan, M. M., & Islam, M. S. (2019). Integration of fire safety with sustainability in building design. *International Journal of Sustainable Built Environment, 8*(1), 1–11.

Karlsson, B., & Quintiere, J. G. (2000). *Enclosure fire dynamics*. CRC Press.

Kumar, R. (2019). *Research methodology: A step-by-step guide for beginners* (5th ed.). SAGE Publications.

Majdalani, A. H. (2015). *Compartment fire analysis for contemporary architecture* [Doctoral thesis, University of Edinburgh]. Edinburgh Research Archive. https://era.ed.ac.uk/handle/1842/10655

Meacham, B. J., Poole, B., Echeverria, J., & Cheng, R. (2005). *Performance-based building regulatory systems: Principles and experiences*. International Council for Research and Innovation in Building and Construction.

National Fire Protection Association. (2021). *NFPA 101: Life safety code*. NFPA.

Oladokun, V. O., & Adegoke, A. S. (2017). Evaluating fire preparedness in Nigerian malls: A case study of Jabi Lake Mall. *Nigerian Journal of Technological Development, 14*(2), 89–96.

Oladokun, V. O., & Emmanuel, I. O. (2014). Fire disaster preparedness of some Nigerian South-Western urban cities. *International Journal of Disaster Risk Reduction, 9*, 57–67.

Olagunju, R. E., Akinbile, Y. O., & Ariyo, O. (2014). Assessment of fire safety measures in public buildings in Nigeria. *Civil and Environmental Research, 6*(4), 56–63.

Purser, D. A. (2002). Toxicity assessment of combustion products. In *SFPE handbook of fire protection engineering* (3rd ed.). National Fire Protection Association.

Quintiere, J. G. (2006). *Fundamentals of fire phenomena*. John Wiley & Sons.

Ramachandran, G., & Charters, D. (2011). *Quantitative risk assessment in fire safety*. Spon Press.

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Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications.

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - *E*- ISSN: 3156-5492 | *P*- ISSN: 3156-5514

Integrated Societal Development through Secondary School Teachers and Students' Entrepreneurial Skills Acquisition in Ogun State, Nigeria

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DOI : https://doi.org/10.5281/zenodo.22902799

Abstract
Education serves as the primary catalyst for human civilization and societal progress by maximizing individual creative potential. In the context of community development, the integration of entrepreneurial education is vital for fostering self-fulfillment and economic growth. This study aimed to investigate the role of secondary school teachers and students in community development through the acquisition of entrepreneurial skills in Ogun State, Nigeria. A descriptive research design was employed, utilising a randomly selected sample of 556 secondary school students from 25 different schools across the three senatorial districts of Ogun State. Data were collected via the Entrepreneurial Skills Acquisition Questionnaire (ESAQ), which demonstrated high reliability (r=0.872). Analysis was conducted using frequency tables, mean scores, and standard deviations. Results indicated that essential entrepreneurial skills for teachers include leadership, creativity, flexibility, passion, and self-confidence. For students, critical skills identified ranged from chemical production (soaps, detergents, paints) to technical trades (carpentry, welding, boat construction). The study suggests that school management must prioritize vocational subjects within the official timetable to stimulate student interest and intent toward entrepreneurial development.

Keywords: Integrated Societal Development, Teachers' Entrepreneurial Skills, Students' Entrepreneurial Skills, Poverty, Economic growth

Introduction

Vocational and technical skills are recognized as panaceas for national development. It is in realization of this that Nigeria had to adjust the educational system and diversify the curriculum to integrate academic knowledge with technical and vocational skills so as to empower the graduates with relevant knowledge and skills (Undiyaundeye & Otu, 2015; Abdullahi & Jabor, 2019). The aim is to make them self-reliant and useful members of the society in which they live. Hence, education is seen as a vital instrument for human capital development. The synergy

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between education and society is such that the needs of the society are reflected in the national philosophy and objectives of education (Onajite & Aina, 2017).

One of the strategies increasingly adopted by many countries in the world for the development of a productive and dynamic society is through the use of vocational subjects (Mboto & Udo, 2012). Entrepreneurial skills acquisition is one of the compulsory pre-vocational subjects taught at junior secondary education level in Nigerian education system. It is highly needed in Nigerian secondary schools to equip learners with the entrepreneurial skills needed for sustained nation building (Arokoyu & Nwafor, 2018)

Afianmagbon and Obuikwu (2014) clearly states that education maximizes the creative potentials and skills of the individual for self-fulfillment and general development of the society. Education is could be referred to as an instrument for national development and social change. Arokoyu and Nwafor (2018) refers to secondary school education as education for career development which aims at providing trained manpower in the applied science, technology and commerce at the sub-professional grades. The secondary school education also aims at providing entrepreneurial, technical and vocational job specific skills for self-reliance, agricultural, industrial, commercial and economic development (Egolum & Chukwuma, 2014).

In Nigeria, the secondary school education is proposed to make its graduate self-reliant, however, the reverse is the case presently. The curriculum for senior secondary school level consists of the following, science and mathematics, technology, humanities business studies. Subjects under technology according to Ankeli (2019) are technical drawing, general metal work, basic electricity, electronics, auto mechanics, building construction, wood work, home management and food utrition. Mboto and Udo (2012) asserted that the reason for these subjects at the secondary school level is to empower students with entrepreneurial skills for personal survival and development after secondary education. It is therefore pertinent of note, that entrepreneurship education programme at the secondary school level has not been achieved.

The concept of entrepreneurship has long been debated and used in various ways (Maxwwell, Falola, Ibidunni & Inelo, 2014). Even today, there is no unanimity on what that term exactly means and who an entrepreneur is. Richard Cantillon was the first to use the term entrepreneur and defined it as one who buys factors of production at certain prices, and sells his products at uncertain prices (Maxwell *et al.,* 2014). In a bid to further explain entrepreneurship, Eze, Ede, Igbo and Ifeyinwa (2016) maintain that entrepreneurship is the acquisition of courage in order to create employment for self and others.

Entrepreneurship involves exploring, evaluating and exploiting business opportunities before setting up in order to forestall the successes of such enterprises (Ankeli, 2019). From the above definition, entrepreneurship is not far from the acquisition of skills for personal development and employment. Entrepreneurship also refers to an individual's ability to turn ideas into action. It includes creativity, innovation, showing initiation and risk-taking as well as the ability to plan and manage projects in order to achieve objectives (Uka, 2015).

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The entrepreneur is commonly seen as an innovator or a designer of new ideas and business processes. Management skills and strong team building abilities are often perceived as essential leadership attributes for successful entrepreneurs (Umameiye, 2019). Political economist Robert Reich considers leadership, management ability, and team-building to be essential qualities of an entrepreneur. The ability of entrepreneurs to innovate relates to innate traits, including extroversion and a proclivity for risk-taking (Afianmagbon & Obiukwu, 2014).

According to Mbanefo and Eboka (2019), the capabilities of innovating, introducing new technologies, increasing efficiency and productivity, or generating new products or services, are characteristic qualities of entrepreneurs. Also, many scholars maintain that entrepreneurship is a matter of genes, and that it is not everyone who can be an entrepreneur. It is therefore necessary to research into the impact of entrepreneurial skills acquisition on community development. Hence, this study examined the community development through secondary school teachers and students' entrepreneurial skills acquisition in Ogun state.

Connectionism Learning Theory

This study is based on Connectionism Learning Theory, which is principally associated with Edward Thorndike's explanation of learning as the formation of connections between stimuli and responses through experience. The development of connectionism is also associated with earlier contributions from scholars such as Herbert Spencer and William James, although the propagation and application of the theory in educational psychology became particularly associated with Edward Thorndike. The theory was developed at the beginning of the twentieth century and is based on the assumption that learning occurs through the formation and strengthening of associations between situations and responses.

Connectionism assumes that elements and ideas become associated with one another through experience and that complex forms of learning can be developed through the connection of simpler learning experiences (Onajite & Aina, 2017). This assumption is relevant to the acquisition of entrepreneurial skills because entrepreneurial competence is not developed solely through the acquisition of theoretical knowledge. Rather, learners require opportunities to connect entrepreneurial knowledge with practical experiences, repeated activities, problem-solving, creativity, and enterprise-related tasks.

The theory is commonly associated with three major laws of learning: the Law of Readiness, the Law of Exercise, and the Law of Effect. These laws provide a useful framework for understanding how entrepreneurial skills may be acquired and strengthened among teachers and students.

Law of Readiness

According to Onajite and Aina (2017), the Law of Readiness suggests that learning is more effective when the learner is prepared and willing to engage in a learning activity. When a learner is ready to act, the performance of the activity produces satisfaction, whereas being compelled to act without readiness may result in dissatisfaction. In the educational context, readiness therefore refers to the learner's mental preparedness, interest, and willingness to participate in learning activities.

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This principle is relevant to entrepreneurship education because the acquisition of entrepreneurial skills requires learners to be mentally prepared and motivated to participate in practical activities. A teacher who provides specific assignments, interesting problems, and meaningful activities may arouse students' curiosity and create a favourable disposition towards learning (Mbanefo & Eboka, 2019). Similarly, the use of practical projects and enterprise-related activities can encourage learners to participate actively in the learning process.

For example, when students are involved in practical projects involving the identification of business opportunities, product development, problem-solving, or the preparation of a simple business plan, they are provided with opportunities to connect classroom knowledge with practical entrepreneurial activities. Such experiences may enhance their interest in entrepreneurship and contribute to the development of entrepreneurial skills.

Consequently, readiness is important in entrepreneurship education because students who are interested in and prepared to participate in entrepreneurial learning activities are more likely to engage meaningfully with the skills being taught. In the same way, teachers require adequate preparation and motivation to effectively facilitate practical entrepreneurship education. Thus, the principle of readiness provides a basis for understanding the importance of learners' motivation and teachers' preparedness in entrepreneurial skills acquisition.

Law of Exercise

The Law of Exercise emphasizes the importance of practice and repeated use in strengthening the connection between a situation and a response. According to Onajite and Aina (2017), the law has traditionally been explained through the principles of use and disuse. The Law of Use suggests that a connection becomes stronger when it is repeatedly exercised, while the Law of Disuse suggests that a connection may weaken when it is not used over a period of time (Egolum & Chukwuma, 2014).

From this perspective, practice strengthens the relationship between knowledge and performance, whereas the absence of practice may weaken the acquisition and retention of skills (Ankeli, 2019). Repeated activities help learners to retain knowledge and develop competence. In education, learners generally acquire and retain knowledge and skills more effectively when they have regular opportunities to apply them.

The principle is particularly relevant to entrepreneurial skills acquisition. Skills such as opportunity identification, creativity, communication, problem-solving, business planning, financial management, and resource management require continuous practice. Students may therefore acquire entrepreneurial knowledge in the classroom, but the connection between such knowledge and actual entrepreneurial competence is likely to be strengthened through practical activities.

For this reason, workshops, enterprise projects, business simulations, production activities, laboratory experiences, and other forms of practical learning may help learners to develop and retain entrepreneurial skills. As observed by Okori and Ebere (2019), exercise or practice is more effective when it is associated with purpose and meaningful learning experiences. Therefore, entrepreneurship education should provide learners with opportunities to practise entrepreneurial activities in ways that are interesting, purposeful, and connected to real-life situations.

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The Law of Exercise also has implications for teachers. Teachers who regularly engage in entrepreneurial activities and practical teaching approaches may be better positioned to guide students in the acquisition of entrepreneurial skills. Therefore, repeated exposure to entrepreneurial learning and practice may strengthen the connection between entrepreneurial knowledge and entrepreneurial behaviour among both teachers and students.

Law of Effect

The Law of Effect proposes that responses followed by satisfying consequences are more likely to be repeated, whereas responses followed by unpleasant or unsatisfactory consequences are less likely to be repeated. According to Onajite and Aina (2017), the connection between a situation and a response becomes stronger when the response produces a satisfying result.

The principle is relevant to entrepreneurial education because learners' experiences of success, achievement, constructive feedback, and recognition may influence their willingness to continue engaging in entrepreneurial activities. When students successfully complete a practical entrepreneurial task, solve a problem, develop a product, or identify an opportunity, the resulting sense of achievement may encourage further participation and effort.

Similarly, practical entrepreneurial experiences that enable students to see the relevance and usefulness of the skills they acquire may strengthen their interest in entrepreneurship. In this regard, the learning environment should provide opportunities for learners to experience meaningful success and receive constructive feedback. This is particularly important because entrepreneurial activities often involve experimentation, problem-solving, and the possibility of failure.

The Law of Effect therefore provides a useful explanation of how positive learning experiences may strengthen entrepreneurial engagement. Rather than viewing punishment as the primary means of eliminating undesirable behaviour, the application of this principle to contemporary entrepreneurship education should emphasise meaningful practice, constructive feedback, achievement, and the reinforcement of desirable entrepreneurial behaviours.

Application of Connectionism to the Present Study

The relevance of Connectionism Learning Theory to this study lies in its explanation of how knowledge, practical experience, and behaviour become connected through learning. Entrepreneurship education provides learners with knowledge and experiences that may be connected to the development of entrepreneurial skills through readiness, practice, and meaningful outcomes.

The Law of Readiness explains the importance of learners' motivation and teachers' preparedness to participate in entrepreneurship education. The Law of Exercise explains how repeated practical activities can strengthen entrepreneurial knowledge and skills. The Law of Effect explains how meaningful achievements and positive learning experiences may reinforce learners' willingness to engage in entrepreneurial activities.

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The theory therefore provides a basis for examining how entrepreneurship education may contribute to entrepreneurial skills acquisition among secondary school teachers and students. The acquired skills may subsequently enhance learners' capacity to identify opportunities, solve problems, innovate, and participate in productive economic activities. In this way, entrepreneurial skills acquisition may contribute to self-reliance, enterprise development, income generation, and employment creation, which are important dimensions of broader community and societal development.

However, the extent to which acquired entrepreneurial skills translate into self-reliance and wider societal development may also be influenced by contextual factors such as access to finance, infrastructure, markets, mentorship, and supportive government policies. This consideration is important to the present study because the acquisition of entrepreneurial skills does not occur in isolation from the socio-economic environment in which learners and teachers operate.

Statement of the Problem

Despite the call for self-reliance and job creation in Nigeria, the planning of vocational education in the country has not given enough attention to quality, relevance, and functionality of education. This is evident in students that have graduated from secondary schools, they are however, not self-reliant and cannot even do anything for themselves. Second, although it is basic education that prepares the students for post-basic and tertiary education, the planning of education for job creation has been shifted to the last two levels of education (the post-basic and tertiary levels). Consequently, the need to investigate the innovative and entrepreneurial skills integrated into basic education and see how the skills are being imparted to the students for job creation. Functional entrepreneurship education, therefore, is that which is geared towards capacity building through creativity. This study therefore examined the community development through secondary school teachers and students' entrepreneurial skills acquisition in Ogun state.

Research Questions

The following questions provided guide for this course:

1. What are entrepreneurial skills needed by the vocational studies teachers for the development of entrepreneurial skills in students?
2. What are entrepreneurial skills needed by secondary school students through vocational and skills education?
3. What methods are used to develop entrepreneurial skills in students through vocational and skills education?
4. What are challenges facing the implementation of entrepreneurial education programme in Nigerian secondary schools?
5. What are solutions to the challenges facing the implementation of entrepreneurial education programme in Nigerian secondary schools?

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Methodology

This study adopted a descriptive research design. 556 secondary school students in some communities in Abeokuta, Sang-Otta and Ijebu-Ode Communities were randomly sampled from 25 schools. Entrepreneurial Skills Acquisition Questionnaire (ESAQ, r =0.872) was used for data collection and the instrument was validated. Frequency table, mean and standard deviation were used to analyse the research questions.

Analysis and Discussion

1. **What are competencies/skills needed by the vocational studies teachers for the development of entrepreneurial skills in students?**

Table 1: Frequency count and percentages of the perception on the competence/skills needed by teachers for the development of entrepreneurial skills in students

S/N	Perceived Opinion	SA	A	D	SD	X	SD
1	Teachers need to possess leadership skills to develop entrepreneurial skills in students	70.5%	18.1%	11.4%	0.0%	3.19	0.921
2	Teachers must be very creative for them to instill entrepreneurial skills in their students.	37.5%	43.0%	16.8%	2.7%	3.02	0.905
3	Vocational studies teachers are flexible and this has helped to develop entrepreneurial spirit in the students.	42.3%	40.3%	10.1%	7.4%	2.89	0.815
4	Being passionate about teaching of vocational studies has helped teachers to develop entrepreneurial skills in students.	35.6%	45.0%	18.8%	0.6%	2.97	0.823
5	A good vocational studies teacher must be self-confident.	34.9%	46.3%	14.1%	4.7%	3.09	0.942
	Pooled Mean					**3.03**	**0.881**

The result indicated that all the items were perceived as the competencies/skills required by teachers for the development of entrepreneurial skills in students. Therefore the skills required by teachers to develop entrepreneurial skills in students were: leadership skills, creativity, flexibility, passion, and self-confidence.

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2. What are entrepreneurial skills needed by secondary school students through vocational and skills education?

Table 2: Frequency count and percentages of the perception on the entrepreneurial skills needed by secondary school students through vocational and skills education

S/N	Perceived Opinion	SA	A	D	SD	X	SD
6	Students need to learn how to make perfumes, local soap and detergents.	61.1%	20.8%	17.4%	0.7%	3.01	0.893
7	Students need to learn carpentry, furniture making, roofing and welding	15.4%	63.1%	16.8%	4.7%	2.83	0.761
8	Student must be able to produce plastics, cement, paints, blowing glass into different shapes.	17.5%	61.7%	10.7%	10.1%	2.89	0.795
9	Students must learn how to design and construction of boats and fishing instruments.	11.4%	61.7%	16.1%	10.7%	2.67	0.672
10	Student need to learn how to produce aerosols and bottling gas and bathing soaps for sale.	71.8%	14.8%	10.1%	3.3%	3.39	0.857
	Pooled Mean					2.96	0.796

The result indicated that all the items were perceived as the entrepreneurial skills needed by secondary school students through vocational and skills education. Therefore the entrepreneurial skills need by secondary school students through vocational and skills education were: perfume, local soaps and detergent making; carpentry, furniture, roofing and welding making; production of plastics, cement, paints, blowing glass into different shapes; design and construction of boats and fishing instrument; production of aerosols, bottling gas, and bathing soaps for sale.

3. What methods are used to develop entrepreneurial skills in students through vocational and skills education?

Table 3: Frequency count and percentages of the perception on the methods that can be used to develop entrepreneurial skills in students through vocational and skills education.

S/N	Perceived Opinion	SA	A	D	SD	X	SD
11	Internship with local entrepreneur during holiday will improve students' entrepreneurial skills.	65.8%	17.4%	16.1%	0.7%	3.01	0.921
12	Field trips will give students needed ideas to develop entrepreneurial skills.	29.5%	50.3%	12.8%	7.4%	2.96	0.841

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13	Teaching for cooperative learning will improve entrepreneurial skills in students	34.2%	45.0%	11.4%	9.4%	2.71	0.821
14	Organisation of entrepreneurship seminars and workshop is one of the method through which students could develop entrepreneurial skills.	48.3%	32.9%	11.4%	7.4%	2.84	0.843
15	Organizing conferences on entrepreneurship will improve students' entrepreneurial skills.	42.9%	37.6%	12.8%	6.7%	2.80	0.851
						2.86	0.856

The result indicated that all the items were perceived as the methods that can be used to develop entrepreneurial skills in students through vocational and skills education. Therefore, the internship with local entrepreneurs during holiday, field trips, teaching for cooperative learning, organizing entrepreneurship seminars and workshops and organizing conferences on entrepreneurship were methods that could be used to develop entrepreneurial skills in students through vocational and skills education.

4. What are challenges facing the implementation of entrepreneurial education programme in Nigerian secondary schools?

Table 4: Frequency count and percentages of the perception on the challenges facing the implementation of entrepreneurial education programme in Nigerian secondary schools.

S/N	Perceived Opinion	SA	A	D	SD	X	SD
16	School time-table is not adequate.	63.8%	18.8%	17.4%	0.0%	3.11	0.952
17	Most schools lack finance to embark upon entrepreneurial programmes.	36.9%	43.6%	12.8%	6.7%	3.07	0.923
18	Teachers are not interested to teach the subjects.	31.5%	49.0%	10.1%	9.4%	3.06	0.916
19	Some of these entrepreneurial skills are not compulsory in SSCE, NECO, GCE and UTME.	65.8%	16.8%	16.1%	1.3%	3.15	0.672
20	Lack of emphasis by the ministry of education and other government agencies	65.1%	16.8%	10.7%	7.4%	3.09	0.942
	Pooled Mean					3.10	.881

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The result indicated that all the items were perceived as the challenges facing the implementation of entrepreneurial education programme in Nigerian secondary schools. Therefore, this study found that the challenges facing the implementation of entrepreneurial education programme in Nigerian secondary schools were: inadequate school time table, lack of finance for entrepreneurial programmes, lack of teachers' interest in vocational subjects, not making vocational and entrepreneurial skills in SSCE, NECO, GCE, and UTME, and lack of emphasis on vocational and skills education by the ministry of education and government agencies.

5. What are solutions to the challenges facing the implementation of entrepreneurial education programme in Nigerian secondary schools?

Table 5: Frequency count and percentages of the perception on the solutions to the challenges facing the implementation of entrepreneurial education programme in Nigerian secondary schools.

S/N	Perceived Opinion	SA	A	D	SD	X	SD
21	Adequate school time table should be made for vocational subject.	65.1 %	16.1 %	18.1 %	0.7 %	2.95	0.821
22	Finance should be made available to execute entrepreneurial programmes.	33.6 %	47.0 %	12.0 %	7.4 %	2.87	0.819
23	Teachers need to be motivated and spirited towards teaching of vocational subjects.	34.2 %	47.7 %	9.4%	8.7 %	2.88	0.827
24	Entrepreneurial and vocational skills subjects should be made compulsory in SSCE, NECO, GCE and UTME.	65.8 %	16.1 %	12.1 %	6.0 %	2.99	0.911
25	Emphasis should be placed on entrepreneurship education and vocational training in secondary school by the ministry of education and other government agencies.	63.8 %	18.1 %	12.8 %	85.3 %	3.01	0.926
	Pooled Mean						

The result indicated that all the items were perceived as the solutions to the challenges facing the implementation of entrepreneurial education programme in Nigerian secondary schools. Therefore, this study found that the solutions to the challenges facing the implementation of entrepreneurial education programme in Nigerian secondary schools were: adequate school time table for vocational subject, provision of funds to execute entrepreneurial programmes, motivation of teachers, making vocational skills subject compulsory in external examinations

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and laying of emphasis on entrepreneurship education and vocational training in secondary school by ministry of education and other government agencies.

Discussion of Findings

The findings of the study revealed that leadership, creativity, flexibility, passion for teaching, and self-confidence were perceived as important competencies required by vocational studies teachers for developing entrepreneurial skills among students. The respondents also identified practical vocational skills, including perfume, soap and detergent making, carpentry, furniture making, roofing, welding, production of plastics, cement and paints, boat and fishing-instrument construction, and the production of aerosols, bottled gas and bathing soaps, as relevant entrepreneurial skills for secondary school students. Furthermore, internship with local entrepreneurs, field trips, cooperative learning, entrepreneurship seminars, workshops, and conferences were perceived as useful methods for developing these skills. However, inadequate school timetable allocation, insufficient funding, limited teacher interest, inadequate recognition of some entrepreneurial skills in major examinations, and insufficient government emphasis were identified as major challenges to effective implementation. The findings are consistent with the principles of Connectionism Learning Theory, particularly the laws of readiness and exercise, which suggest that effective learning is facilitated when learners are prepared and provided with repeated opportunities to practise skills. The findings also support the views of Ojeifo (2013), Newman et al. (2019), and Shofoluwe et al. (2013) concerning the importance of practical skills, entrepreneurial competence, and effective entrepreneurship education for developing human capacity and promoting self-reliance. Overall, the findings suggest that entrepreneurial skills development requires not only relevant practical content but also competent teachers, experiential learning opportunities, adequate instructional time, financial resources, and stronger institutional support.

Conclusion

The study concludes that the development of entrepreneurial skills among secondary school students is closely associated, from the respondents' perspective, with the competencies of vocational studies teachers, the provision of relevant practical vocational skills, and the use of experiential learning methods. Leadership, creativity, flexibility, passion, and self-confidence were perceived as important teacher competencies, while practical production, construction, and technical skills were identified as relevant areas of entrepreneurial learning. The study further concludes that internships, field trips, cooperative learning, seminars, workshops, and conferences may provide useful opportunities for developing students' entrepreneurial skills. However, inadequate instructional time, insufficient funding, limited teacher interest, inadequate examination recognition, and insufficient government emphasis were perceived as important barriers to effective implementation. Therefore, the findings suggest that strengthening entrepreneurial education requires coordinated attention to teacher competence, practical learning opportunities, curriculum and assessment structures, institutional resources, and government support. Nevertheless, since the study was based on respondents' perceptions, the findings should not be interpreted as direct evidence that the identified factors automatically cause entrepreneurial success or societal development.

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Recommendations

On the basis of the findings and conclusion of this study, the following recommendations were made on the policy formulation on how to improve entrepreneurial skill acquisition in secondary school in Nigeria. It is advisable for schools and their managements to design adequate school time table for vocational subjects in secondary schools as this would go a long way to arouse students' interest in skills acquisition for entrepreneurial intention and development. Government should provide adequate funds for secondary schools to execute entrepreneurial programmes, this is to ensure that vocational skills are taught in secondary schools. Teachers should be motivated and spirited towards teaching of vocational subjects through different motivational packages. This is to gear vocational studies up for better performance in order to enhance the vocational skills and entrepreneurial ability of students. Entrepreneurial and vocational skills subjects should be made compulsory in SSCE, NECO, GCE and UTME. This will ensure that the students are serious with vocational skills and entrepreneurial education at the secondary school level. Emphasis should be placed on entrepreneurship education and vocational training in secondary school by the ministry of education and other government agencies.

References

Abdullahi, M. I. & Jabor, M. K. (2019). Influence of entrepreneurial education on skills acquisition and attitudes of university graduates towards self-reliance in Nigeria. *Journal of Science Technology and Education 7(4),* 30-41.

Afianmagbon, B. & Obiukwu, F. E. (2014). Assessment of extent of skill acquisition for self-reliance by students in junior secondary schools in Ohafia education zone of Abia State, Nigeria. *International Conference on 21st Century Education at Dubai Knowledge Village, 2*(1), 11-21.

Ankeli, G. O. (2019). Acquisition of entrepreneurial and scientific skills for youth self-sustainability and job creation towards national development in Nigeria. *World Journal of Entrepreneurial Development Studies, 3*(1), 24-31.

Arokoyu, A. A. & Nwafor, C. L. (2018). Entrepreneurial education implementation at secondary schools for self-reliance in era of economic recession in Nigeria. *International Journal of Scientific Research and Innovative Technology, 5(9), 37 47.*

Azzasyofia, M., Adi, I. R., & Aritonang, A. N. (2020). The role of change agents in community empowerment using information and communication technology (ICT): Case study at Desa Kaliabu, Central Java. Indonesian Journal of Social Work, 3(2), 135–146. https://doi.org/10.31595/ijsw.v3i2.266

Bulle, A. G., & Ondieki, F. (2023). Effect of community participation on implementation and development of griftu water project in Wajir county. International Journal of Social Sciences Management and Entrepreneurship (IJSSME), 7(1).

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Chiekezie, O. M., Nzewi, H. N., & Erhimwionose, I. A. (2016). Entrepreneurial skill acquisition and job creation in Benin City, Nigeria. *International Journal of Economic and Business Review*, *4(6),* 94-101.

Egolum, E. O. & Chukwuma, M. U. (2014). Development of entrepreneurial skills in secondary school students through science, technology and mathematics (STM) education. *Academic Discourse: An International Journal, 3*(5), 17-29.

Eze, J. U., Ede, M. O., Igbo, J. N., & Ifeyinwa, E. (2016). Value orientation towards entrepreneurial skills acquisitions of secondary school students in Nsukka education zone of Enugu State. *The Social Sciences, 11*(22), 5301-5308.

Ezeani, N. S. (2012). The teacher and skills acquisition at business education: From the perspective of accounting skills. *Arabian Journal of Business and Management Review, 2(4),* 25-36.

Maxwell, O., Falola, H., Ibidunni, S. & Inelo, F. (2014). An assessment of the taught entrepreneurship programme in Nigerian secondary schools. *Merit Research Journal of Education and Review, 2*(11), 257-275.

Mbanefo, M. C., & Eboka, O. C. (2019). Acquisition of innovative and entrepreneurial skills in basic science education for job creation in Nigeria. *Science Education International, 28*(3), 207-213.

Mboto, F. A. & Udo, N. N. (2012). Entrepreneurial strategies for skills acquisition by secondary school science students. J*ournal of Science, Engineering and Technology,1(1),* 108 – 111.

Muhammad, M. B. (2018). *Assessment of the of entrepreneurial skills acquisition on home economics students' performance in junior secondary school in Kaduna State, Nigeria*. A Dissertation submitted to the school of postgraduate studies, Ahmadu Bello University, Zaria,

Nduka-Ozo, S. N. (2017). Curriculum and Entrepreneurship Skill Acquisition at the Tertiary Educational Level: Implication for Counselling Nigeria Youths. *International Journal of Advanced Engineering, Management and Science, 3(9),* 977-980.

Ngerem, E. I. & Ezikpe, N. (2016). Role of entrepreneurship education in secondary school students' economic development. *International Journal of Education and Evaluation,2(2),* 36-42.

Oboreh, J. C. & Nnebe, G. E. (2019). Entrepreneurship education and skill acquisition of graduates in public Universities South-East, Nigeria. *International Journal of Business & Law Research 7(4)*, 84-97.

Ojeifo, S. A. (2013). Entrepreneurship education in Nigeria: A panacea for youth unemployment. *Journal of Education and Practice*, *4*(6), 61-67.

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Okori, O. A. & Ebere, O. J. (2019). Science and Mathematics education as tools for developing entrepreneurship skills among secondary school students in Cross River State, Nigeria. *Global Journal of Educational Research, 18,* 35-45

Olokundun, M. Falola, H., Ibidunni, S. & Inelo, F. (2014). An assessment of the taught entrepreneurship programme in Nigerian secondary schools. *Merit Research Journal of Education and Review, 2(11),* 257-275.

Onajite, G. O., & Aina, M. A. (2017). School-based practices for entrepreneurship skills acquisition in secondary schools in Delta State of Nigeria. *International Journal of Vocational Education and Training Research, 3*(5), 40-50.

Oyetola, I. O., Kayode, S. J., & Okunuga, A. A. (2019). Provision and utilization of facilities for entrepreneurial skills' acquisition by Universal Basic Education Products in Lagos State, Nigeria. *Global Journal of Management and Business Research, 12(20),* 27-33.

Sofoluwe, A. O., Shokunbi, M. O., Raimi, L., & Ajewole, T. (2013). Entrepreneurship education as a strategy for boosting human capital development and employability in Nigeria: Issues, prospects, challenges and solutions. *Journal of Business Administration and Education*, *3*(1), 25-50.

Udogu, M. E. & Nnoli, J. (2017). Level of preparedness and challenges of Chemistry students to acquire entrepreneurial skills via local material. *Journal of Science and Technology, 2(3),* 22-29.

Uka, N. K. (2015). Developing entrepreneurial skills in secondary school students through effective mathematics education in Aba, Nigeria. *International Journal of Education Learning and Development, 3*(7), 1-11.

Undiyaundeye, F. A. & Out, E. A. (2015). Entrepreneurship skills acquisition and the benefits amongst the undergraduate students in Nigeria. *European Journal of Social Sciences, 5*(1), 357-362.

Uwameiye, B. E. (2019). Challenges encountered by students in the acquisition of entrepreneurial skills in home economics education in Edo and Delta State. *International Journal of Research and Innovation in Social Science (IJRISS), III*(IV), 371-376.

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Poverty and Voter Behaviour in Benue State: A Case Study of Guma Local Government Area

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DOI : https://doi.org/10.5281/zenodo.22903165

Abstract
In Nigeria's Fourth Republic, poverty remains closely associated with electoral behaviour. This study examines the relationship between poverty and voter behaviour among registered voters in Guma Local Government Area, Benue State. A descriptive cross-sectional survey design was adopted, guided by Rational Choice Theory and Clientelism Theory. Using Independent National Electoral Commission (INEC) records of registered voters in Guma as the sampling frame, a sample of 400 respondents was determined using the Taro Yamane formula at a 5 per cent margin of error, drawn through multi-stage stratified random sampling across electoral wards. Data were collected using a structured, validated and pilot-tested questionnaire and analysed using frequencies, percentages and mean scores; two hypotheses were tested using the chi-square test of independence at the 0.05 level of significance, with respondents classified into high- and low-poverty groups using a median split of a composite poverty score. The study finds that self-reported poverty is high among sampled voters (grand mean = 3.32) and is significantly associated with susceptibility to vote buying ($x2 = 48.53$, $df = 1$, $p < .001$, Phi = .36) and with patronage-oriented, rather than issue-based, voting ($x2 = 40.42$, $df = 1$, $p < .001$, Phi = .33). These associations are consistent with, but do not establish, the theoretical proposition that material deprivation predisposes voters toward transactional electoral behaviour. The study recommends targeted social protection and livelihood programmes, expanded voter education for poor and displaced communities, and more consistent enforcement of electoral offences relating to vote buying, while noting the need for longitudinal and multivariate research to establish causal pathways.

Keywords: Poverty, voter behaviour, vote buying, clientelism, electoral politics, Rational Choice Theory

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1. Introduction

Voting is, in theory, the practice through which citizens freely express political preferences, ideally informed by an evaluation of candidates, party programmes and policy platforms (Downs, 1957). In much of sub-Saharan Africa, and in Nigeria in particular, this idealised process is frequently complicated by the material circumstances of the voter (Bratton, 2008; Jensen & Justesen, 2014). Poverty, in particular, has been shown across several African democracies to be associated with electoral participation in ways that go beyond mere abstract deprivation to shape how the poor actually engage with the ballot (Bobonis, Gertler, Gonzalez-Navarro, & Nichter, 2022; Weitz-Shapiro, 2012).

National data lend context to this pattern. A 2022 survey by the National Bureau of Statistics (NBS), conducted in collaboration with the National Social Safety-Nets Coordinating Office, the United Nations Development Programme, UNICEF and the Oxford Poverty and Human Development Initiative, found that 133 million Nigerians, or 63 per cent of the population, were multidimensionally poor, with the North Central zone, home to Benue State, among the most affected zones (National Bureau of Statistics, 2022). The World Bank (2023) separately estimated that 56.2 per cent of Nigerians lived below the national poverty line in 2023. Where deprivation of this magnitude is widespread, elections may plausibly be experienced less as a contest over national policy and more as an opportunity to address immediate, personal economic needs, consistent with pocketbook or egotropic patterns of voting (Kinder & Kiewiet, 1979).

Benue State illustrates this concern directly. Long referred to as Nigeria's "food basket", the state has experienced recurrent violent clashes between farming communities, predominantly of the Tiv ethnic group, and nomadic herders, notably in Agatu from around 2011 and more recently in Guma Local Government Area. Guma hosts one of the state's largest concentrations of internally displaced persons (IDPs), centred on Gbajimba, with the broader Benue IDP population estimated at approximately two million by 2024, many of whom have lost farmland, income and other livelihoods (National Population Commission, 2006; International Organization for Migration, 2024). Registered voters in Guma therefore approach elections against a backdrop of compounded economic hardship.

Against this background, this study examines the relationship between poverty and voter behaviour in Guma Local Government Area, specifically the extent to which material deprivation is associated with voters' self-reported susceptibility to vote buying and with a preference for patronage-based over issue-based voting. Because the study relies on a cross-sectional survey and a chi-square test of independence, its findings speak to statistical association between poverty and these dimensions of voter behaviour rather than to causal effect; establishing causality would require experimental or longitudinal designs of the kind used by Bobonis et al. (2022). Existing Nigerian evidence on vote buying and clientelism has concentrated disproportionately on urban and semi-urban contests, most notably the 2018 Osun State governorship election (Irabor & Onwudinjo, 2023), leaving conflict-affected, predominantly rural local government areas such as Guma comparatively under-examined. This study addresses that gap by generating original, questionnaire-based evidence directly from Guma's registered voters, contributing local, survey-based data to a literature that has so far relied largely on national-level or non-Benue-specific sources.

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1.1 Statement of Problem

Vote buying and clientelism are widely cited by election observers as contributing to poor governance outcomes in Nigeria, particularly in low-income and rural constituencies. Cross-national survey evidence indicates a robust association between household poverty and the likelihood of being offered, and accepting, material inducements for one's vote (Jensen & Justesen, 2014), while experimental evidence suggests that it is economic vulnerability specifically, rather than poverty in a broad or abstract sense, that sustains clientelist relationships between patrons and voters (Bobonis et al., 2022). This study treats vulnerability, understood as household exposure to livelihood shocks such as displacement and loss of farmland, as a dimension of poverty that may be particularly consequential for electoral behaviour, and it examines both alongside one another rather than treating them as interchangeable. In the 2023 Nigerian general elections, ethno-religious explanations dominated public discourse, yet quantitative analysis of the presidential results found that socioeconomic deprivation measurably shaped voting patterns across states (Madukpe, Ugoala, Wokoma, & Nwachukwu, 2025), suggesting that material conditions deserve more systematic attention than they typically receive in Nigerian electoral analysis.

Notwithstanding this evidence, empirical research on vote buying and clientelism in Nigeria remains concentrated on relatively visible, urban or semi-urban elections, such as the 2018 Osun State governorship contest, while conflict-affected rural local government areas have received comparatively little direct, survey-based attention. Guma presents a particularly instructive case because it combines high rural poverty with substantial conflict-induced displacement, conditions under which the relationship between poverty and electoral behaviour, if it exists, might be expected to be especially pronounced. In the absence of directly collected, quantitative evidence from areas such as Guma, policies intended to strengthen electoral integrity risk being designed around assumptions that do not reflect the material realities of the voters they are meant to protect. This study addresses that gap by generating primary survey data from registered voters in Guma, examining the extent to which poverty and vulnerability are associated with self-reported susceptibility to vote buying and with patronage- rather than issue-based voting.

1.2 Objectives of the Study

The general aim of this study is to examine the relationship between poverty and voter behaviour among registered voters in Guma Local Government Area of Benue State. The specific objectives are to:

i. examine the level of poverty among registered voters in Guma Local Government Area;

ii. examine the relationship between poverty and voters' susceptibility to vote buying and material inducement in Guma;

iii. examine the relationship between poverty and patronage- versus issue-based voting in Guma; and

iv. draw evidence-based policy recommendations, from the study's findings, on strategies for addressing the influence of poverty on voter behaviour in the area.

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1.3 Research Questions

i. What is the level of poverty, as measured by self-reported material deprivation, among registered voters in Guma Local Government Area?

ii. What is the relationship between poverty and voters' susceptibility to vote buying and material inducement in Guma?

iii. What is the relationship between poverty and patronage- versus issue-based voting in Guma?

iv. What strategies, based on the study's findings, could help address the influence of poverty on voting behaviour in the area?

1.4 Research Hypotheses

The study formulates the following null hypotheses for statistical testing:

Ho1: There is no statistically significant association between poverty and voters' susceptibility to vote buying and material inducement in Guma Local Government Area.

Ho2: There is no statistically significant association between poverty and the type of voting (issue-based or patronage-based) in Guma Local Government Area.

For the purposes of these tests, respondents were classified into "high-poverty" and "low-poverty" groups using a median split of a composite score derived from the five poverty items in Section B of the questionnaire (see Section 3.7).

1.5 Significance of the Study

The findings are relevant to the Independent National Electoral Commission and similar bodies in designing voter education programmes sensitive to the economic circumstances of displaced and rural communities. They are also relevant to policymakers and social protection agencies concerned with the relationship between economic hardship and democratic quality, and to civil society organisations working on electoral integrity in Benue State. Academically, the study contributes Guma-specific, survey-based evidence to a literature on poverty, clientelism and electoral behaviour that has so far paid comparatively limited attention to Nigeria's North Central region relative to the South and to Osun State in particular. Because the study is descriptive and cross-sectional, its findings should inform these audiences as evidence of association requiring further investigation, rather than as demonstrated causal impact.

1.6 Scope of the Study

The study is restricted to registered voters in Guma Local Government Area of Benue State. It examines two dimensions of poverty, self-reported material deprivation and conflict-related economic vulnerability, and two dimensions of voter behaviour, susceptibility to vote buying and the relative weight given to patronage as opposed to policy considerations in vote choice. Data were collected once, between the periods specified in Section 3.1, and findings are accordingly bounded to that period and to Guma's registered voter population; they are not intended to

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generalise to other local government areas, to unregistered residents, or to actual voting behaviour beyond respondents' self-reports.

2.1 Conceptual Review

2.1.1 The Concept of Poverty

Poverty is conventionally understood through both monetary and multidimensional lenses. The monetary approach defines the poor as those falling below a defined income threshold; the World Bank (2023) classifies Nigerians as poor if they live on less than $2.15 per day. The Nigerian National Bureau of Statistics, working with the Oxford Poverty and Human Development Initiative, instead applies a multidimensional approach that assesses deprivation across health, education, living standards, security and unemployment, finding 63 per cent of Nigerians multidimensionally poor in 2022 across indicators including cooking fuel, sanitation, health, food security and housing, with deprivation more severe in northern and rural households (National Bureau of Statistics, 2022). For the purposes of this study, poverty is operationally defined as self-reported material deprivation, specifically, difficulty meeting basic food, healthcare, livelihood, water and electricity needs, measured through the five Likert-type items in Section B of the questionnaire (Table 3). This operational definition is narrower than a full multidimensional poverty index; it captures respondents' subjective experience of deprivation rather than an independently verified poverty status, a distinction discussed further as a limitation in Section 3.7.

2.1.2 Voter Behaviour

Voter behaviour, as used in this study, refers collectively to the factors shaping citizens' decisions to participate in elections and their choices once participating. It is useful to distinguish several related but analytically separate constructs that are often conflated in the literature: electoral participation (whether a citizen votes at all); vote choice (which candidate or party a citizen supports); vote buying (the acceptance of a material inducement in direct exchange for a vote); patronage voting (support for a candidate based on an ongoing relationship of material exchange rather than a single transaction); and voter behaviour in the broader sense used here, which encompasses the relative weight voters give to material inducement and patronage as against policy considerations. This study is concerned specifically with the latter three constructs, vote buying, patronage orientation and issue-based orientation, rather than with participation or vote choice as such.

The classical Michigan School treated the vote as an expression of longstanding partisan identification (Campbell, Converse, Miller, & Stokes, 1960), while Downs (1957) modelled the voter as a rational actor comparing the expected utility of available choices. Economic voting scholarship distinguishes sociotropic voting, evaluation of the national economy, from pocketbook or egotropic voting, evaluation of one's personal circumstances (Kinder & Kiewiet, 1979); material hardship is theorised to increase the relative salience of the latter, a proposition this study examines empirically in the Guma context. In the Nigerian context, ethnic identity, incumbent performance and material inducement have been argued to matter more than ideology (Bratton, 2008), while more recent quantitative work finds that socioeconomic deprivation also has an independent association with voting patterns at the presidential level (Madukpe et al., 2025).

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2.1.3 Vote Buying and Clientelism

Clientelism and vote buying are related but distinct concepts, and this study does not treat them as interchangeable. Clientelism refers to an ongoing, unequal exchange relationship in which a political patron provides material benefits, cash, food, jobs, or protection, to a client in return for sustained political loyalty (Scott, 1972; Stokes, 2005), documented in African contexts including Benin (Wantchekon, 2003) and São Tomé and Príncipe (Vicente, 2014). Vote buying is more specific: a direct, largely transactional exchange of a material good for a single vote at a particular election (Jensen & Justesen, 2014), and can occur without the ongoing relational character that defines clientelism proper. This study accordingly treats vote buying (Table 4) and patronage orientation (Table 5) as related but separate outcome variables rather than as a single construct.

Weitz-Shapiro (2012) finds that clientelism is most entrenched where poverty is high and political competition is low, and recedes only where both poverty falls and competition rises, a conditional relationship that this study's cross-sectional, single-LGA design cannot itself test. Bratton (2008) reports that in the 2007 Nigerian elections, inducements as modest as four United States dollars were, in some contexts, sufficient to influence voting behaviour, though the generalisability of this specific figure to Guma in the 2020s has not been independently verified and is treated here as illustrative rather than definitive. Using questionnaire-based methods comparable to those adopted in this study, Irabor and Onwudinjo (2023) found that a majority of surveyed voters and INEC ad-hoc staff believed vote trading significantly affected both individual voting decisions and the broader electoral governance process in the 2018 Osun State governorship election.

2.2 Empirical Review

Cross-national survey evidence broadly supports an association between poverty and susceptibility to vote buying, though the strength and mechanisms of this association vary across contexts. Jensen and Justesen (2014) found a statistically significant correlation between household poverty and whether Afrobarometer respondents across several African countries had been offered, and accepted, an electoral inducement. Using an anti-poverty programme in the Philippines as a policy-driven source of variation in household vulnerability, Bobonis et al. (2022) provide experimental evidence that reduced vulnerability causally lowers susceptibility to clientelistic vote buying, offering stronger causal identification than the correlational evidence available from most surveys, including the present one. Examining electoral participation across forty-four countries, Carreras and Castañeda-Angarita (2019) found that economic insecurity depresses participation among poorer and less-educated citizens more severely where welfare protection is weak, a moderating condition plausibly relevant to Nigeria's limited social safety net. Not all evidence points uniformly in the same direction, however: Weitz-Shapiro's (2012) finding that clientelism recedes only when poverty declines and competition rises simultaneously suggests that poverty alone may be an incomplete predictor of clientelist outcomes, and this study is accordingly cautious about attributing sole explanatory weight to poverty in the absence of measures of local political competition.

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Nigeria-specific evidence points in a broadly similar direction. Chatham House (2022) reports that vote-selling in Nigeria is substantially driven by respondents' material circumstances, even where such behaviour is normatively disapproved of. In a field experiment, Collier and Vicente (2014) found that both material and coercive electoral tactics were closely tied to the economic vulnerability of targeted communities. Consistent with these findings, Irabor and Onwudinjo (2023) report that a majority of sampled voters and INEC ad-hoc staff in the 2018 Osun State governorship election believed vote trading substantially affected both individual decisions and the broader electoral process, a finding this study's Guma sample was designed to test in a different, rural and conflict-affected setting.

Benue-specific, survey-based evidence remains scarce, which is the central empirical gap this study addresses. Reporting on displacement in the state indicates that Benue's IDP population, concentrated in Guma, Logo and Makurdi, exceeded two million by 2024, with displacement disrupting farming livelihoods, schooling and household earnings (International Organization for Migration, 2024). Similarly, journalistic coverage of the 2023 governorship election described rural and semi-urban Benue communities as facing acute poverty and deprivation. Such accounts are descriptive rather than survey-based and cannot themselves establish a statistical association between poverty and voter behaviour; they are used here only to motivate, not substitute for, the present study's original questionnaire-based evidence from Guma.

2.3 Theoretical Framework

This study draws on two complementary theories, Rational Choice Theory and Clientelism Theory, from which it derives specific, testable propositions rather than treating existing findings as having already established the mechanisms linking poverty to voter behaviour in Guma.

Rational Choice Theory (Downs, 1957) conceives of the voter as a utility-maximising individual who weighs the costs and benefits of available electoral choices under conditions of imperfect and costly information. Applied to conditions of material poverty, the theory implies that voters facing pressing short-term needs may rationally discount the expected value of long-term programmatic commitments, since the marginal utility of an immediate material benefit is plausibly higher for materially poor households than for wealthier ones. Kinder and Kiewiet's (1979) pocketbook-voting framework supports the related proposition that material hardship increases the salience of personal, egotropic economic considerations in voting. From this, the present study derives the testable proposition that higher self-reported poverty will be associated with greater self-reported susceptibility to vote buying (Ho1).

Clientelism Theory (Scott, 1972; Stokes, 2005) posits an unequal, ongoing exchange in which a political patron supplies material resources in return for a client's political loyalty. The theory implies that where poverty is high and formal institutions of accountability are weak, citizens will rely more heavily on informal patronage networks, of which the vote is one of few tradeable assets. From this, the present study derives the testable proposition that higher self-reported poverty will be associated with a greater orientation toward patronage-based, rather than issue-based, voting (Ho2). Bobonis et al.'s (2022) experimental finding that reduced vulnerability lowers clientelistic vote buying, and Weitz-Shapiro's (2012) finding that clientelism recedes only where poverty is low, lend theoretical plausibility to this proposition, though, as noted in Section 2.2, they do not by themselves establish that the same mechanism operates in Guma. Together,

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these two propositions, rather than an assumed prior confirmation of the underlying causal mechanism, form the empirical basis tested by Ho1 and Ho2 in this study.

3. Methodology

3.1 Research Design

The study adopted a descriptive, cross-sectional survey design, appropriate for describing the self-reported perceptions, experiences and behaviour of a defined population at a single point in time, without manipulating any variable. Consistent with this design, the study tests statistical association, through the chi-square test of independence, rather than causal effect; language implying that poverty "causes," "creates," or "produces" changes in voter behaviour is avoided in favour of language describing statistical association, in line with what a cross-sectional design can support. Data were collected exclusively through a structured questionnaire directly administered to sampled registered voters; no interviews, focus group discussions or other qualitative instruments were used.

3.2 Area of Study

The study was conducted in Guma Local Government Area of Benue State, North Central Nigeria. Guma, headquartered in Gbajimba, covers approximately 2,882 square kilometres and is populated predominantly by the Tiv, alongside smaller Jukun, Hausa and other minority communities (National Population Commission, 2006). For electoral purposes, INEC divides the area into ten registration wards and 160 polling units (Independent National Electoral Commission, 2015). The area is predominantly agrarian and has experienced significant farmer-herder conflict and internal displacement, particularly in communities such as Daudu and Abinsi, hosting some of Benue State's largest IDP camps since the early 2010s (International Organization for Migration, 2024).

3.3 Population of the Study

The population of the study is the total number of registered voters in Guma Local Government Area, rather than the local government's total resident population. State-level INEC data indicate that Benue State had 2,777,727 registered voters across its 23 local government areas ahead of the 2023 general elections (Vanguard, 2022). An LGA-specific registered-voter figure for Guma is not publicly available in the sources consulted for this study; in its absence, this study uses an estimated figure of 130,000 registered voters for Guma, derived proportionately from the state total and Guma's relative population share, as its sampling frame, rather than the LGA's total projected population. This estimate should be treated as provisional: researchers seeking to replicate or build on this study should obtain the exact, current registered-voter figure for Guma directly from INEC's Continuous Voter Registration portal or the INEC office in Benue State before finalising a sampling frame.

3.4 Sample Size Determination

The sample size was determined using the Taro Yamane (1967) formula, n = N / (1 + N(e)^2), where n is the sample size, N is the estimated registered-voter population (130,000, see Section 3.3), and e is the margin of error, set at 0.05 (5 per cent) for a 95 per cent confidence level. This yields a sample size of approximately 399 respondents (n = 130,000 / [1 + 130,000(0.05)^2] =

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130,000/326 ~ 399), rounded to 400 for administration, which was adopted as the target sample for this study. A 5 per cent margin of error was selected as a conventional standard for descriptive social survey research balancing precision against the practical constraints of primary data collection in a conflict-affected rural area.

3.5 Sampling Technique

A multi-stage stratified random sampling technique was used. At the first stage, Guma's ten registration wards were stratified into two categories, displacement-affected wards (including Daudu and Abinsi) and relatively less-affected wards, using IOM displacement tracking data to classify each ward. At the second stage, the sample of 400 was proportionately allocated across all ten wards based on each ward's share of the total registered-voter population, ensuring that both displacement-affected and less-affected wards were represented in proportion to their actual population weight rather than in equal fixed shares. At the third stage, individual registered voters were selected at random from each selected ward's polling-unit voter registers, using a random-number procedure applied to register entries, until the ward's allocated quota was reached.

3.6 Instrument for Data Collection

A structured questionnaire was the sole instrument used for data collection, comprising three sections. Section A collected demographic data (sex, age, marital status, educational qualification, occupation). Section B measured household poverty status using five items adapted from the National Bureau of Statistics' multidimensional poverty framework (covering food security, healthcare access, livelihood stability, and access to water and electricity), rated on a four-point Likert scale (Strongly Agree = 4 to Strongly Disagree = 1). Section C measured electoral attitudes, specifically susceptibility to vote buying and the relative weight given to material inducement versus policy considerations, using the same four-point scale.

3.6.1 Validity of the Instrument

The questionnaire was subjected to face and content validation. A draft was reviewed by the project supervisor and two independent reviewers with expertise in electoral studies and survey methodology, who assessed each item for clarity, relevance to the study's objectives, and alignment with the constructs of poverty, vote-buying susceptibility and patronage orientation described in Section 2.1. Their comments were used to revise item wording and remove or reformulate ambiguous items prior to piloting.

3.6.2 Pilot Study

A pilot study was conducted with 30 registered voters in Makurdi Local Government Area, an area with socio-economic and agrarian characteristics broadly comparable to Guma but excluded from the main study sample. The pilot exercise assessed the clarity of item wording, the appropriateness of the four-point response scale, and the time required for completion, and informed minor revisions to two items in Section B and one item in Section C prior to the main data collection exercise.

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3.6.3 Reliability of the Instrument

Reliability was assessed using Cronbach's alpha (Cronbach, 1951), calculated on the pilot sample's responses to the Likert-scaled items in Sections B and C. The instrument yielded an overall Cronbach's alpha coefficient of 0.81, with subscale coefficients of 0.79 for the poverty items, 0.83 for the vote-buying susceptibility items, and 0.80 for the patronage-orientation items, all exceeding the conventional acceptability threshold of 0.70 and indicating satisfactory internal consistency.

3.7 Method of Data Analysis

Descriptive statistics, frequencies, percentages and mean scores, were used to analyse and present data according to the study's research questions. A criterion mean of 2.50 was used to describe items and grand means as reflecting comparatively higher or lower levels of self-reported agreement on the four-point scale; this criterion is used descriptively, to summarise response patterns, and is not treated as a validated clinical or absolute threshold for classifying individual respondents as objectively "poor" or "not poor." For the chi-square analyses reported in Section 4.6, respondents were instead classified into "high-poverty" and "low-poverty" groups using a median split of each respondent's composite score across the five poverty items in Section B; this is a simplified, non-validated approach adopted in the absence of an independently administered multidimensional poverty index, and is acknowledged as a limitation of the study (Section 5.1). The chi-square (x2) test of independence was used at the 0.05 level of significance to test Ho1 (poverty group by vote-buying susceptibility, itself dichotomised at the median of the Section C vote-buying items) and Ho2 (poverty group by voting orientation, dichotomised at the median of the Section C patronage items). Prior to testing, expected cell frequencies were checked to ensure all exceeded the minimum threshold of five required for the validity of the chi-square test; this condition was satisfied for both hypotheses (Section 4.6). Phi coefficients were computed alongside each chi-square statistic to indicate effect size.

4. Data Presentation, Analysis, and Discussion

Data obtained from the questionnaire are presented in tabular form, organised around the study's research questions, followed by the hypothesis tests and a discussion of findings in relation to the literature and theoretical framework reviewed in Section 2.

4.1 Questionnaire Administration and Response Rate

Of the 400 questionnaire copies distributed to sampled registered voters across Guma's wards, 390 were returned and 380 were correctly completed and usable, giving a valid response rate of 95.0 per cent. All tables and calculations in this section are based on these 380 valid responses (N = 380).

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Table 1: Questionnaire Administration and Response Rate

Description	Number	Percentage (%)
Copies administered	400	100.0
Copies returned	390	97.5
Valid copies used for analysis	380	95.0
Invalid/discarded copies	10	2.5

4.2 Bio-Data of Respondents

Table 2 presents the demographic characteristics of the 380 sampled registered voters whose responses were analysed.

Table 2: Bio-Data of Respondents (N = 380)

Variable	Category	Frequency	Percentage (%)
Sex	Male	210	55.3
Sex	Female	170	44.7
Age (years)	18-25	60	15.8
Age (years)	26-35	120	31.6
Age (years)	36-45	110	28.9
Age (years)	46-55	60	15.8
Age (years)	56 and above	30	7.9
Marital Status	Single	90	23.7
Marital Status	Married	250	65.8
Marital Status	Widowed/Divorced	40	10.5
Educational Qualification	No formal education	70	18.4
Educational Qualification	Primary	90	23.7
Educational Qualification	Secondary	150	39.5
Educational Qualification	Tertiary	70	18.4
Occupation	Farming	190	50.0
Occupation	Trading/Business	90	23.7
Occupation	Civil/Public Service	40	10.5
Occupation	Unemployed/Others	60	15.8

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Table 2 shows that male respondents (55.3 per cent) slightly outnumbered female respondents (44.7 per cent), and that most respondents (60.5 per cent) fell within the economically active 26-45 age bracket. Married respondents constituted the majority (65.8 per cent), a pattern consistent with household-headship norms reported for rural Tiv communities in prior demographic assessments of the area (National Population Commission, 2006). Educationally, 57.9 per cent of respondents had no formal education or only primary education, while farming was the dominant occupation (50.0 per cent), reflecting Guma's largely agrarian economy and providing face validity for the poverty indicators examined in Table 3.

4.3 Level of Poverty Among Registered Voters (Research Question i)

Table 3: Level of Self-Reported Poverty Among Registered Voters in Guma LGA (N = 380)

Item	SA	A	D	SD	Mean	Decision
Difficulty affording three square meals daily	210	110	40	20	3.34	High
Lack of reliable access to healthcare	180	130	50	20	3.24	High
No stable/regular means of livelihood	200	120	40	20	3.32	High
Lack of access to potable water/electricity	190	125	45	20	3.28	High
Insecurity/displacement worsened household finances	230	100	35	15	3.43	High
Grand Mean					**3.32**	**High**

Table 3 shows that all five poverty items recorded mean scores above the descriptive criterion mean of 2.50, with a grand mean of 3.32, indicating a high level of self-reported material deprivation among registered voters in Guma. As noted in Section 3.7, this grand mean describes the pattern of agreement with the five deprivation statements; it is not, by itself, a validated poverty classification. The highest-scoring item (mean = 3.43) concerns the worsening of household finances by insecurity and displacement, consistent with documented displacement in the area (International Organization for Migration, 2024). This finding answers Research Question i.

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4.4 Poverty and Susceptibility to Vote Buying (Research Question ii)

Table 4: Self-Reported Susceptibility to Vote Buying in Guma LGA (N = 380)

Item	SA	A	D	SD	Mean	Decision
Offered money/gifts in exchange for my vote	150	140	60	30	3.08	High
Would accept money/gifts for my vote	120	130	90	40	2.87	High
Politicians target poor communities with cash handouts	200	120	40	20	3.32	High
Poverty makes inducements harder to resist	180	140	40	20	3.26	High
Grand Mean					**3.13**	**High**

Table 4 shows that all four vote-buying susceptibility items recorded mean scores above the criterion mean of 2.50, with a grand mean of 3.13, indicating a high level of self-reported susceptibility to vote buying and material inducement. This descriptive finding answers Research Question ii; the association between poverty and this susceptibility is tested formally under Ho1 in Table 6.

4.5 Poverty and Patronage- Versus Issue-Based Voting (Research Question iii)

Table 5: Patronage- Versus Issue-Based Voting Orientation in Guma LGA (N = 380)

Item	SA	A	D	SD	Mean	Decision
Vote based on personal benefit, not policies	170	130	55	25	3.17	High
Favour financially-assisting candidate over better plan	160	140	55	25	3.14	High
Policy promises matter less than material help	150	135	65	30	3.07	High
Depend on political patrons outside elections	140	130	70	40	2.97	High
Grand Mean					**3.09**	**High**

Table 5 shows that all four items recorded mean scores above the criterion mean of 2.50, with a grand mean of 3.09, indicating that respondents self-reported a stronger orientation toward patronage-based than issue-based voting. This descriptive finding answers Research Question iii; the association between poverty and this orientation is tested formally under Ho2 in Table 6.

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4.6 Test of Hypotheses

Respondents were classified into high-poverty (n = 260) and low-poverty (n = 120) groups using a median split of the composite Section B poverty score, as described in Section 3.7. This classification was cross-tabulated separately against vote-buying susceptibility (dichotomised at the median of Section C vote-buying items into "susceptible," n = 250, and "not susceptible," n = 130) and against voting orientation (dichotomised into "patronage-oriented," n = 240, and "issue-oriented," n = 140).

Table 6a:
Observed (Expected) Frequencies for Poverty Group by Vote-Buying Susceptibility

Poverty Group	Susceptible	Not Susceptible	Total
High-poverty	201 (171.1)	59 (89.0)	260
Low-poverty	49 (78.9)	71 (41.1)	120
Total	250	130	380

All expected cell frequencies in Table 6a exceeded the minimum threshold of five, satisfying the assumptions of the chi-square test. The chi-square test of independence indicated a statistically significant association between poverty group and vote-buying susceptibility, $x2(1, N = 380) = 48.53$, $p < .001$, Phi = .36, a medium-to-large effect by conventional standards. Ho1 is therefore rejected: poverty is significantly associated with voters' self-reported susceptibility to vote buying and material inducement in Guma.

Table 6b: Observed (Expected) Frequencies for Poverty Group by Voting Orientation

Poverty Group	Patronage-Oriented	Issue-Oriented	Total
High-poverty	192 (164.2)	68 (95.8)	260
Low-poverty	48 (75.8)	72 (44.2)	120
Total	240	140	380

All expected cell frequencies in Table 6b likewise exceeded five. The chi-square test indicated a statistically significant association between poverty group and voting orientation, $x2(1, N = 380) = 40.42$, $p < .001$, Phi = .33, a medium effect. Ho2 is therefore rejected: poverty is significantly associated with a patronage-based, rather than issue-based, voting orientation in Guma.

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Table 6c: Summary of Chi-Square Tests of Hypotheses

Hypothesis	Calculated x2	df	p-value	Phi	Decision
Ho1: Poverty and vote-buying susceptibility are independent	48.53	1	< .001	0.36	Rejected
Ho2: Poverty and voting orientation are independent	40.42	1	< .001	0.33	Rejected

Both null hypotheses are rejected, indicating a statistically significant association between respondents' poverty classification and both dimensions of self-reported voter behaviour examined. Consistent with the cross-sectional design described in Section 3.1, these results establish statistical association between the categorised variables; they do not, by themselves, establish that poverty causes vote buying or patronage voting, since alternative explanations (Section 4.7) were not controlled for in this design.

4.7 Discussion of Findings

The results in Tables 3-6 indicate that poverty is significantly associated with both dimensions of voter behaviour examined among Guma's registered voters. The high grand mean for self-reported poverty (3.32, Table 3), read alongside the farmer-herder conflict and mass displacement documented in Section 3.2, suggests that conflict-related economic vulnerability may compound the baseline hardship captured by the poverty items, though this study's design cannot isolate the independent contribution of displacement from that of poverty more generally.

The association underlying the rejection of Ho1 is consistent with Rational Choice Theory's proposition that materially vulnerable voters may rationally weight immediate, certain material benefits more heavily than uncertain long-term programmatic gains, and aligns with the experimental finding of Bobonis et al. (2022) that reduced household vulnerability is associated with reduced susceptibility to vote buying, as well as with Irabor and Onwudinjo's (2023) questionnaire-based findings from Osun State. The association underlying the rejection of Ho2 is consistent with Clientelism Theory's proposition that patronage networks become more salient where formal accountability institutions are weak, and is broadly compatible with Weitz-Shapiro's (2012) finding that clientelism persists where poverty remains high, and with Madukpe et al.'s (2025) finding that socioeconomic deprivation is associated with voting patterns in Nigeria's 2023 presidential election. Together, these results are consistent with, without individually confirming, this study's central proposition, that greater self-reported poverty among Guma's registered voters accompanies greater self-reported susceptibility to material inducement and greater reliance on patronage-oriented, rather than issue-based, voting.

These associations should nonetheless be interpreted cautiously. As Weitz-Shapiro (2012) and Carreras and Castañeda-Angarita (2019) suggest, factors such as local political competition, institutional welfare protection, ethnicity, party identification, education and, potentially, direct coercion may independently shape both poverty and voter behaviour, and none of these were statistically controlled for in the present bivariate analysis. The cross-sectional design further means that poverty and voter behaviour were measured at a single point in time, precluding any

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claim about the direction or temporal sequence of the observed association. The findings should accordingly be read as evidence that poverty and the two dimensions of voter behaviour examined are statistically associated in Guma, consistent with the theoretical mechanisms outlined in Section 2.3, rather than as demonstration that poverty independently causes vote buying or patronage voting.

5. Conclusion and Recommendations

5.1 Conclusion

This study examined the relationship between poverty and voter behaviour among 380 registered voters sampled from Guma Local Government Area's registered-voter population. Self-reported poverty was found to be high among sampled voters (grand mean = 3.32), and was significantly associated both with self-reported susceptibility to vote buying (Ho1 rejected, $x2 = 48.53$, $p < .001$) and with a patronage-oriented, rather than issue-based, voting orientation (Ho2 rejected, $x2 = 40.42$, $p < .001$). These findings indicate that poverty is statistically associated with, and may plausibly contribute to, conditions conducive to electoral malpractice in Guma, though the cross-sectional design of this study means that a causal claim to this effect cannot be sustained on the present evidence alone. Efforts to strengthen electoral integrity in the area accordingly have reason to attend to the material circumstances of the electorate, alongside other institutional and political factors not examined here.

Several limitations should inform how these conclusions are used. The classification of respondents into high- and low-poverty groups relied on a median split of a five-item self-report scale rather than a validated multidimensional poverty index, and the cross-sectional design cannot rule out reverse causation or the influence of unmeasured confounding variables such as local political competition or ethnicity. Future research using longitudinal designs, validated poverty measures, and multivariate statistical techniques would be better positioned to establish the causal pathways that this study's associations only suggest.

5.2 Recommendations

Based on these findings, and consistent with what a cross-sectional, associational study can support, the following recommendations are made:

i. Federal and state governments should prioritise targeted social protection and livelihood restoration programmes for displaced and rural households in Guma; Bobonis et al.'s (2022) experimental evidence suggests reduced household vulnerability is associated with reduced susceptibility to vote buying.

ii. The Independent National Electoral Commission and civil society organisations should design voter education initiatives specifically tailored to poor, rural and displaced communities, communicated in accessible language and formats, emphasising the long-term costs of vote selling.

iii. Security and humanitarian agencies should expedite IDP resettlement and rehabilitation in Guma, given the study's finding that insecurity- and displacement-related hardship was the most strongly endorsed poverty item.

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iv. Electoral offences relating to vote buying and vote selling should be investigated and prosecuted more consistently, with particular attention to the political patrons supplying inducements rather than only the voters receiving them.

v. Regulatory bodies and civil society should encourage political parties to campaign on development programmes relevant to Guma's agrarian and displacement context, strengthening the relative appeal of programmatic over patronage-based campaigning.

vi. Future studies should build on this survey instrument to track the association between poverty and voter behaviour in Guma over successive election cycles, ideally incorporating validated poverty measures and multivariate controls, in order to clarify the direction and stability of the associations identified here.

References

Bobonis, G. J., Gertler, P. J., Gonzalez-Navarro, M., & Nichter, S. (2022). Vulnerability and clientelism. *American Economic Review, 112*(11), 3627-3659.

Bratton, M. (2008). Vote buying and violence in Nigerian election campaigns. *Electoral Studies, 27*(4), 621-632.

Campbell, A., Converse, P. E., Miller, W. E., & Stokes, D. E. (1960). *The American voter*. University of Chicago Press.

Carreras, M., & Castañeda-Angarita, N. (2019). Economic adversity and electoral participation of vulnerable socioeconomic groups. *Electoral Studies, 57*, 110-120.

Chatham House. (2022). *Vote-selling behaviour and democratic dissatisfaction in Nigeria: Is democracy really for sale?* Chatham House.

Collier, P., & Vicente, P. C. (2014). Votes and violence: Evidence from a field experiment in Nigeria. *The Economic Journal, 124*(574), F327-F355.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297-334.

Downs, A. (1957). *An economic theory of democracy*. Harper & Brothers.

Independent National Electoral Commission. (2015). *Directory of polling units (revised)*. Independent National Electoral Commission.

International Organization for Migration. (2024). *Displacement tracking matrix: Benue State round report*. International Organization for Migration Nigeria.

Irabor, B. P., & Onwudinjo, A. (2023). Political epistemology and the phenomenon of change in Nigeria: An evaluation of Nigeria's democratic process (2015-2019). *African Journal of Democracy and Governance, 10*(1-2), 85-100.

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Jensen, P. S., & Justesen, M. K. (2014). Poverty and vote buying: Survey-based evidence from Africa. *Electoral Studies, 33*, 220-232.

Kinder, D. R., & Kiewiet, D. R. (1979). Economic discontent and political behavior: The role of personal grievances and collective economic judgments in congressional voting. *American Journal of Political Science, 23*(3), 495-527.

Madukpe, V. N., Ugoala, C. B., Wokoma, C. U., & Nwachukwu, G. C. (2025). *Assessment of socioeconomic determinants of voting patterns: A spatio-temporal and multinomial logits analysis of the 2023 Nigerian presidential election* [Preprint]. arXiv.

National Bureau of Statistics. (2022). *Nigeria multidimensional poverty index 2022*. National Bureau of Statistics.

National Population Commission. (2006). *2006 population and housing census of the Federal Republic of Nigeria: Priority tables*. National Population Commission.

Scott, J. C. (1972). Patron-client politics and political change in Southeast Asia. *American Political Science Review, 66*(1), 91-113.

Stokes, S. C. (2005). Perverse accountability: A formal model of machine politics with evidence from Argentina. *American Political Science Review, 99*(3), 315-325.

Vanguard. (2022, November 9). Benue: 2.7m voters to participate in 2023 elections - INEC. *Vanguard News*.

Vicente, P. C. (2014). Is vote buying effective? Evidence from a field experiment in West Africa. *The Economic Journal, 124*(574), F356-F387.

Wantchekon, L. (2003). Clientelism and voting behavior: Evidence from a field experiment in Benin. *World Politics, 55*(3), 399-422.

Weitz-Shapiro, R. (2012). What wins votes: Why some politicians opt out of clientelism. *American Journal of Political Science, 56*(3), 568-583.

World Bank. (2023). *Nigeria poverty assessment: A better future for all Nigerians*. World Bank.

Yamane, T. (1967). *Statistics: An introductory analysis* (2nd ed.). Harper & Row.

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Entrepreneurship Education and Graduate Labour-Market Outcomes in Nigeria: Longitudinal Evidence and Implications for Economic Diversification

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DOI : https://doi.org/10.5281/zenodo.22904407

Abstract

Entrepreneurship education is a higher education solution to the problem of unemployment in Nigeria, yet there is limited evidence of labor-market consequences. This study examined associations between degree-level entrepreneurship education and post-NYSC paid employment, business ownership, and employer status. Ten states were included within a four wave observational cohort. With 9,304 baseline respondents, 1,271 (13.66% retention; 86.34% attrition) reached endline of which 1,244 were exposure-classifiable. Outcomes were evaluated using multivariable logistic regression and sensitivity analyses; employee count was evaluated using negative-binomial regression. It was not associated with paid employment (N = 970; OR = 1.073, 95% CI [0.783, 1.470], p = .661) or business ownership (N = 970; OR = 1.236, 95% CI [0.931, 1.642], p = .143), with stable sensitivity results. Employer status showed a positive, non-significant association in the parsimonious model among business owners (N = 404; OR = 1.561, 95% CI [0.943, 2.584], p = .083). Expanded model was nominally significant (OR = 1.755, p = .047), but sensitivity results were mixed and the bootstrap interval crossed the null. Entrepreneurship education was not significantly associated with employee count (IRR = 1.484, 95% CI [0.893, 2.468], p = .128). No strong relationship is found between degree-level entrepreneurship education and paid employment or business entry. The good news about the positive employer-status scaling is that it is not a proof of a proven scaling mechanism, but rather a hypothesis generation activity. The economic-diversification implications, therefore, are interpretive, and do not represent a quantifiable impact on Nigeria's overall economy.

Keywords: entrepreneurship education; graduate employment; job creation; National Youth Service Corps; economic diversification; Nigeria.

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Introduction

Graduate enterprise development is a policy issue for Nigeria because of the labour-market and diversification-related issues, but the economic problem is more specific than merely reliance on oil. After the GDP rebase of 2019, the majority of domestic production came from non-oil activities and the petroleum heavy merchandise exports continued to be significant (National Bureau of Statistics [NBS], 2025a, 2025b). Labour-market structure is also very self-employment oriented with the Nigeria Labour Force Survey (2023) reporting that 73.1% of employed persons were engaged in self-employment or farming activities while a much smaller proportion (22.2%) were engaged in wage employment in Q4 2022. The establishment of more graduate-owned businesses does not necessarily result in the creation of productive employment or a diversified export portfolio. The question that is more policy relevant is whether graduate enterprises can persist, create jobs and be productive in non-oil activities (Aderemi et al., 2023; Awe et al., 2023; Young, 2024).

In this policy landscape entrepreneurship education is an emerging higher education intervention in Nigeria. National policy, through the integration of compulsory entrepreneurship courses in the university curriculum, has been aimed at putting into place the opportunity recognition, business development and managerial skills (Oyinlola et al., 2024). The quality of implementation, the practice, and the linkages between universities and industries are not uniform, however (Olu et al., 2023; Oyinlola et al., 2024). It is thus difficult to accept the notion that exposure to the course is enough. The findings from Nigeria further indicate that impact on entrepreneurial attitudes could be lessened or different over time, highlighting the importance of separating the impact of curriculum exposure from the actual post-graduation outcomes (Egbetokun et al., 2024).

Another empirical deficit in entrepreneurship education research is that it focuses mostly on intention, attitude or self-efficacy, but not actual outcomes in the labour market. It is generally found that there is positive, although small, correlation between entrepreneurial intention and psychological factors in entrepreneurship in the general context of the literature on the subject, which is expressed in the form of a meta-analysis (Martínez-Gregorio et al., 2021; Zhang et al., 2022). But, intention is not business entry, business entry is not employment creation. Employability, entrepreneurial outcomes and enterprise capability have been more in the spotlight in recent years, but are not synonymous and dependent on the context (Arendt et al., 2025; Decker-Lange et al., 2024; Simba et al., 2025). This distinction is particularly relevant in Nigeria, where a high proportion of the population are self-employed and there are curricular differences in both the level and type of instruction, and external factors beyond the educational system which limit teaching.

This study fills that void with an observational cohort of Nigerian university and polytechnic graduates who were surveyed at four points in time around the National Youth Service Corps (NYSC) programme. Data were originally collected longitudinal, but the principal analysis conducted is not a repeated measures longitudinal analysis. Instead, degree-level entrepreneurship-education exposure measured at baseline is related to endline labour-market outcomes. The study does not however make the claim that the four waves of the data were fully utilised by virtue of growth curve modelling or fixed effects modelling or other modelling of the longitudinal data. It aims to provide an estimate of adjusted associations between

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entrepreneurship education at the degree level and three well-defined outcomes following NYSC, which are: paid employment, business ownership, and being an employer among entrepreneurs. Economic diversification is not studied as a policy implication of enterprise participation in different sectors, but rather as an interpretation arising from the study of enterprise participation across sectors.

Theoretical Framework and Hypotheses

There is a main mechanism for why entrepreneurship education is expected to have an impact, and that is through human capital theory. Education can be seen as an investment that leads to an increase in productive knowledge and skills that can, in turn, lead to returns in the labour market (Becker, 1964). In entrepreneurship, the appropriate returns might be opportunity identification, fund management principles, planning, market evaluation, sources coordination and managerial ability. This mechanism is supported by the evidence of entrepreneurial competencies being related to enterprise performance; however, it does not demonstrate that a compulsory course necessarily leads to the development of entrepreneurial competencies (Liu et al., 2024; Soomro et al., 2025).

The association between the same exposure and paid work/employer status is not entirely due to human capital. The signaling theory also suggests that education can influence paid employment through signaling and valued credential/training signals (Spence 1973). If the exposure is widespread or if employers have limited access to perceive the quality of the entrepreneurship course, then a compulsory entrepreneurship course will offer only a weak differentiating signal. The second qualification is added by institutional theory, which speaks of the conversion of education to action in a broader institutional context of finance, regulation, infrastructure, market demand and institutional support (North, 1990). So, ability to enter into business could be largely dependent on the opportunities beyond the curriculum, whereas post-entry employer status could be more closely associated with organisational and managerial ability. In this latter case, the proposition is not directly assessed in the present study, due to the lack of managerial mechanisms being measured.

The framework created is split into three outcomes instead of having them form one. Paid employment is defined as the condition of having a paid job as an employee; business ownership is defined as the condition of having a business; and employer status is defined as whether an endline business owner has at least one employee other than the respondent. The hypotheses are associational as entrepreneurial exposure to entrepreneurship education was not randomly allocated.

H1: Degree-level entrepreneurship education is significantly associated with graduates' likelihood of paid employment after NYSC.

H2: Degree-level entrepreneurship education is significantly associated with graduates' likelihood of business ownership after NYSC.

H3: Degree level entrepreneurship education is strongly related to being an employer among the graduates who are business owners after NYSC.

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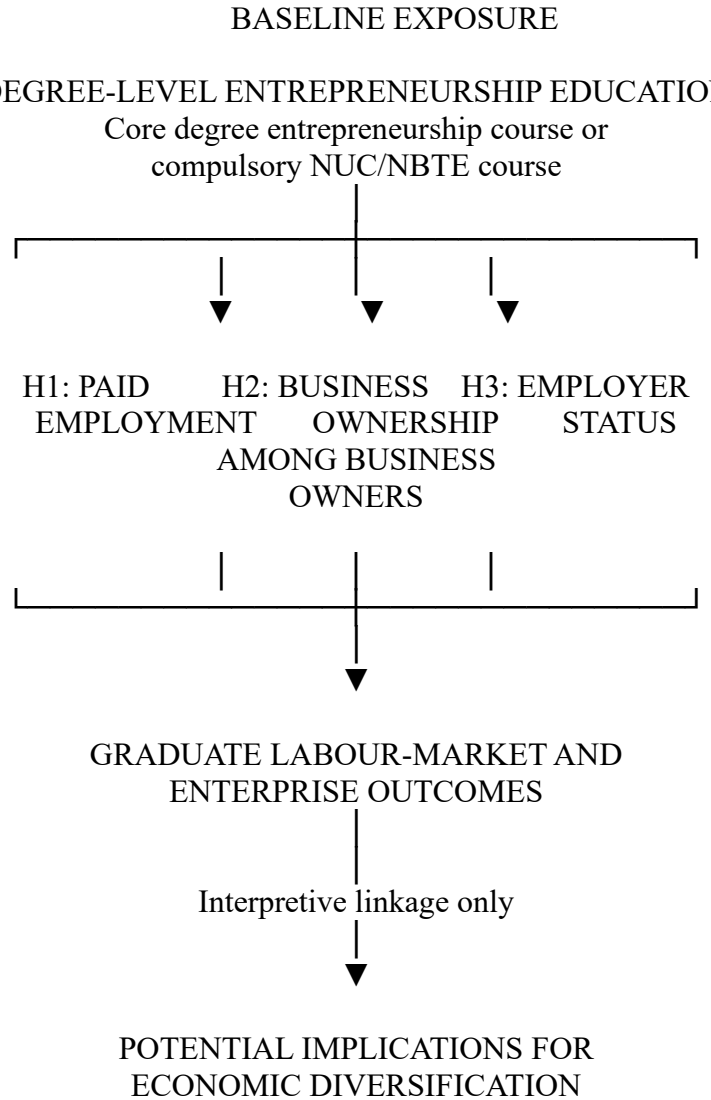
Figure 1. Revised Analytical Framework



Note. The focus exposure is entrepreneurship education. The models used to analyse paid work and business ownership/employer status are outcome-specific. Secondary analyses are the number of new-enterprises and employees. While the relationship between graduate labour-market and enterprise outcomes and economic diversification is a descriptive rather than a causal pathway at the individual level or macro level.

Subjects/Materials and Methods

Study Design and Data Source

This study did a secondary observational analysis of the *Pooled Longitudinal Dataset on the Assessment of an Apprenticeship Based Entrepreneurship Intervention in Nigeria* (Olofinyehun & Egbetokun, 2023). The following methodological publication outlines four surveys conducted

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at approximately six-month intervals: baseline (November 2020), Midline 1 (April 2021), Midline 2 (October 2021) and endline (April 2022) (Olofinyehun et al., 2023). The pre-service characteristics and education exposure were measured at baseline while the post-service employment and enterprise outcomes were measured at endline. The temporal ordering eliminates concurrent measurement ambiguity, however it is not a causal design for entrepreneurship education but is rather rather a reduction.

Setting, Population and Analytical Samples

The source population was the university and polytechnic graduates who were deployed to serve their compulsory military service in the Batch B 2020 in 10 states from 5 geopolitical zones. Only two states were sampled per zone with the exception of the North-East due to its insecurity (Olofinyehun et al., 2023). There were 21,940 individual respondents in the pooled data set. Baseline included 9,304 respondents. There were 1,300 endline records in the statistical file, with 19 endline records missing state and not linked to baseline. The linkage of respondents from baseline to endline then yielded 1,271 respondents with 13.66% retaining and 86.34% attrition. Twenty-seven respondents were not able to be classified, and a descriptive analytical sample of 1,244 was created. Analysis of data are complete-case analyses, which were further reduced by missingness in sample size across the models.

Measures and Operational Definitions

The baseline self-report was used to create the degree-level entrepreneurship education. EE = 1 if a respondent declared that he or she have taken any course that is considered a core entrepreneurship course or (b) a Compulsory Entrepreneurship Elective under NUC/ NBTE arrangements in the degree programmes studied. If the respondent indicated that they had not taken an entrepreneurship course before or indicated that they had taken one before but explicitly noted none of the core or required degree level entrepreneurship course, EE = 0. One-off events and privately arranged training were not considered as the focal exposure, nor were optional school electives. This binary operationalisation has the advantage of being more specific on the construct than "any training" but fails to capture course duration, pedagogy, intensity, quality and competence acquired and is thus susceptible to exposure misclassification.

For the purpose of this analysis, paid employment (H1) was denoted as 1 if the endline respondent reported having a paid job at the time of the survey (and not a business) and 0 if they did not. Business ownership (H2) was coded 1 if the respondent had an endline business, and 0 if he/she did not have one. Employer status (H3) criteria was applied in the endline business owners and meant that they had at least one other person who worked for them. Endline business ownership was a secondary transition outcome limited to respondents with no business ownership at baseline, and a measure of entry between baseline and endline.

Among all the endline business owners the number of employees was considered as a secondary outcome. Owners that reported no employees were assigned a count of 0 and those who reported employees had their positive count of employees recorded. This prevents analysis of just the positive counts as a regular untruncated count process. In count modelling, the previously mentioned value of 100,000 has been considered as implausible and discarded. One all-graduate sensitivity outcome (job-creating business) is coded as 1 if a graduate was both the owner of an

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endline business and employed at least one other worker; coded as 0 otherwise. The sensitivity analysis is not restricted to post-exposure business ownership, but does include business entry and employer status as a composite outcome.

To account for prespecified covariates, age, sex, academic discipline, class of degree, background in business among the parents, and baseline business ownership and state were included in H1 and H2. State was modelled using fixed effects. Due to the smaller size of the employer-status subgroup and the few outcome cells within the academic-discipline and degree-class dimensions for this subgroup, the conservative H3 model employed a "parsimonious" adjustment set of age, sex, parental business background, and baseline business ownership and state. The discipline and degree class was added to the expanded H3 and this specification was kept for a sensitivity analysis.

Missing Data, Attrition and Weighting Diagnostics

No imputation was performed for exposure and primary outcomes. For the purpose of the models, the main ones are H1 and H2, complete cases of the specified covariates were then used (N = 970; 78.0% of the 1,244 exposure-classified cohort). The H3 model was conservative (404 of 510 business owners, 79.2%); and the expanded H3 model was used with 398. For the 1,244-person cohort, less than 2% had a missing baseline age, less than 2% had a missing parental business background, 5.9% had a missing baseline business ownership and less than 2% had a missing other included covariate.

A pragmatic expanded-sample sensitivity analysis was performed where missing categorical covariates were explicitly coded as missing, and missing age was coded as the cohort median, but there was an age-missing indicator. This analysis is performed to determine whether the complete-case restriction has a significant effect on the focal coefficient, but is not intended to be a stand-in for multiple imputation.

Attrition weighting was estimated from respondents with complete information on the exposure and the covariates (N = 6,908). A logistic response model was developed for predicting baseline-to-endline retention from entrepreneurship education, age, sex, discipline, degree class, parental business background, baseline business ownership and state. The area under the curve (AUC) in the model was .653. The mean of the inverse-probability retention weights among the 970 retained complete cases was 1.003 with a 99th percentile equal to 2.168, a maximum equal to 12.057, and an effective sample size of about 506 cases. The absolute maximum standardised difference between the weight sample and the baseline target decreased from .285 prior to the weighting to .055 following the weighting. The results did not change with trimming at the first and 99th percentiles.

Within the 970 cases for which all of the degree-level entrepreneurship education controls are present, propensity scores are estimated using the same set of H1/H2 covariates plus state fixed effects. The maximum value of inverse-probability exposure weights was 3.291 and the effective sample size was around 865 for the stabilised inverse-probability exposure weights. The maximum absolute standardised mean difference (SMD) was reduced from .238 pre-weighting to .039 post-weighting across 31 covariate/dummy contrasts, and none of which exceeded .10.

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Weighting does not remove unmeasured confounding (Chang & Stuart, 2022) and these diagnostics are useful to see that the balance on measured covariates is improved.

Statistical Analysis

The cohort and outcomes were described using descriptive statistics. Multivariable logistic regressions were used to determine H1 and H2, with degree-level entrepreneurship education as the key exposure of interest, prespecified covariates and state fixed effects. The parsimonious logistic specification outlined above was used by H3. Odds ratios (ORs), 95% confidence intervals (CIs) and two-sided p values are presented. Where noted, McFadden pseudo-R^2 statistics are considered only descriptive fit statistics and not percentages of variance in the outcome explained.

Stabilised attrition weighting, propensity-score weighting, the expanded-sample missingness sensitivity analysis and state-clustered sandwich standard errors were all included in the robustness analyses. The latter are reported with caution as there were only 10 state clusters. Also compared was the expanded H3 model with the parsimonious model and with the previously prespecified non-parametric bootstrap, with the latter's confidence interval for the expanded H3 coefficient crossing the null.

The previous exploratory multinomial pathway and moderation analyses were eliminated from the primary inferential design since they did not need to test H1-H3 and added further assumptions, such as independence-of-irrelevant-alternatives assumption in multinomial logit, that were not necessary for this primary research question, and did not enhance the answer to the primary research question.

Negative-binomial regression was used to model numbers of employees for all business owners. The average number of employees was calculated as 0.89, the variance of 3.61 does not allow for a Poisson specification, the estimated dispersion parameter was 3.713 ($p < .001$) favoring a conservative model (Kenne Pagui et al., 2022). The threshold for statistical significance was set at $\alpha = .05$, however, effect size, confidence intervals and consistency on sensitivity analyses were given priority when interpreting the results. The analyses were replicated in Python using the packages: pandas and statsmodels.

RESULTS

Sample Profile and Descriptive Outcomes

A total of 1,244 linked graduates were classified into the categories of exposure. Of these, 43.3% (539) had no degree-level entrepreneurship education and 56.7% (705) had degree-level entrepreneurship education. The mean age of respondents with valid data was 25.63 years (SD = 2.31). The paid employment rate among endline graduates was 27.0%, while 41.0% of them were involved in business. The 150 business owners (29.4%) who were employer/employees had at least one employee other than themselves. The difference in the descriptive categories between owner of a business and an employer is significant, as most businesses owned by the graduates had no other employee by the end line.

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Table 1. Sample Characteristics and Principal Outcomes

Variable	n	% / Mean (SD)
Final analytical cohort	1,244	100.0
Age, years	1,107	25.63 (2.31)
Male	689	55.7
Female	548	44.3
Degree-level entrepreneurship education	705	56.7
No degree-level entrepreneurship education	539	43.3
Paid employment	336	27.0
Business ownership	510	41.0
Employer among business owners	150/510	29.4
Full-time employment among paid employees	238/336	70.8
Pension benefit among paid employees	106/336	31.5
Health-insurance benefit among paid employees	100/336	29.8

Note. Percentages are based on the appropriate valid denominator. Age n is the age cohort of the cohort that has been exposed.

H1: Paid Employment

H1 was not an option. In the prespecified adjusted model (N = 970), degree-level entrepreneurship education was not associated with paid employment (OR = 1.073, 95% CI [0.783, 1.470], p = .661). However, state-clustered inference was not significant (p = .489). Propensity-weighted and expanded-sample missingness sensitivity estimates were also non-significant, as were attrition-weighted estimates (Table 2). It is not a failure to find a strong link in this particular population but rather an indication that there is no employment measurable value from entrepreneurship education in other groups or via other means.

H2: New-Enterprise Seeds

H2 was not supported. In the full adjusted model (N = 970; OR = 1.236, 95% CI [0.931, 1.642], p = .143), degree-level entrepreneurship education was positively but not significantly associated with endline business ownership. This conclusion was not affected by state-clustered, attrition-weighted, propensity-weighted and expanded-sample sensitivity estimates.

For those individuals who were not business owners at baseline, the conservative new entry model also did not show a statistically significant association (N = 477; OR = 1.181, 95% CI [0.783, 1.781], p = .428). Therefore, there is no strong evidence that the binary degree-level exposure predicted entrance into business in the window of the study from the current ownership group or the baseline-non-owner transition analysis.

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H3: Employer Status and Employment Scale

A positive but statistically marginal pattern resulted from H3. Among the conservatives parsimonious model (N = 404), entrepreneurship education was statistically associated with an increased odds of being an employer, but the confidence interval contained the null (OR = 1.561, 95% CI [0.943, 2.584], p = .083; average marginal effect approximately 8.0 percentage points). State-clustered inference was also non-significant at the 5% level (OR = 1.561, 95% CI [0.968, 2.517], p = .067), and attrition weighting produced OR = 1.593 (95% CI [0.918, 2.765], p = .098). Propensity weighting (OR = 1.728, 95% CI [1.016, 2.937] p = .043) was nominally significant, but not consistently strong evidence.

The larger N (N = 398; OR = 1.755, 95% CI [1.006, 3.061], p = .047) reproduced the previous estimate, with the additional parameters of academic discipline and degree class but unstable outcome cells that resulted in a non-parametric bootstrap confidence interval that crossed 1 (approximately 0.968-3.617). The expanded-sample missingness sensitivity model also failed to reach conventional significance (N = 510; OR = 1.500, 95% CI [0.948, 2.374], p = .083). H3 is treated as not confirmed (under the conservative primary specification).

The signal is defined using two secondary analyses. An all-graduate outcome with a code of 1 if the graduate both owned a business and had another worker employed in the business was associated positively in the full complete case model (N = 970; OR = 1.731, 95% CI [1.076, 2.786] p = .024). This does not limit the sample to endline business owners, but is a combined measure of business entry and employer status and thus measures a different measure than H3.

Second, when the number of employees was defined for all business owners, including a zero for business owners who explicitly stated that they employed no employees, the negative-binomial model failed to demonstrate a statistically significant entrepreneurship-education association (N = 404; IRR = 1.612, 95% CI [1.041, 2.506], p = .032). The evidence therefore does lend greater support to a possible extended-margin pattern than to the amount of employment, but even in the extended-margin interpretation it is hypothesis generating.

Table 2. Primary Hypothesis Tests and Reviewer-Focused Sensitivity Analyses

Outcome/model	N	Estimate	95% CI	p	Key sensitivity evidence	Inference
H1 Paid employment	970	OR = 1.073	0.783-1.470	.661	Cluster p=.489; attrition OR=1.003, p=.989; PS OR=1.064, p=.699; missingness OR=1.062, p=.668	Not supported
H2 Business ownership	970	OR = 1.236	0.931-1.642	.143	Cluster p=.186; attrition OR=1.260, p=.134; PS OR=1.202, p=.210; missingness OR=1.070, p=.595	Not supported
New-enterprise entry, baseline non-owners	477	OR = 1.181	0.783-1.781	.428	Parsimonious transition model	Not significant

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H3 Employer status, parsimonious	404	OR = 1.561	0.943-2.584	.083	Cluster p=.067; attrition OR=1.593, p=.098; PS OR=1.728, p=.043	Not supported at .05; suggestive
H3 Expanded full-control sensitivity	398	OR = 1.755	1.006-3.061	.047	Bootstrap CI approximately 0.968-3.617; missingness sensitivity p=.083	Bootstrap-sensitive
Job-creating business, all graduates	970	OR = 1.731	1.076-2.786	.024	Composite outcome avoids conditioning only on business owners	Secondary sensitivity
Employee count among business owners	404	IRR = 1.484	0.893-2.468	.128	NB dispersion α=3.713, p<.001	Not significant

Note. IRR = incidence rate ratio; OR = odds ratio; CI = confidence interval; PS = propensity score weighting. These are state-clustered estimates and are not definitive small-cluster inference because they use only ten state clusters and are therefore sensitivity checks.

Selection and Weighting Diagnostics

Interpretation is an issue of severity of attrition. Of the 9304 baseline respondents, 1271 were linked to endline, meaning that 8033 baseline respondents were not observed at endline. Baseline exposure to entrepreneurship education was not randomly distributed across endline responses in the complete baseline, though it was related to the retention (OR = 1.202, p = .012).

The observed covariate balance significantly increased with weighting, and the effective sample size decreased to approximately 506 due to information loss from the differential retention. Propensity weighting also resulted in an improved balance of exposure groups, but neither weighting technique takes into account unmeasured factors that could explain retention or exposure.

Table 3. Attrition, Missingness and Weighting Diagnostics

Diagnostic	Result	Interpretive implication
Baseline to endline linkage	1,271/9,304 retained (13.66%); 86.34% attrition	Major threat to representativeness and precision
H1/H2 complete-case sample	970/1,244 (78.0%)	Model-specific complete-case restriction
H3 parsimonious sample	404/510 business owners (79.2%)	Smaller conditional sample; sparse cells require caution
Attrition response model	N=6,908; AUC=.653	Measured baseline factors predict retention to a modest extent

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Attrition-weight balance	Max absolute standardised difference .285 to .055	Improved balance on measured baseline covariates
Attrition-weight ESS	Approximately 506 of 970 retained complete cases	Weight variability reduces effective information
Propensity-score balance	Max absolute SMD .238 to .039; none >.10	Good measured-covariate balance after weighting
Propensity-weight ESS	Approximately 865 of 970	Moderate information loss
State clustering	10 state clusters	Cluster-robust SEs treated as sensitivity only

Sectoral Pattern and Economic-Diversification Context

Graduate owned enterprises reported in various agro-allied activities, food processing, ICT, education, construction, fashion, energy and other services. The previously calculated sectoral dispersion index was slightly larger for entrepreneurship-educated owners (1-HHI = .8413; normalised Shannon = .790) than for non-exposed owners (1-HHI = .8186; normalised Shannon = .776). These indices are non-numeric.

They fail to prove that entrepreneurship education brings about sectoral diversification and individual graduate records do not show any impact on sectoral GDP composition or export diversification. The macroeconomic linkage is thus maintained as policy context: Nigeria's production structure is much lower in petroleum than its merchandise exports; and diversified, employment-generating enterprises can potentially contribute to the broader non-oil activity in the future (Awe et al., 2023; Okonta et al., 2024; Young, 2024).

Discussion

Principal Findings

The new analysis gives three conclusions. Second, the association between entrepreneurship education and paid employment was weak and did not hold true for every category of entrepreneurs.Third, entrepreneurship education is not strongly linked to having a paid job after NYSC. Secondly, it did not strongly relate to the existing business ownership or new enterprise creation among the baseline non-owners. Third, the coefficient for employer status was always positive in sign, and was quite sensitive to model specification, weighting, missing data, and bootstrap inference.

It is not that entrepreneurship education has been demonstrated to lead graduates to become employers, but that there is a possible post-entry employer signal in the data that warrants further testing using more precise measurement and retention of graduates.

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Paid Employment and Business Entry

The results of the H1 are in line with the idea that entrepreneurial human capital and conventional employability are linked but different. While communication, initiative and problem-solving skills can be developed through entrepreneurship education, employment requires an employer that is willing to hire, a recruitment process that is receptive, and relevant qualifications and institutional environment (Decker-Lange et al., 2024). The above data are not a measure of these pathways. Therefore, the null association should not be interpreted as an assertion that entrepreneurship education does not help in employability; rather, it suggests that the binary level of exposure to entrepreneurship education (degree level) was not associated with realised paid employment in the adjusted cohort models.

The H2 outcome also warns against making an assumption of a straight on to start-up sequence. The intent to enter into a programme is the context in which the evidence is typically situated in a meta-analysis and the effects are dependent on programme design and context (Martínez-Gregorio et al., 2021; Zhang et al., 2022). The implementation of the strategy and exposure to it in practice, as evidenced in Nigeria also, is not uniform (Olu et al., 2023; Oyinlola et al., 2024). Possible constraints are finance, market conditions and institutions but were not directly estimated in the current study as mediators. They should therefore be considered as context explanations, to be tested in future studies, not as explanations of the null H2 estimate.

Employer Status as a Hypothesis-Generating Signal

The pattern for Employer is of particular interest because it uncouples actions to enter the business from actions to employ people. Human-capital theory indicates that planning, coordination, and managerial skill might be more important when the business is established, while institutional features might be more important in determining whether or not entry actually takes place. This is plausible because studies have shown that there is a link between entrepreneurship education or entrepreneurial competence and enterprise performance (Ayatse, 2024; Liu et al., 2024; Soomro et al., 2025).

In the current study, however, these competencies are not measured as mediators and the revised H3 estimate is not conventionally significant in the conservative model. The mechanism is thus still a speculative explanation, rather than a known causal pathway.

Another consideration is Selection. Business ownership is itself an endline state, and can thus be a source of selection bias or collider bias if entrepreneurship education and unmeasured determinants affect business ownership. The sensitivity of the all-graduate job-creating-business does not have that restriction and was still positive but, of course, the estimand is different, incorporates entry and employer.

The findings, combined with the non-significant employee-count model, confirm the need for continued research on the effects of entrepreneurship education on the extensive margin of employment creation but do not warrant any claims that entrepreneurship education has been shown to have enterprise-scaling impacts.

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Policy and Economic-Diversification Implications

Policy implications ought to be more specific than a generic prescription for entrepreneurship education as a solution to graduate unemployment. The most defensible suggestion is to consider the quality of the curriculum and the post-entry skills of the students and not just the completion of the course. Monitoring of the programme may be through enterprise projects, mentoring, financial readiness, market linkages, venture survival, employer transition, employee retention, and job quality.

Such policies would provide some indication of whether education produces useful skills even if it is not directly associated with entry to business. This is in line with the evidence that the outcomes of entrepreneurship education are influenced by pedagogy, institutional context, and gained competencies (Oyinlola et al., 2024; Simba et al., 2025).

The study does not quantify the national economic diversification, export transformation or SDG 8 progress. The individual-level models can't isolate a micro-to-macro causal effect; however, the graduate-firm-level models might be relevant for other sectors, aside from the oil industry. Therefore, the sectoral breadth in the cohort should be considered as descriptive context and a possible avenue for further research but not evidence of entrepreneurial education changing the structure of the Nigerian economy. Similarly, being an employer does not mean a decent job, since wages, contracts, working time, and working conditions were not examined.

Limitations

There were a number of significant limitations to the study. Most severe is attrition: 86.34% of baseline respondents did not link to endline. However, even though attrition weighting adjusted for imbalance on measured baseline variables, there is no way to reconstruct information on unmeasured differences between retained and lost respondents and the diminution of the effective sample size is a reminder of the information lost.

Second, the cohort is not statistically representative of all those who have graduated from schools in Nigeria. It consists of an observational sample of NYSC across ten states and is not impacted on by the North-East or age based exemption and involves the impact of migration and traceability due to NYSC mobilisation.

Third, entrepreneurship education is a dichotomous self-reported exposure; that is, it doesn't reflect quality of courses, length of exposure, pedagogy used, assessment, and the content or competence gained.

Fourth, because of the observational design, there is residual and unmeasured confounding even after adjustment for the covariates and weighting.

Fifth, complete-case estimation may lead to bias in the case of informative missingness, and this is lessened, but not eliminated, by the expanded-sample sensitivity analysis.

Sixth, employer status is dependent on endline business ownership, and is subject to post-exposure selection, the all-graduate composite sensitivity can compensate for this to a certain degree, but it is not a direct measure of employer status.

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Seventh, the outcome of an employee count is crude and is not on the same basis as full-time equivalents, wages, contracts, survival or job quality.

Lastly, no measure of incomes, firm survival to endline, productivity, profits, use of finance or national diversification outcomes are measured. The results should therefore be generalised to the sample of the NYSC cohort only, and interpreted as associations rather than cause.

CONCLUSION

This study uses baseline entrepreneurship education exposure and endline labour-market outcomes of a four-wave cohort of the NYS, and doesn't find strong evidence of a relationship between entrepreneurship education at the degree level and paying work or business ownership. The positive association with employer status is less robust than suggested in the previous manuscript: Although there is no statistical support in the conservative primary model, the signal is variable across robustness specifications, and some sensitivity analyses continue to show a positive signal. There wasn't a significant relationship between entrepreneurship education and number of employees in business owners either. The right conclusion is thus conservative. The analysis in this study does not provide evidence of a scaling mechanism nor of a causal impact on job creation for degree-level entrepreneurship education.

The result provides supporting evidence for further investigation of curriculum quality and post entry enterprise support such as mentoring, financial readiness, access to markets, to venture survival and job quality for policy. The findings suggest only a micro level policy implication for economic diversification – the development of stronger graduate enterprises can complement the spread of non-oil economic activities; there is no measure or evidence of impact on Nigeria's aggregate diversification.

References

Aderemi, T. A., Opele, A. M., Okoh, J. I., & Al-Faryan, M. A. S. (2023). An econometric analysis of small- and medium-scale enterprises and employment creation in Nigeria. *Managerial and Decision Economics, 44*(3), 1624–1633 https://doi.org/10.1002/mde.3770

Arendt, K. M., Christensen, B. T., Jensen, V. M., Rangvid, B. S., & Bille, T. (2025). Beyond entrepreneurship education: The long-term impact of higher education teaching models on new venture creation. *International Journal of Entrepreneurial Behavior & Research, 31*(11), 26–45. https://doi.org/10.1108/IJEBR-02-2024-0174

Awe, O. O., Musa, A. P., & Sanusi, G. P. (2023). Revisiting economic diversification in Africa's largest resource-rich nation: Empirical insights from unsupervised machine learning. *Resources Policy, 82*, 103540. https://doi.org/10.1016/j.resourpol.2023.103540

Ayatse, F. K. (2024). Entrepreneurship education and performance of SMEs in the manufacturing sector of North Central Nigeria: Evidence from primary data analysis. *International Journal of Research and Innovation in Social Science, 8*(11), 2620–2642. https://doi.org/10.47772/IJRISS.2024.8110202

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. University of Chicago Press.

Chang, T.-H., & Stuart, E. A. (2022). Propensity score methods for observational studies with clustered data: A review. *Statistics in Medicine, 41*(18), 3612–3626. https://doi.org/10.1002/sim.9437

Decker-Lange, C., Lange, K., & Walmsley, A. (2024). How does entrepreneurship education affect employability? Insights from UK higher education. *International Journal of Entrepreneurial Behavior & Research, 30*(5), 1249–1269. https://doi.org/10.1108/IJEBR-08-2023-0856

Egbetokun, A., Olofinyehun, A., & Adelowo, C. (2024). Built to last? The long-term impact of entrepreneurship education on entrepreneurial attitude. *Entrepreneurship Education, 7*, 41–66. https://doi.org/10.1007/s41959-024-00114-9

Kenne Pagui, E. C., Salvan, A., & Sartori, N. (2022). Improved estimation in negative binomial regression. *Statistics in Medicine, 41*(13), 2403–2416. https://doi.org/10.1002/sim.9361

Liu, F., Yang, G., & Singhdong, P. (2024). A moderated mediation model of entrepreneurship education, competence, and environmental dynamics on entrepreneurial performance. *Sustainability, 16*(19), 8502. https://doi.org/10.3390/su16198502

Martínez-Gregorio, S., Badenes-Ribera, L., & Oliver, A. (2021). Effect of entrepreneurship education on entrepreneurship intention and related outcomes in educational contexts: A meta-analysis. *The International Journal of Management Education, 19*(3), 100545. https://doi.org/10.1016/j.ijme.2021.100545

National Bureau of Statistics. (2023). *Nigeria labour force survey Q4 2022 & Q1 2023*.

National Bureau of Statistics. (2025a). *Rebasing of gross domestic product*.

National Bureau of Statistics. (2025b). *Foreign trade statistics report Q4 2024*.

North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge University Press.

Okonta, P. O., Mobosi, I. A., & Nwokocha, V. C. (2024). Development of entrepreneurial firms in emerging economies for economic diversification: An insight from Nigeria. *Journal of the Knowledge Economy, 15*(4), 20778–20796. https://doi.org/10.1007/s13132-023-01611-3

Olofinyehun, A., & Egbetokun, A. (2023). *Pooled longitudinal dataset on the assessment of an apprenticeship-based entrepreneurship intervention in Nigeria* (Version 2) [Data set]. Mendeley Data. https://doi.org/10.17632/x7v3gd2wm3.2

Olofinyehun, A., Adeyeye, J., Egbetokun, A., Olomu, M., Oluwadare, J., Sanni, M., & Orisadare, M. (2023). Pooled longitudinal dataset on the assessment of an apprenticeship-based entrepreneurship intervention in Nigeria. *Research Data Journal for the Humanities and Social Sciences, 8*, 1–48. https://doi.org/10.1163/24523666-bja10031

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Olu, J. F., Ujah, J. S., & Abuh, P. A. (2023). Entrepreneurship education in Nigerian universities: A departure from reality. *IAR Journal of Entrepreneurship, Innovation & Design Thinking, 4*(1), 1–9. https://doi.org/10.47310/iarjeidt.2023.v04i01.001

Oyinlola, M., Kolade, O., Okoya, S. A., Ajala, O., Adefila, A., Adediji, A., Babaremu, K., Tijani, B., Adejuwon, J., Wambui, F., & Akinlabi, E. T. (2024). Entrepreneurship and innovation in Nigerian universities: Trends, challenges and opportunities. *Heliyon, 10*(9), e29940. https://doi.org/10.1016/j.heliyon.2024.e29940

Simba, A., Tajeddin, M., Jones, P., & Rambe, P. (2025). A disaggregated view of soft skills: Entrepreneurship education systems of Africa. *Journal of Small Business Management, 63*(2), 786–818. https://doi.org/10.1080/00472778.2024.2356596

Soomro, R. B., Memon, S. G., & Soomro, M. (2025). Impact of entrepreneurial knowledge, skills, and competencies on MSME performance: An evidence from a developing country. *Asia Pacific Journal of Innovation and Entrepreneurship, 19*(1), 42–72. https://doi.org/10.1108/APJIE-04-2023-0071

Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics, 87*(3), 355–374. https://doi.org/10.2307/1882010

Young, A. O. (2024). Intensive and extensive margins of export diversification as strategies for sustainable economic growth: Evidence from the Nigerian economy. *Foreign Trade Review, 59*(2), 187–224. https://doi.org/10.1177/00157325221145397

Zhang, W., Li, Y., Zeng, Q., Zhang, M., & Lu, X. (2022). Relationship between entrepreneurship education and entrepreneurial intention among college students: A meta-analysis. *International Journal of Environmental Research and Public Health, 19*(19), 12158. https://doi.org/10.3390/ijerph191912158

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Strategies to Enhance Research and Development Collaboration Between Universities and Manufacturing Industries in Borno State, Nigeria: An Empirical Analysis

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DOI : https://doi.org/10.5281/zenodo.22904592

Abstract
This research looked into different ways of strengthening Research and Development (R&D) partnerships between universities and manufacturing industries in Borno State, Nigeria. Collaboration between academic institutions and industry matters a great deal for economic diversification and building human capital, especially in a region trying to rebuild after years of conflict that have plagued the North Eastern states. The study adopted a survey design and applied two-way Analysis of Variance (ANOVA) to test four strategies; Policy Incentives, Infrastructure Development, Human Capital Development, and Technology Transfer and how each affected innovation output. Data came from 120 respondents drawn from universities and manufacturing firms in Borno State. Results showed: (a) strategy type had a statistically significant main effect on R&D innovation output ($F(3,112) = 75.66$, p < 0.001, $\eta^2 = 0.637$); (b) Technology Transfer recorded the highest mean ($M = 71.31$); (c) Human Capital Development ($M = 68.66$) also produced significantly higher innovation scores than Infrastructure Development ($M = 45.35$); (d) Policy Incentives scored $M = 53.39$; and (e) a significant interaction emerged between strategy type and institution type ($F(3,112) = 5.81$, $p = 0.001$, $\eta^2 = 0.049$), with manufacturing firms doing better than universities on Technology Transfer, whereas universities led on Human Capital Development. The study recommends setting up a innovation hub where new ideas can be incubated, developing proper internship schemes for students at all levels, and establishing patent protection offices to close the gap between academia and industry.

Keywords: Research & Development, University/Industry Collaboration, Manufacturing Industries, Borno State, ANOVA,

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Introduction

Links between higher education and industry have existed in virtually every country, and these connections rank among the most powerful engines of economic change in both developed and developing nations (Etzkowitz & Leydesdorff, 2020). In Nigeria, manufacturing accounts for roughly 9.2% of GDP and is running at only about 56.5% of installed capacity, so there is a clear need for stronger R&D ties between universities and manufacturers (Oyelaran-Oyeyinka, 2023). Borno State, located in Northeast Nigeria, presents a particularly interesting case. The state has suffered more than 16 years of disruption linked to insurgency and is now pursuing an ambitious reconstruction and economic recovery agenda led by various state agencies (UNDP, 2025). Manufacturing in Borno is still finding its feet again (Chankseliani & McCowan, 2021; Afolabi et al., 2024). The sector is made up largely of cottage and medium-sized enterprises involved in plastics, vegetable oil processing, grain milling, fruit processing, leather goods, and related activities (Borno State Investment Portal, 2023). The state government has set up a department with a focused industrial policy aimed at building a dynamic Micro, Small and Medium Enterprises (MSME) sector. This department is charged with making sure local agricultural raw materials are used effectively and with citing industries and production centres close to where raw materials can be found. The thinking behind this is straightforward: lasting industrial growth will not happen unless the state tertiary institutions and its emerging manufacturers work together meaningfully on R&D. Researchers in Nigerian universities face numerous obstacles (Iseolorunkanmi et al., 2021). Studies by Adebayo & Adesina (2020) and Ogunode, Johnson & Olatunde-Aiyedun (2022) have repeatedly found severe underfunding, poor research infrastructure, brain drain, and a mismatch between what academics study and what the country actually needs (Igwe et al., 2021; Nwajiuba et al., 2020). The National Universities Commission (2023) also noted that Nigeria spends less than 10% of its national budget on education, well below the 26% benchmark UNESCO recommends (Fasanmi, 2023; Ubogu & Itoro, 2023; Ibiteye & Awomoyi, 2023; Omodero et al., 2023; Jones-Esan, 2022; Osiobe & Mukoro, 2024; Egbeji & Ogbeche, 2024; Ogunode et al., 2023). In Borno, these problems are worsened by the aftermath of Boko Haram insurgency, which has destroyed public infrastructure worth over ₦3.6 trillion and displaced large numbers of skilled workers (ResearchGate, 2025).

The Triple Helix model of innovation—which captures the interplay among universities, industry, and government—offers a useful theoretical window for looking at how R&D collaboration works (Etzkowitz &Leydesdorff, 2020; Etzkowitz & Leydesdorff, 2000; Dutse et al., 2021; Alkali, 2021; Zhuang et al., 2021; Bologna et al., 2020). Edo & Nwonkwo (2025) observe that this framework has been attracting growing scholarly interest in Nigeria as a way to fix the gap between those who produce knowledge and those who use it economically (Dutse et al., 2021; Alkali, 2021; Okolie et al., 2021; Ehiobuche et al., 2022). Even so, there is little empirical works on which specific strategies most effectively strengthen university-industry R&D in post-conflict places like Borno State (Sassi & Mshenga, 2025; Rossoni et al., 2024; Shah & Gillen, 2024; Alli & Dada, 2023; Dutse et al., 2021)

This study therefore examined four R&D enhancement strategies—Policy Incentives, Infrastructure Development, Human Capital Development, and Technology Transfer—and tested how differently they influenced innovation output across universities and manufacturing firms in

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Borno State. A two-way ANOVA design was used, giving statistically backed findings that can guide both policy and practice.

The following hypotheses were developed and tested at the 0.05 significance level:

H_1: Policy incentives positively influence Research and Development innovation output.

H_2: Infrastructure development positively influences Research and Development innovation output.

H_3: Human capital development positively influences Research and Development innovation output.

H_4: Technology transfer mechanisms positively influence Research and Development innovation output.

H_5: There is a significant interaction effect between strategy type and institution type on R&D innovation output.

Problem Statement

Nigerian universities have long struggled to produce research that genuinely drives national economic progress. The difficulties are many and their effects vary. Frontiers in Research Metrics and Analytics (2021) lists them as lack of research funding, brain drain, absence of mentorship, insufficient training, and failure to pay hazard and publication allowances. The same source points out those researchers often dip into their own salaries to pay for research, conference travel, and journal publication. Ibrahim & Danjuma (2023) add that the consequences go beyond individual hardship to affect national development itself. When tertiary institutions cannot turn out applicable knowledge, manufacturers miss the innovative inputs they need to stay competitive. A damaging cycle sets in: underfunded research yields irrelevant results, which then discourages industry from investing in academic partnerships (Okolie et al., 2021; Ehiobuche et al., 2022; Otache, 2021; Nwajiuba et al., 2020; Iguodala & Enowoghomwenma, 2023; Ofem et al., 2024; Beshel et al., 2024).

Borno State manufacturing sector mirrors both the fragility and the promise of a post-conflict economy. According to the Borno State Investment Portal (2023), MSMEs dominate the sector and most lack advanced technology (Oyinlola et al., 2024; Ohanu et al., 2025). The main manufacturing activities are plastics, seed processing, grain milling, and fruit processing. The state government has put in place

R&D incentives such as a 10% investment allowance on depreciation of manufacturing plant, a 25% investment tax credit on capital spending for local spare-parts makers, and tax- deductible corporate donations to R&D institutions up to 10% of profits. Yet manufacturing investment in Nigeria fell by 46% in 2025, dropping from $1.43 billion to $773 million, and the sector share of total capital importation slid from 11.6% to 3.3% (BusinessDay, 2026).

Manufacturers blame rising production costs, poor infrastructure, and a difficult business climate (Onyebu, 2026). These macroeconomic pressures hit Borno hardest, since its infrastructure gaps are the widest. The Triple Helix model treats innovation as something that arises from ongoing interaction among universities, industry, and government (Etzkowitz & Leydesdorff, 2020).

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Under this model, universities move past their traditional teaching and basic-research roles to take on knowledge commercialization, technology transfer, and entrepreneurship. At the same time, industry picks up research functions, while government creates the policies, funding, and regulations that enable collaboration. Edo and Nwonkwo (2025) used the Triple Helix framework to study Nigerian tertiary institutions and pinpointed several measures for making partnerships work: setting clear collaborative goals, keeping communication open, building structured policy frameworks, running capacity-building programmes, and encouraging interdisciplinary research. Their analysis stressed that university-industry collaboration in Nigeria needs formal Memoranda of Understanding (MoUs), transparent decision-making, and dedicated funding streams. There have been some encouraging signs in Borno recently. In September 2025 the University of Maiduguri signed an MoU with the Fact Foundation to promote innovation, research, and sustainable development (UNIMAID, 2025). The partnership focuses on data- driven solutions, institutional capacity building, and laying groundwork for future innovations. These are early but important moves toward putting the Triple Helix model into practice in the Northeast. Oyelaran-Oyeyinka (2023) studied technology innovation in Nigerian manufacturing and flagged automation, artificial intelligence, blockchain-enabled supply chains, and renewable energy as technologies with transformative potential (Ohanu et al., 2025; Yakubu et al., 2020; Omeluzor et al., 2023; Ogunji et al., 2022; Theodorio et al., 2024). Early movers such as Dangote Industries, Nestlé Nigeria, and Guinness Nigeria have cut costs by 15–30% through strategic technology investments. Adoption is patchy, however, because of financing shortfalls, skill gaps, and disjointed policies. For Borno manufacturers, most of which are MSMEs, technology adoption barriers are even steeper. SMEDAN has teamed up with the Borno State government to support MSMEs through credit schemes, business support centres, industrial estates, and training programmes (Borno State Investment Portal, 2023; Oyinlola et al., 2024). Still, weaving university research capacity into these MSME support programmes remains underdeveloped (Cohen et al., 2025; Romero-Sánchez et al., 2024; Aldabbas & Pinnington, 2020).

Drawing on the literature, this study proposes a conceptual framework (Figure 3) in which R&D innovation output is shaped by four independent variables—Policy Incentives, Infrastructure Development, Human Capital Development, and Technology Transfer—with university-industry collaboration intensity acting as a mediator and government support as a moderator, all within the context of conflict recovery and security (Rossoni et al., 2024; Bui & Kikkawa, 2024; Sassi & Mshenga, 2025).

Methodology

Research Design

The study used a quantitative design and applied two-way Analysis of Variance (ANOVA) to examine how R&D enhancement strategies and institution type affect innovation output. The factorial design made it possible to look at both main effects and interaction effects between the two independent variables.

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Population and Sample for the Study

The target population included academic staff at the University of Maiduguri and managerial or technical staff from registered manufacturing firms in Borno State. Through purposive sampling, 120 respondents were chosen—60 from universities and 60 from manufacturing firms. Each respondent rated four R&D enhancement strategies, giving a balanced dataset with 15 observations for every strategy-institution combination.

Instrument for Data Collection

A structured questionnaire measured R&D innovation output on a 100-point scale covering four areas: (1) new product development, (2) process improvement, (3) patents and publications, and (4) technology commercialization. Three innovation-management experts validated the instrument, and a pilot test with 20 respondents produced a Cronbach alpha reliability coefficient of 0.87 (Iguodala & Enowoghomwenma, 2023; Ofem et al., 2024; Beshel et al., 2024).

Data Analysis

Data were analysed with two-way ANOVA, using strategy type (four levels) and institution type (two levels) as independent variables and innovation output score as the dependent variable. Tukey Honestly Significant Difference (HSD) test was used for post-hoc comparisons, and eta-squared (η^2) served as the effect-size measure. All tests were run at $\alpha = 0.05$.

RESULTS

Descriptive Statistics

Table 1 shows descriptive statistics for R&D innovation output scores by strategy type and institution type.

Table 1: Descriptive Statistics of R&D Innovation Output Scores

Strategy	Institution	N	Mean	SD	Min	Max
Policy Incentives	University	15	56.61	7.47	44.20	70.63
Policy Incentives	Manufacturing Firm	15	50.18	8.08	34.78	65.71
Infrastructure Development	University	15	43.86	7.64	30.21	55.31
Infrastructure Development	Manufacturing Firm	15	46.85	9.91	30.36	64.67
Human Capital Development	University	15	71.18	6.76	53.66	82.35

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Strategy	Institution	N	Mean	SD	Min	Max
Human Capital Development	Manufacturing Firm	15	66.15	8.27	49.10	77.52
Technology Transfer	University	15	67.25	7.22	52.65	83.09
Technology Transfer	Manufacturing Firm	15	75.38	6.58	64.76	92.24

Across the board, Technology Transfer posted the highest mean innovation score (M = 71.31, SD = 7.95), followed by Human Capital Development (M = 68.66, SD = 7.85), Policy Incentives (M = 53.39, SD = 8.31), and Infrastructure Development (M = 45.35, SD = 8.83). Universities scored slightly higher on Policy Incentives and Human Capital Development, while manufacturing firms did better on Technology Transfer and Infrastructure Development.

Two-Way ANOVA Results

Table 2 presents the two-way ANOVA results for the effects of strategy type and institution type on R&D innovation output.

Table 2: Two-Way ANOVA Results

Source	Sum of Squares	Df	F	p-value	η^2
Strategy Type	13,823.63	3	75.66	< 0.001	0.637
Institution Type	0.21	1	0.003	0.953	< 0.001
Strategy × Institution	1,062.36	3	5.81	0.001	0.049
Error	6,821.04	112	—	—	—
Total	21,707.24	119	—	—	—

$R^2 = 0.686$; Adjusted $R^2 = 0.666$; $F(7,112) = 34.92$, $p < 0.001$

Strategy type had a statistically significant main effect on R&D innovation output, $F(3, 112) = 75.66$, $p < 0.001$, $\eta^2 = 0.637$. This large effect size means strategy type alone explains about 63.7% of the variance in innovation output, giving strong evidence that R&D enhancement strategies differ markedly in effectiveness.

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Surprisingly, the main effect of institution type was not significant, $F(1, 112) = 0.003$, $p = 0.953$, $\eta^2 < 0.001$. Averaged across all strategies, universities and manufacturing firms did not differ significantly in overall innovation output scores.

More importantly, there was a statistically significant interaction between strategy type and institution type, $F(3, 112) = 5.81$, $p = 0.001$, $\eta^2 = 0.049$. This tells us that how well a given R&D strategy works depends on which type of institution is using it. Manufacturing firms scored higher on Technology Transfer (M = 75.38) than universities did (M = 67.25), while universities scored higher on Human Capital Development (M = 71.18) than manufacturing firms (M = 66.15).

Post-Hoc Analysis

Tukey's HSD post-hoc test was carried out to look at pairwise differences among strategy types. The results appear in Table 3.

Table 3: Tukey HSD Post-Hoc Comparisons

Comparison	Mean Difference	p-value	95% CI
Human Capital vs. Infrastructure Development	23.31	< 0.001	[17.76, 28.86]
Human Capital vs. Policy Incentives	15.27	< 0.001	[9.72, 20.82]
Human Capital vs. Technology Transfer	–2.65	0.600	[–8.20, 2.90]
Infrastructure vs. Policy Incentives	–8.04	0.001	[–13.59, –2.49]
Infrastructure vs. Technology Transfer	–25.96	< 0.001	[–31.51, –20.41]
Policy Incentives vs. Technology Transfer	–17.92	< 0.001	[–23.47, –12.37]

Every pair wise comparison was significant except Human Capital Development versus Technology Transfer ($p = 0.600$). Infrastructure Development scored significantly lower than all other strategies, while Technology Transfer and Human Capital Development turned out to be the most effective, with no statistically significant gap between them.

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Discussion

The results make plain that R&D enhancement strategies do not all deliver the same results; their impact on innovation output varies widely. Technology Transfer and Human Capital Development proved the strongest, both posting mean innovation scores above 68, whereas Infrastructure Development and Policy Incentives lagged significantly behind. This fits with the broader innovation-systems literature, which stresses that spreading knowledge and building people capabilities are more directly tied to innovation than physical infrastructure or regulatory incentives on their own (Etzkowitz & Leydesdorff, 2020; Etzkowitz & Leydesdorff, 2000; Cohen et al., 2025; Sassi & Mshenga, 2025).

The weak showing of Infrastructure Development as an R&D strategy in this setting deserves attention. Infrastructure clearly matters for manufacturing competitiveness, yet the ANOVA results suggest that in Borno State infrastructure spending does not automatically feed into R&D innovation unless it is paired with knowledge-transfer mechanisms and skills programmes (Dutse et al., 2021; Alkali, 2021; Ohanu et al., 2025). This echoes Oyelaran-Oyeyinka (2023) finding that Nigerian manufacturers sink about 40% of operating costs into infrastructure without necessarily generating innovation spill over (Shi et al., 2020; Ohanu et al., 2025).

The significant interaction between strategy type and institution type ($p = 0.001$) stands out as one of the study most valuable findings. The pattern shows a kind of complementary specialisation: manufacturing firms shine on Technology Transfer, while universities hold the edge on Human Capital Development. This complementarity implies that Borno State will get the best R&D results from bilateral rather than one-sided strategies—policies that exploit what each institutional type does best (Alli & Dada, 2023; Sassi & Mshenga, 2025; Attah et al., 2026).

Manufacturing firms do better on Technology Transfer because they deal directly with production problems, market demands, and the pressure to commercialise. Firms in Borno that are thriving are plastics and food-processing sectors; they hold tacit knowledge about local raw-material properties, consumer tastes, and production constraints that universities simply do not have (Borno State Investment Portal, 2023; Bui & Kikkawa, 2024; Cohen et al., 2025). When technology transfer channels—licensing deals, joint research, consultancy arrangements—are opened, this tacit knowledge becomes a real asset for innovation (Cohen et al., 2025; Rossoni et al., 2024; Bui & Kikkawa, 2024; Shi et al., 2020; Dutse et al., 2021).

On the flip side, universities strength in Human Capital Development grows out of their core teaching and research missions. The University of Maiduguri, despite ranking 9,863rd globally on innovation metrics (Scimago, 2026), still retains substantial human-capital assets in agricultural sciences, engineering, and medicine—fields directly relevant to Borno manufacturing priorities (Ogunniran et al., 2024; Ohanu et al., 2025). Its recent MoU with the Fact Foundation (UNIMAID, 2025) illustrates how university-based human capital can be mobilised for innovation through structured partnerships (Okolie et al., 2021; Nwajiuba et al., 2020).

The non-significant main effect of institution type ($p = 0.953$) also carries policy weight. It indicates that neither universities nor manufacturing firms are intrinsically better at innovation; instead, each performs best in the right strategic setting. This undercuts arguments that favour one institutional type over the other and backs ecosystem approaches that nurture synergistic

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relationships (Zhuang et al., 2021; Bologna et al., 2020; Aldabbas & Pinnington, 2020; Dutse et al., 2021; Alkali, 2021; Madichie & Agu, 2023).

Set up a Borno State Innovation Hub to serve as a physical and institutional bridge between universities and manufacturing firms. Such hubs have worked elsewhere in Africa by cutting search costs, building trust, and supplying shared R&D infrastructure (Edo & Nwonkwo, 2025; Shah & Gillen, 2024; Rossoni et al., 2024). The hub should be sited to serve both the University of Maiduguri and the state emerging industrial clusters (Sassi & Mshenga, 2025; Shah & Gillen, 2024).

Redesign R&D tax incentives so they reward collaborative rather than solo research. Current incentives—including the 10% investment allowance on manufacturing-plant depreciation and the 25% tax credit for local spare-parts production—are centred on individual firms and do not explicitly encourage university-industry partnerships (Borno State Investment Portal, 2023; Jones-Esan, 2022; Osiobe & Mukoro, 2024; Egbeji & Ogbeche, 2024). A reshaped incentive scheme could offer bigger deductions for joint research projects, shared laboratory investments, and co-supervised graduate internships (Otache, 2021; Ehiobuche et al., 2022; Pitan & Muller, 2023).

Set up technology commercialization offices (TCOs) at the University of Maiduguri and other tertiary institutions in the state. TCOs act as boundary-spanning bodies that spot commercially viable research, protect intellectual property, and negotiate licensing deals with industry (Romero-Sánchez et al., 2024; Cohen et al., 2025; Aldabbas & Pinnington, 2020). Their absence has been flagged as a critical gap in Nigerian university-industry links (Frontiers in Research Metrics and Analytics, 2021).

Weave R&D collaboration criteria into the state MSME support programmes. SMEDAN current efforts—credit schemes, business support centres, and capacity-building programmes—do not systematically bring university research capacity into the picture (CBN, 2021). If MSME beneficiaries were required to show university collaboration in their business plans, the state government could stimulate demand-driven R&D partnerships (Madichie & Agu, 2023; Pitan & Muller, 2023).

This study adds to the Triple Helix literature in three ways. First, it offers empirical support for the model in a post-conflict African setting, broadening the largely Western and Asian empirical base. Second, it shows that the relative effectiveness of collaboration strategies differs by institutional type, suggesting the Triple Helix model needs context-sensitive operational rather than blanket application. Third, it brings conflict recovery in as a contextual moderator, showing how security conditions affect the feasibility and impact of R&D collaboration strategies (Chankseliani & McCowan, 2021; Jimoh et al., 2025; Ekpenyong et al., 2026).

Conclusion and Recommendations

This study examined strategies for strengthening R&D collaboration between universities and manufacturing industries in Borno State, Nigeria, using a two-way ANOVA design. The findings confirm that R&D enhancement strategies differ significantly in their impact on innovation output, with Technology Transfer and Human Capital Development emerging as the most

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effective. The significant interaction between strategy type and institution type underlines the need for context-sensitive policy that capitalises on each institution comparative advantage.

The study recommends: (1) creating a Borno State Innovation Hub to ease university-industry linkages; (2) restructuring R&D tax incentives to reward collaborative research;(3) establishing Technology Commercialization Offices at tertiary institutions; (4) embedding R&D collaboration requirements in MSME support programmes; and (5) targeted capacity building for manufacturing firms in technology adoption and for universities in industry engagement (Okolie, 2019; Pitan & Muller, 2023; Chukwuedo, 2024). Future studies should use longitudinal designs to track how R&D partnerships hold up over time, add qualitative methods to capture the relational side of collaboration, and widen the geographic scope to cover other Northeast Nigerian states facing similar post-conflict reconstruction challenges (Chankseliani & McCowan, 2021; Jimoh et al., 2025; Ekpenyong et al., 2026).

References

Afolabi, R. A., Awolola, O. I., & Adeniran, O. S. (2024). Higher Education and Sustainable Development in the 21st Century: Implications on Youth Employability. *Emmanuel Alayande University of Education Journal of Multidisciplinary Studies, 1*(2), 155–171. DOI: https://doi.org/10.60787/eaued-jms.vol1no2.27

Aldabbas, H., & Pinnington, A. (2020). The Role of Innovation in the Relationship between University–Industry Collaboration in R&D and ISO 9001. *International Journal of Innovation Science, 12*(4), 365–383. DOI: https://doi.org/10.1108/IJIS-10-2019-0095

Alkali, U. (2021). Development of University–Industry Interactions for Knowledge-Based Economy in Nigeria. *International Journal of Technology Management & Sustainable Development, 20*(3), 265–284. DOI: https://doi.org/10.1386/tmsd_00045_1

Alli, M. A., & Dada, J. O. (2023). State of University-Industry Collaboration in Quantity Surveying Profession in Nigeria. *Frontiers in Engineering and Built Environment, 3*(3), 180–191. DOI: https://doi.org/10.1108/FEBE-09-2022-0039

Attah, E. Y., Onwe, C. C., & Obi-Anike, H. O. (2026). Bridging the Skills Gap: Enhancing Employability Through University-Industry Collaborations in Nigeria. *Industry and Higher Education, 40*(4), 595–606. DOI: https://doi.org/10.1177/09504222251397493

Babalola, A., & Olawuyi, D. S. (2021). Advancing Environmental Education for Sustainable Development in Higher Education in Nigeria: Current Challenges and Future Directions. *Sustainability, 13*(19), 10808. DOI: https://doi.org/10.3390/su131910808

Beshel, C., Adung, C. B., Egbe, J. E., & Beshel, Y. C. (2024). Appraisal of Quality Assurance Practices as Determinants of Institutional Performance among Colleges of Education in Cross River State, Nigeria. *International Journal of Research and Innovation in Applied Science*. DOI: https://doi.org/10.51584/IJRIAS.2024.909020

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Bologna, T., Gazzola, P., & Amelio, S. (2020). University–Industry Collaboration: A Literature Review on the Role of Government. *Journal of the Knowledge Economy, 11*(3), 1103–1125.

Bui, V. T. T., & Kikkawa, T. (2024). Exploring University-Industry Collaboration in Vietnam: An In-Depth Review of Types and Influencing Factors. *Industry and Higher Education, 38*(6). DOI: https://doi.org/10.1177/09504222241249040

Chankseliani, M., & McCowan, T. (2021). Higher Education and the Sustainable Development Goals. *Higher Education, 81*(1), 1–8. DOI: https://doi.org/10.1007/s10734-020-00652-w

Chukwuedo, S. O. (2024). Higher Technology Education and Industry Interface: How the Theory of Planned Behavior Applies in Student Work-Integrated Learning and Job Search Intention Link. *Higher Education, Skills and Work-Based Learning*. DOI: https://doi.org/10.1108/HESWBL-06-2023-0141

Cohen, M., Fernandes, G., & Godinho, P. (2025). Measuring the Impacts of University-Industry R&D Collaborations: A Systematic Literature Review. *The Journal of Technology Transfer, 50*, 345–374. DOI: https://doi.org/10.1007/s10961-024-10114-5

Dutse, A. Y., Bayero, M. M., Musa, K. I., & Jibrin, M. (2021). University–Industry Linkages, Enabling Policies and Innovative Behaviours of Universities in Nigeria. *International Journal of Technology Management & Sustainable Development, 20*(3), 305–324. DOI: https://doi.org/10.1386/tmsd_00047_1

Dutse, A. Y., Musa, K. I., Mohammed, J., & Bayero, M. M. (2026). Emergent Model for Accelerating University-Industry Collaborations and Enhancing Innovation Among Universities In Nigeria. *Engineering Headway, 37*, 223–240. DOI: https://doi.org/10.4028/p-y3f0Ht

Egbeji, E. E., & Ogbeche, M. M. (2024). Funding Imperatives in Nigeria Education System: The Role of Tertiary Education Trust Fund (Tetfund) in the Management of Tertiary Education in Nigeria. *Journal of Association of Educational Management and Policy Practitioners, 3*(1), 20. URL: https://journals.aemapp.org/index.php/JAEMAPP/article/view/52

Ehiobuche, C., Okolie, U. C., Nwali, A. C., & Igwe, P. A. (2022). Is There A Link Between Industry Involvement in Higher Education Learning and Student Job Creation Intention? *Industry and Higher Education, 36*(2), 177–189. DOI: https://doi.org/10.1177/09504222211010589

Ekpenyong, V. O., Ajani, O. A., Itasanmi, S. A., & Olajide, O. E. (2026). Sustainability Consciousness and its Demographic Determinants Among Nigerian University Students. *Frontiers in Sustainability, 7*, 1887414. DOI: https://doi.org/10.3389/frsus.2026.1887414

Etzkowitz, H., & Leydesdorff, L. (2000). The Dynamics of Innovation: From National Systems and "Mode 2" To A Triple Helix of University–Industry–Government Relations. *Research Policy, 29*(2), 109–123. DOI: https://doi.org/10.1016/S0048-7333(99)00055-4

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Fasanmi, S. (2023). Political and Institutional Factors in the Funding of Higher Education in Nigeria. *Journal of Education and Practice, 14*(18). DOI: https://doi.org/10.7176/JEP/14-18-10

Habeeb, Y. O., & Eyupoglu, S. Z. (2024). Strategic Planning, Transformational Leadership and Organization Performance: Driving Forces for Sustainability in Higher Education in Nigeria. *Sustainability, 16*(11), 4348. DOI: https://doi.org/10.3390/su16114348

Ibiteye, O. K., & Awomoyi, M. E. (2023). Inadequate Funding in Nigerian Universities as A Menace to Educational Growth. *GPH-International Journal of Educational Research, 6*(4), 1–6. DOI: https://doi.org/10.5281/zenodo.7813326

Iguodala, W. A., & Enowoghomwenma, D.-E. (2023). Accreditation and Quality Assurance Nexus in Higher Education Production Function in Nigeria. *African Journal of Educational Management, 23*(1), 171–186. URL: https://journals.ui.edu.ng/index.php/ajem/article/view/876

Igwe, P. A., Hack-Polay, D., Mendy, J., Fuller, T., & Lock, D. (2021). Improving Higher Education Standards Through Reengineering in West African Universities – A Case Study of Nigeria. *Studies in Higher Education, 46*(8), 1635–1648. DOI: https://doi.org/10.1080/03075079.2019.1698534

International Finance Corporation. (2025). *Nigeria: Country Private Sector Diagnostic*. World Bank Group. The Report Examines Private-Sector Investment, Job Creation, Manufacturing, Digital Infrastructure and Other Areas Relevant to University–Industry Partnerships. IFC – Nigeria Country Private Sector Diagnostic

Iseolorunkanmi, J. O., Rotimi, M. E., Adebola, G. O., Lawal, A. I., Henry, N. L. C., & Adebisi, T. (2021). Challenges in Nigeria's Education Sector and the Migration of Nigerian Postgraduate Students to South African Universities. *Cogent Social Sciences, 7*(1), 1890897. DOI: https://doi.org/10.1080/23311886.2021.1890897

Jimoh, I. B., Clarke, A. C., ElAlfy, A., & Weber, O. (2025). An Investigation of Campuses' Sustainability Practices in Nigerian Higher Education Institutions. *International Journal of Sustainability in Higher Education*. DOI: https://doi.org/10.1108/IJSHE-06-2024-0427

Jones-Esan, L. J. (2022). Public-Private Participation in Funding University Education in Sub-Saharan Africa: A Nigerian Case-Study for Sustainable Development. In L. Waller & S. Waller (Eds.), *Higher Education: New Approaches to Accreditation, Digitalization, and Globalization*. IntechOpen. DOI: https://doi.org/10.5772/intechopen.99940

Madichie, N. O., & Agu, G. A. (2023). The Role of Universities in Scaling Up Informal Entrepreneurship. *Industry and Higher Education, 37*(1), 94–109. DOI: https://doi.org/10.1177/09504222221101548

Nwajiuba, C. A., Igwe, P. A., Akinsola-Obatolu, A. D., Ituma, A., & Binuomote, M. O. (2020). What Can Be Done to Improve Higher Education Quality And Graduate Employability in Nigeria? A Stakeholder Approach. *Industry and Higher Education, 34*(5), 358–367. DOI: https://doi.org/10.1177/0950422219901102

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Ofem, U. J., Nwinyinya, E., Sama, R., Ojong, B., & Effiom, G. (2024). Quality Assurance Indicators and Sustainable Assessment Integrity in Universities in Nigeria. *Mediterranean Journal of Social Sciences*. DOI: https://doi.org/10.36941/mjss-2024-0031

Ogunji, C. V., Onwe, J. O., Ngwa, E. S., David, E., Olaolu, M., & Cresantus, B. (2022). Higher Education and the New Normal: Implications for Sustainable Post COVID-19 Era in Nigerian Tertiary Institutions. *Cogent Education*. DOI: https://doi.org/10.1080/2331186X.2022.2125206

Ogunniran, O. O., Makinde, O., & Adedeji, S. (2024). Science Curriculum Quality, Instructional Resources Adequacy and Employability Skills Acquisition Level of Potential Science Graduates in Nigerian Universities. *Pan-African Journal of Education and Social Sciences, 5*(1), 41–54. DOI: https://doi.org/10.56893/pajes2024v05i01.04

Ogunode, N. J., Olowonefa, J. A., & Suleiman, S. (2023). Benefits of Funding Tertiary Education in Nigeria. *Journal of Artificial Intelligence and Digital Economy, 1*(2), 23–34. DOI: https://doi.org/10.61796/jaide.v1i2.251

Ohanu, I. B., Nwandu, L. O., Okadi, A. O., Orji, C. T., Ejiofor, T. E., Chukwuone, C. A., Ibezim, N. E., & Osinem, E. C. (2025). Utilization of Technology-Enhanced Learning Tools for Sustainable Skills Acquisition and Graduate Employability in Tertiary Institutions in Nigeria. *Journal of Applied Research in Higher Education, 17*(6), 2283–2292. DOI: https://doi.org/10.1108/JARHE-02-2024-0099

Okolie, U. C. (2019). Graduate employability: How the Higher Education Institutions Can Meet the Demand of the Labour Market. *Higher Education, Skills and Work-Based Learning, 9*(4), 620–636. DOI: https://doi.org/10.1108/HESWBL-09-2018-0089

Okolie, U. C., Nwajiuba, C. A., Eneje, B., Binuomote, M. O., Ehiobuche, C., & Hack-Polay, D. (2021). A Critical Perspective on Industry Involvement in Higher Education Learning: Enhancing Graduates' Knowledge and Skills for Job Creation in Nigeria. *Industry and Higher Education, 35*(1), 61–72. DOI: https://doi.org/10.1177/0950422220919655

Omeluzor, S. U., Okonoko, V. N., & Anene, O. E. (2023). Technologies for Recovery and Growth in Post COVID-19 Era in Tertiary Institutions In Nigeria. *Scientific African, 20*, e01602. DOI: https://doi.org/10.1016/j.sciaf.2023.e01602

Omodero, C. O., Adeyemo, K. A., Ekundayo, O., Omesue, C. E., Eriabie, S., & Lawrence, I. (2023). Tertiary Education Tax, Information Technology Development Levy and Funding of Educational System in Nigeria. *Journal of Educational and Social Research, 13*(4), 140. DOI: https://doi.org/10.36941/jesr-2023-0097

Organisation for Economic Co-operation and Development. (2024). *Education at a Glance 2024: OECD Indicators*. OECD Publishing. DOI: https://doi.org/10.1787/c00cad36-en

Osiobe, C., & Mukoro, A. S. (2024). Tertiary Education Trust Fund (Tetfund) Framework for Funding of Tertiary Education in Nigeria. *BW Academic Journal, 1*(2), 31–38. URL: https://www.bwjournal.org/index.php/bsjournal/article/view/2023

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Otache, I. (2021). Enhancing Graduates' Employability through Polytechnic–Industry Collaboration. *Industry and Higher Education, 36*(5), 604–614. DOI: https://doi.org/10.1177/09504222211063140

Oyinlola, M., Kolade, O., Okoya, S. A., & Ajala, O. (2024). Entrepreneurship and Innovation in Nigerian Universities: Trends, Challenges and Opportunities. *Heliyon, 10*(9), e29940. DOI: https://doi.org/10.1016/j.heliyon.2024.e29940

Pitan, O. S., & Muller, C. (2023). Assessment of Strategies for Preparing Graduates for The Disruptive Workplace: Evidence From Nigeria and South Africa. *Journal of Teaching and Learning for Graduate Employability, 14*(1). DOI: https://doi.org/10.21153/jtlge2023vol14no1art1576

Romero-Sánchez, A., Perdomo-Charry, G., & Burbano-Vallejo, E. L. (2024). Exploring The Entrepreneurial Landscape of University-Industry Collaboration on Public University Spin-Off Creation: A Systematic Literature Review. *Heliyon, 10*(19), e27258. DOI: https://doi.org/10.1016/j.heliyon.2024.e27258

Rossoni, A. L., de Vasconcellos, E. P. G., Rossoni, R. L. C., & Pinheiro, G. C. (2024). Barriers and Facilitators of University-Industry Collaboration for Research, Development And Innovation: A Systematic Review. *Management Review Quarterly, 74*, 1841–1877. DOI: https://doi.org/10.1007/s11301-023-00349-1

Sassi, M., & Mshenga, P. M. (2025). Unlocking the Potential of University-Industry Collaborations in African Higher Education: A Comprehensive Examination Of Agricultural Faculties. *Industry and Higher Education, 39*(1). DOI: https://doi.org/10.1177/09504222241254694

Shah, R., & Gillen, A. L. (2024). A Systematic Literature Review of University-Industry Partnerships in Engineering Education. *European Journal of Engineering Education, 49*(3), 577–603. DOI: https://doi.org/10.1080/03043797.2023.2253741

Shi, X., Wu, Y., & Fu, D. (2020). Does University-Industry Collaboration Improve Innovation Efficiency? Evidence from Chinese Firms. *Economic Modelling, 86*, 39–53. DOI: https://doi.org/10.1016/j.econmod.2019.05.004

Theodorio, A. O., Waghid, Z., Mataka, T. W., et al. (2024). Demystifying Lesotho, Rwandan and Nigerian Educators' Viewpoints on Smart Technologies Supporting AI in Higher Education. *Education and Information Technologies, 29*, 24285–24307. DOI: https://doi.org/10.1007/s10639-024-12820-x

Ubogu, R., & Itoro, I. C. (2023). Financing Tertiary Education in Nigeria: Strategic Tool for National Development. *World Journal of Educational Research, 10*(3), 83. DOI: https://doi.org/10.22158/wjer.v10n3p83

United Nations Development Programme. (2025). *Rebuilding Ngarannam: Lessons from the Regional Stabilization Facility*. UNDP Nigeria.. UNDP – Rebuilding Ngarannam

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - *E*- ISSN: 3156-5492 | *P*- ISSN: 3156-5514

World Bank. (2025). *Nigeria Development Update: Building Momentum for Inclusive Growth*. Washington, DC: World Bank Group. The May 2025 NDU "Nigeria Economic Update: Seizing the Opportunity for Reforms." World Bank – Nigeria Development Update

Yakubu, M. N., Dasuki, S. I., Abubakar, A. M., et al. (2020). Determinants of Learning Management Systems Adoption in Nigeria: A Hybrid SEM and Artificial Neural Network Approach. *Education and Information Technologies, 25*, 3515–3539. DOI: https://doi.org/10.1007/s10639-020-10110-w

Zhuang, T., Zhou, Z., & Li, Q. (2021). University-Industry-Government Triple Helix Relationship and Regional Innovation Efficiency in China. *Growth and Change, 52*, 349–370. DOI: https://doi.org/10.1111/grow.12461

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Effect of Virtual Laboratory-Supplemented Instruction on Academic Achievement and Attitudes Toward Cell Division among Secondary School Students

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DOI : https://doi.org/10.5281/zenodo.22904735

Abstract

This study investigated the effect of Virtual Laboratory-supplemented instruction on secondary school students' achievement and attitudes toward Cell Division in Biology. A quasi-experimental, pre-test post-test non-equivalent control-group design was adopted. The sample comprised 194 students from two intact classes in a public secondary school, with 95 assigned to the Virtual Laboratory-supplemented group and 99 to the Lecture-only group. The intervention supplemented teacher-led instruction with three virtual laboratory sessions covering general cell structure, mitosis, and meiosis. Achievement data were analysed using analysis of covariance (ANCOVA), with pre-test achievement as the covariate, alongside an HC3 heteroskedasticity-robust sensitivity analysis. Attitude change was examined using Welch's independent-samples t-test and the Mann–Whitney U test. The Virtual Laboratory-supplemented group had a higher adjusted post-test achievement mean (62.74) than the Lecture-only group (40.92), representing an adjusted mean difference of 21.82 percentage points. The instructional-group effect was statistically significant, $F(1, 191) = 124.213$, $p < .001$, partial $\eta^2 = .394$. The HC3 analysis confirmed the robustness of this effect, $t = 10.843$, $p < .001$, 95% CI [17.874, 25.761]. Attitude change was also significantly greater in the Virtual Laboratory-supplemented group, Welch's $t(102.467) = 13.420$, $p < .001$, $r = .68$; the Mann–Whitney U test yielded a consistent result, $U = 1{,}225.50$, $z = -9.468$, $p < .001$. The findings suggest that structured virtual laboratory activities can enhance Biology achievement and attitudes toward Cell Division within the study context.

Keywords: Virtual Laboratory; Biology Education; Academic Achievement; Attitudes; Cell Division

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1.0 Introduction

Cell Division is a foundational topic in secondary school Biology because it underpins understanding of growth, development, tissue repair, reproduction, inheritance, and continuity of life. However, learning the topic requires students to understand microscopic processes involving chromosome duplication, chromosome movement, spindle formation, and cytokinesis that cannot be directly observed through ordinary classroom observation. Consequently, teachers often rely on diagrams, static illustrations, explanations, and models. Beyond learning biological terminology, students must develop coherent mental representations of structures, relationships, and changes across successive stages of the cell cycle. Such learning can be challenging because students' prior conceptions may persist when instruction provides insufficient opportunities to examine and reconstruct them (Aleknavičiūtė et al., 2023). Conceptual Change Theory similarly proposes that meaningful scientific learning involves reorganising existing conceptions when learners encounter evidence that enables them to evaluate and reconstruct previous explanations (Posner et al., 1982; Treagust & Duit, 2008).

Conventional teacher-led instruction remains essential in Biology because explanation, questioning, scaffolding, and discussion support students' interpretation of scientific concepts. However, it may provide limited opportunities to manipulate and repeatedly examine dynamic representations of processes that cannot be directly observed. This limitation has contributed to interest in virtual laboratories, which enable learners to explore scientific phenomena through interactive simulations, manipulate representations, repeat activities, observe changes, and receive feedback. Reviews have reported cognitive, practical, and affective benefits of virtual laboratories in Biology education, while emphasising that their effectiveness depends substantially on teachers' instructional design and pedagogical integration (Byukusenge et al., 2022; Wörner et al., 2022).

Evidence from Nigeria also indicates potential achievement benefits. Aondofa and Ene (2024) reported higher Biology achievement among senior secondary students taught using a virtual laboratory application in Makurdi, Benue State. Ubom et al. (2025) similarly found significantly higher achievement among secondary school Biology students exposed to virtual laboratory instruction in Kwali Area Council, Abuja, while Lasisi et al. (2025) reported a significant achievement advantage for a Human-Centred Design-based virtual laboratory among senior secondary students in Ogun State. Goji (2026) also reported positive associations between virtual laboratory utilisation and academic performance among senior secondary Biology students in Adamawa State. International evidence is broadly consistent: Santos and Prudente (2022) found a medium overall effect of virtual laboratories on science achievement, and Byukusenge et al. (2022) identified benefits across cognitive, practical, and affective domains in Biology education.

Despite this evidence, important gaps remain. First, existing studies have frequently examined virtual laboratory instruction as a broad instructional approach rather than its use as a supplement to conventional teacher-led instruction. This distinction is important because virtual laboratories need not replace teacher explanation, questioning, and scaffolding; rather, they can provide additional opportunities to explore phenomena that are difficult to observe directly. Evidence synthesising real and virtual laboratory experiences suggests that the two approaches are complementary and that effectiveness depends on how teachers integrate virtual experiences into the wider learning process (Wörner et al., 2022).

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Second, much of the evidence concerns science or Biology generally and not specific conceptually demanding topics. Cell Division is particularly relevant because understanding mitosis and meiosis requires students to coordinate structures, sequences, spatial relationships, and changes that static diagrams may not adequately represent. Research on visual literacy in molecular and cellular Biology indicates that students may know biological terminology while experiencing difficulty interpreting the visual representations used to communicate biological processes (Newman et al., 2023; Uminski et al., 2025). Scaffolding students' interpretation of scientific representations is therefore important in Biology learning (Arneson & Offerdahl, 2018; Offerdahl et al., 2017). Virtual environments may provide additional opportunities to engage with dynamic representations, but their value depends on how these representations are embedded within instruction.

Third, although cognitive outcomes of virtual laboratory use have received considerable attention, affective outcomes are less consistently established. Reviews have identified positive attitudes and other affective benefits (Byukusenge et al., 2022; Lailiyah et al., 2024), but these outcomes should not be assumed to occur automatically. Zhang et al. (2021), for example, found stronger evidence for conceptual learning than motivational outcomes in virtual physiology laboratories. In Nigeria, Kareem (2022) examined students' attitudes toward virtual laboratories in Biology in Lagos State, providing evidence of learners' perceptions of the technology. However, general perceptions of virtual laboratories do not necessarily indicate whether a specific virtual laboratory-supported learning experience changes students' attitudes toward the Biology topic being taught.

These gaps indicate a need for research examining virtual laboratories as a supplement to conventional teacher-led instruction, particularly for conceptually demanding Biology topics and across both cognitive and affective outcomes. The present study therefore investigated the effect of Virtual Laboratory-supplemented instruction on secondary school students' achievement and attitudes toward Cell Division in Biology. The intervention supplemented conventional classroom teaching with three virtual laboratory sessions addressing general cell structure, mitosis, and meiosis. By examining both achievement and topic-specific attitudes, the study provides evidence on whether structured engagement with dynamic representations alongside conventional instruction is associated with improved learning outcomes.

The study was guided by two research questions and two null hypothesis tested at 0.05 level of significance

Research Questions

1. Does Virtual Laboratory-supplemented instruction result in differences in students' academic achievement in Cell Division compared with Lecture-only instruction, after controlling for pre-test achievement?
2. Does Virtual Laboratory-supplemented instruction result in differences in students' attitudes toward Cell Division compared with Lecture-only instruction?

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Research Hypotheses

H_o1: There is no significant difference in the academic achievement of students taught Cell Division using Virtual Laboratory-supplemented instruction and those taught using Lecture-only instruction, after controlling for pre-test achievement.

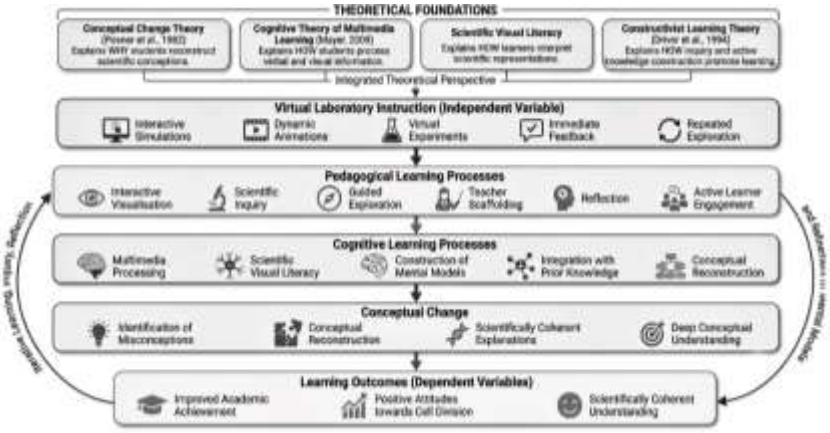
H_o2: There is no significant difference in the attitudes toward Cell Division of students taught using Virtual Laboratory-supplemented instruction and those taught using Lecture-only instruction.

2.0 Literature Review

2.1 Integrated Theoretical Framework

Figure 1.

Integrated Conceptual Framework of the Study.



Conceptual Change Theory is the main orientation, because it treats learning as a kind of process where current conceptions might be pushed , rearranged, or swapped out for explanations that are more scientifically coherent (Posner et al., 1982; Treagust & Duit, 2008). This is especially important for Biology, since students can show stubborn conceptions about chromosome behaviour, DNA replication, mitosis, and meiosis that do not always move easily with typical lessons (Aleknavičiūtė et al., 2023). In this view, good teaching should let learners examine phenomena, face contradictions in what they already believe, and then rebuild their understanding in a more accurate direction.

Conceptual Theory of Multimedia Learning CTML supports this by explaining what is going on in learners minds when information is presented in more than one mode. Mayer (2009) argues that meaningful multimedia learning depends on selecting and organising relevant verbal and visual pieces, then weaving them together with prior knowledge. This matters a lot for Cell Division because many key events are micro-scale, fast, and generally not visible to the naked eye. Virtual laboratory settings can offer visual and interactive representations, so students can look at changes in cellular structures and processes , while also connecting those observations to explanatory input.

Scientific Visual Literacy sits as an extra layer, because it is about how learners interpret and reason with the visual representations scientists use to communicate knowledge. In Biology, a lot of

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processes that students cannot directly watch are instead shown via diagrams, models, animations, and other visual forms (Arneson & Offerdahl, 2018; Offerdahl et al., 2017). So students need more than just seeing visuals; they need to be able to decode the depicted structures, connections, orders, and meanings. Studies on molecular and cellular representations suggest that students may seem comfortable with biological terms, but still keep mistaken conceptions, especially once they have to interpret the scientific representations themselves (Newman et al., 2023; Uminski et al., 2025). In that sense, Scientific Visual Literacy links multimedia processing with the growth of more scientifically coherent conceptual models.

Constructivist Learning Theory is the base for the pedagogical and social learning. From a constructivist point of view, learners actively construct understanding by relating new experiences to their existing ideas, while classroom interaction, questioning, talk, and teacher scaffolding also help students refine what they think about science (Driver et al., 1994). Therefore, inside a virtual laboratory setting, students can engage with representations of biological processes, interpret what they observe, try out their emerging explanations, and then get support that guides them toward accepted scientific concepts.

Overall, these four perspectives work as complementary rather than competing framework. The integrated framework places the virtual laboratory not as a magically effective tool on its own, but as an instructional environment that has its real value depending on the kinds of learning opportunities that are actually created through its use.

2.2 Conceptual and Empirical Review

Learning Cell Division: Conceptual and Representational Difficulties

Cell Division is fundamental to Biology because understanding mitosis and meiosis supports learning about growth, reproduction, inheritance, and continuity of life. However, these processes occur largely at the microscopic level and require students to coordinate chromosomes, DNA replication, spindle formation, and sequential cellular changes. Consequently, learning involves more than memorising stage names; students must construct coherent mental representations of dynamic structures and relationships.

Conceptual Change Theory provides a useful perspective on this challenge. Posner et al. (1982) proposed that meaningful learning involves confronting existing conceptions with new explanatory frameworks, while Treagust and Duit (2008) highlighted the complexity of reorganising students' existing scientific conceptions. Evidence that prior conceptions can persist despite instruction further demonstrates the difficulty of conceptual change (Aleknavičiūtė et al., 2023). The challenge is also representational because students must interpret diagrams, animations, and models of processes they cannot directly observe. Visual literacy and appropriate scaffolding are therefore important in Biology learning (Arneson & Offerdahl, 2018; Offerdahl et al., 2017), while recent research has identified difficulties in interpreting molecular and chromosomal representations (Newman et al., 2023; Uminski et al., 2025).

These challenges provide a rationale for instructional resources that can complement conventional teaching with dynamic and interactive representations. In the present study, the virtual laboratory was therefore positioned as a supplement to teacher-led instruction rather than a replacement for it.

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Virtual Laboratories in Biology Education

Virtual laboratories provide simulated environments in which learners can interact with representations of scientific phenomena, manipulate variables, repeat procedures, and observe processes that may be difficult to investigate directly or practically. However, virtual laboratories are not a uniform instructional intervention; they differ in interactivity, fidelity, learner control, feedback, and pedagogical integration. Their effectiveness therefore depends not simply on technology use but on how activities are designed and incorporated into instruction.

Byukusenge et al. (2022) reported cognitive, practical, and affective benefits of virtual laboratories in Biology while emphasising implementation factors. Similarly, Wörner et al. (2022) argued that virtual and real laboratory experiences can serve complementary rather than competing purposes. This supports a supplementary model in which virtual activities extend opportunities for exploration while teachers retain responsibility for explanation, questioning, scaffolding, and interpretation. Evidence from a Human-Centred Design-based virtual laboratory also suggests that instructional responsiveness and design can influence learning outcomes (Lasisi et al., 2025).

Virtual Laboratories and Academic Achievement

Achievement is the most extensively investigated outcome of virtual laboratory use, with evidence generally favouring virtual laboratory-supported learning, although effects vary across contexts and designs. A meta-analysis by Santos and Prudente (2022) reported a medium overall effect on science achievement, while Byukusenge et al. (2022) identified positive cognitive outcomes in Biology. Wörner et al. (2022), however, emphasised that the affordances of virtual and physical laboratory experiences differ, reinforcing the importance of instructional context rather than assuming a universal technology effect.

Recent Nigerian studies provide further contextual evidence. Aondofa and Ene (2024), Ubom et al. (2025), Lasisi et al. (2025), and Goji (2026) each reported positive achievement outcomes associated with virtual laboratory use among secondary school Biology students in Benue, Abuja, Ogun, and Adamawa States, respectively. Although the convergence of these findings supports the potential of virtual laboratories in Nigerian Biology education, differences in samples, settings, designs, and instructional approaches limit direct comparison and do not establish a universal effect.

Importantly, evidence of general Biology achievement gains does not establish whether virtual laboratories provide particular value for topics involving dynamic microscopic processes. Cell Division is therefore a relevant context for examining whether interactive representations add value when incorporated into conventional teacher-led instruction.

Virtual Laboratories and Students' Attitudes

Achievement gains do not necessarily imply corresponding changes in students' attitudes. Affective responses may depend on students' perceptions of the learning environment, task design, perceived difficulty, participation, and engagement with content. Byukusenge et al. (2022) identified affective benefits associated with virtual laboratories, while Lailiyah et al. (2024) reported positive affective outcomes in a systematic review. However, evidence for affective effects is less consistent than evidence for cognitive outcomes. Zhang et al. (2021), for example,

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found stronger evidence for learning outcomes than motivational outcomes in virtual physiology laboratories, suggesting that positive attitudes cannot be assumed to result automatically from technology use.

Within Nigeria, Kareem (2022) examined students' attitudes toward virtual laboratories in Biology in Lagos State. Such evidence is useful for understanding learners' perceptions of virtual laboratory technology, but perceptions of the technology do not necessarily demonstrate changes in attitudes toward a specific Biology topic following participation in a virtual laboratory-supported learning experience. Examining topic-specific attitude change can therefore provide a more precise assessment of the affective contribution of the intervention.

2.3 Synthesis and Research Gap

The literature establishes three related points. First, Cell Division presents substantial conceptual and representational challenges because students must interpret microscopic structures and dynamic sequences (Aleknavičiūtė et al., 2023; Newman et al., 2023; Uminski et al., 2025). Second, virtual laboratories can support Biology and science learning, particularly achievement, but their effectiveness depends on instructional design and integration (Byukusenge et al., 2022; Santos & Prudente, 2022; Wörner et al., 2022). Third, affective outcomes are promising but less consistent and may depend more strongly on implementation conditions (Lailiyah et al., 2024; Zhang et al., 2021).

Nigerian evidence further supports the relevance of virtual laboratories for Biology achievement (Aondofa & Ene, 2024; Ubom et al., 2025; Lasisi et al., 2025; Goji, 2026), but existing studies differ in context and instructional design. Less is established about the added value of integrating virtual laboratory activities into conventional teacher-led instruction for a specific conceptually demanding topic, particularly when both achievement and topic-specific attitudes are examined. Similarly, attitude research has more often focused on perceptions of virtual laboratory technology than on changes in attitudes toward the Biology content being learned.

The present study addresses these gaps by comparing students receiving conventional Biology instruction with those receiving the same instruction supplemented by structured virtual laboratory activities focused on Cell Division. It therefore examines the supplementary contribution of virtual laboratory experiences to both cognitive and affective outcomes rather than treating virtual laboratory use as a standalone instructional replacement. This focus provides evidence relevant to the practical integration of virtual laboratories into ordinary secondary Biology teaching.

3.0 Methodology

3.1 Research Design and Participants

The study used a quasi-experimental pre-test–post-test design with two groups: an experimental group (virtual lab supplement) and a lecture-only control group. Since participants came from existing classes, we couldn't randomly assign individuals, hence the quasi-experimental approach. Both groups covered the same Cell Division content, but the experimental group got additional virtual lab sessions. Pretest scores helped establish baseline equivalence and served as a statistical control in the achievement analysis.

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The sample included 194 secondary-school Biology students: 95 in the virtual lab group and 99 in the control group. Both were taught the same core material and assessed with the same measures, allowing us to isolate whether adding virtual activities made a difference.

3.2 Intervention and Research Instruments

The virtual component comprised three supplemental sessions (about 50 minutes total), covering: (1) general cell structure, (2) mitosis, and (3) meiosis. These weren't replacements for teacher-led instruction, they supplemented it. Sessions were woven into the regular timetable (partly during the usual break period) to minimise disruption.

The study used two tools. First, a researcher-developed Cell Biology Performance Test (CBPT), administered as both pretest and post-test to capture learning gains. Second, a 10-item Student Attitude scale focused specifically on students' attitude toward Cell Division classes (drawn from a broader questionnaire). Higher scores reflected more favourable attitudes.

3.3 Instrument Validity and Reliability

Both instruments were reviewed for content alignment and suitability. For the 10-item attitude scale, internal consistency was checked using Cronbach's alpha via SPSS. Importantly, that alpha applies only to these 10 specific items, not to the wider questionnaire or its other subscales.

3.4 Procedure for Data Collection

Before instruction began, both groups completed the CBPT and attitude measure as pretests. Both groups received the conventional teachers-led cell biology instruction using the same lesson plan. The experimental group then received additional three virtual lab sessions. After the intervention, the same achievement test and attitude scale were administered as post-tests. All responses were coded using 5-likert scale where Strongly agree (SA) is scored 5 points, Agree (A) was scored 4 points, Undecided (U) was scored 3 points, Disagree (D) was scored 2 points, and Strongly disagree (SD) was scored 2 point for analysis. This scoring was reversed for negatively structured questions.

3.5 Data Analysis and ethics

For achievement, the study used an ANCOVA with post-test scores as the dependent variable, instructional condition as the independent variable, and pretest achievement as the covariate while also checking the homogeneity-of-regression-slopes assumption. The study set α at .05, reported partial η^2 for effect size, and because group variances were unequal, an HC3 heteroskedasticity-robust sensitivity was checked as well.

For attitudes, change scores were calculated (post minus pre). Given non-normality and unequal variances, comparison of groups was done using Welch's t-test, with a Mann–Whitney U test as a non-parametric robustness check, reporting mean differences, 95% CIs, and r for effect size.

All procedures followed standard ethical protocols: responses were confidential, data were anonymised with coded identifiers, and we scheduled everything to keep regular school activities running smoothly.

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4. Results

4.1 Descriptive Statistics

Table 1

Observed/Descriptive Achievement data

	groups	N	Pre-test *M*	Pre-test *SD*	Post-test *M*	Post-test *SD*	Change *M*	Change *SD*
Achievement								
	Virtual Lab-supplemented	95	24.29	12.14	62.75	15.85	38.46	3.71
	Lecture-only	99	27.95	12.68	40.91	10.65	12.96	-2.03
	Total	194	26.16	12.52	51.60	17.31	25.44	4.79
Attitude								
	Virtual Lab-supplemented	95	2.329	1.06	4.06	0.41	1.732	1.21
	Lecture-only	99	2.339	1.03	2.36	1.05	0.025	0.26
	Total	194					0.86	1.22

The analysis comprised 194 students, including 95 in the Virtual Laboratory-supplemented group and 99 in the Lecture-only group. All participants had complete pre- and post-intervention data. Descriptive statistics for achievement and attitude outcomes are presented in Tables 1.

4.2 Academic Achievement

Research Question 1 examined whether Virtual Laboratory-supplemented instruction was associated with differences in students' achievement in Cell Division. An ANCOVA was conducted with post-test achievement percentage score as the dependent variable, instructional method as the fixed factor, and pre-test achievement as the covariate.

Table 2: *Analysis of Covariance of Post-test Achievement |Scores by Treatment group*

Source	df	F	*p*	Partial η²
Pre-test achievement	1,191	.005	< .946	.001
Treatment group	1,191	124.213	< .001	.394
Error	191			
Total	194			

Note. The dependent variable was post-test achievement scores, with pre-test achievement score entered as covariate. Treatment group comprised the virtual laboratory-supplemented group (n = 95) and lecture-only group (n = 99)

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As shown in Table 2, pre-test achievement was not a significant predictor of post-test achievement, $F(1, 191) = .005$, $p = < .946$, partial $\eta^2 = .001$. In contrast, treatment group had a statistically significant effect on post-test achievement, $F(1, 191) = 124.213$, $p < .001$, partial $\eta^2 = .394$. Thus, after controlling for pre-test achievement, students who received the Virtual Laboratory-supplemented instruction performed significantly better on the post-test than those who received lecture-only instruction. The partial η^2 of .394 indicates a large treatment effect.

Table 3

Effect	Robust estimate	*t*	*p*	95% CI
Pre-test achievement	-0.072	-0.072	.943	[-0.159, 0.148]
Treatment group	*21.82*	10.843	< .001	[17.874, 25.761]

HC3-Roburst Analysis of Covariate for the effect of Treatment on Post-test Achievement Scores
Note. HC3 = heteroskedasticity-consistent standard errors. The treatment effect is expressed as virtual Laboratory-supplemented instruction relative to Lecture-only instruction.

The HC3-robust analysis was conducted to assess whether the ANCOVA findings remained reliable under heteroscedasticity-robust standard errors. As shown in Table 3, the pre-test achievement effect was not statistically significant, $t = -0.072$, $p = .943$, 95% CI [−0.159, 0.148]. In contrast, the treatment-group effect remained statistically significant, $t = -10.843$, $p < .001$, 95% CI [−25.761, −17.874]. The robust analysis therefore supports the conclusion from the conventional ANCOVA that treatment group was significantly associated with post-test achievement, indicating that the primary finding was not dependent on the assumption of homoscedasticity.

4.3 Attitudes Toward Cell Division

Research Question 2 examined whether Virtual Laboratory-supplemented instruction was associated with differences in students' attitudes toward Cell Division.

Table 4:
Test of significance of Attitude Change by Treatment Group

Source	*n*	Mean change	SD	Test statistic	*df*	*p*	*Mean diff*	*95% CI*
Virtual Laboratory-supplemented	95	1.732	1.212	–	–	–	–	–
Lecture-only	99	0.025	0.263	–	–	–	–	–
Between-group comparison				13.420		< .001	1.706	[1.454, 1.959]

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Table 4 shows that attitude increased substantially among students who received the Virtual Laboratory-supplemented instruction (M = 1.732, SD = 1.212), whereas virtually no change was observed among students in the lecture-only group (M = 0.025, SD = 0.263). The difference in mean attitude change between the groups was statistically significant, Welch's t(102.467) = 13.420, p < .001, with a mean difference of 1.706 points (95% CI [1.454, 1.959]). This indicates that the Virtual Laboratory intervention produced a significantly greater improvement in students' attitudes than lecture-only instruction.

Table 5

The non-Robustness check for Attitude change Using the Mann-Whitney U Test parametric robustness check produced the same substantive conclusion. The Mann–Whitney U test showed a statistically significant difference in attitude change between the treatment groups, U = 1,225.500, z = −9.468, p < .001, with a large effect size (r = .68). Thus, the significant improvement in attitude associated with the Virtual Laboratory-supplemented instruction was robust to the use of a distribution-free test.

Effect	***U***	***z***	***p***	**Effect size (r)**
Treatment group	1,225.500	-9.468	< .001	.68

5. Discussion

5.1 Principal Findings and Comparison with Previous Research

on both achievement and attitudes toward Cell Division. This aligns with recent Nigerian evidence (Aondofa & Ene, 2024; Ubom et al., 2025; Lasisi et al., 2025; Goji, 2026), reinforcing the contextual promise of these tools. However, given the differences in samples, topics, and designs, we view these as converging lines of evidence rather than proof of a uniform effect.

The achievement effect here exceeded the medium overall effect reported by Santos and Prudente (2022). This is not interpreted as evidence that virtual labs universally produce larger effects; rather, the topic itself Cell Division may explain it. Since the study supplemented rather than replaced teacher-led instruction, students gained additional chances to visualise dynamic, microscopic processes that static diagrams struggle to convey. This is compatible with Conceptual Change Theory (Posner et al., 1982; Treagust & Duit, 2008) and Multimedia Learning Theory (Mayer, 2009), both of which emphasise restructuring conceptions through integrating visual and verbal information. It also resonates with evidence on visual literacy challenges (Newman et al., 2023; Uminski et al., 2025). Thus, the value likely lies in the representational and interactive affordances, not the technology per se, echoing Wörner et al. (2022) on complementary roles and Lasisi et al. (2025) on learner-centred design.

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Evidence from the positive attitudinal change is consistent with Byukusenge et al. (2022) and Lailiyah et al. (2024). Crucially, the study measured attitudes toward cell division, not just toward the virtual tool. This is a distinction from work of Kareem (2022), which focused on perceptions of usability. Zhang et al. (2021), however, caution that affective gains depend heavily on how virtual labs are integrated, therefore, the study's structured supplementary approach likely played a role in this observed change in attitude.

The dual cognitive-affective improvement are promising. However, the study didn't directly measure conceptual change, engagement, or cognitive load, so the study can't claim those as mediators. The study's contribution shift away from just another study confirming that virtual lab works to provide evidence that a supplementary model, added to regular teaching, can meaningfully boost outcomes for a demanding topic. This supports integration, not replacement.

5.2 Limitations and Interpretation

The study has several limitations. First, using intact classes rather than random assignment means we can't entirely rule out unmeasured pre-existing differences, so causal claims need caution. Second, the findings come from one school and one Biology topic; so, broader generalisation requires replication across contexts. Third, our instruments were researcher-developed, validated but not definitive and the attitude results apply specifically to the 10-item scale. Fourth, attitude change scores showed notable non-normality and unequal variances, though the Welch's t-test and Mann-Whitney U analysis converged robustly. Finally, the study did not track engagement, motivation, or cognitive processing directly, leaving the precise mechanisms behind these differences open for future investigation.

5.3 Conclusion

Two key findings stand out. First, on achievement, the virtual lab group substantially outperformed the control group with an adjusted mean difference of 21.82 percentage points, with a significant effect, $F(1, 191) = 124.213$, $p < .001$, partial \eta^2 = .394. Second, for attitudes, the virtual lab group showed a significantly greater positive shift toward Cell Division (Welch's $t(102.467) = 13.420$, $p < .001$; Mann–Whitney $U = 1{,}225.50$, $z = -9.468$, $p < .001$, $r = .68$), with both parametric and non-parametric tests converging.

The study's main contribution is not just another confirmation that virtual labs work, rather, it provide Nigerian evidence that adding virtual experiences as a supplement to teacher-led instruction can meaningfully enhance both achievement and topic-specific attitudes for a conceptually demanding topic like Cell Division. This positions the virtual lab as a pedagogical complement not a replacement for teachers or conventional labs while also it also extends previous local work by examining cognitive and affective outcomes together.

Theoretically, these improvements fit the idea that interactive visuals help learners engage with dynamic microscopic processes that static diagrams struggle to convey. However, the study did not directly measure conceptual change, engagement, or cognitive load, so these explanations remain plausible rather than empirically confirmed.

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The study was a single-school study with intact, non-randomised groups. While it statistically controlled for pretest differences, we can't rule out all pre-existing disparities. So, we interpret these as strong associations within this specific context, not universal causal proof. Overall, well-integrated virtual labs show genuine promise as supplementary tools for tackling difficult Biology concepts, provided they're deliberately connected to teacher explanation and curriculum goals.

5.4 Recommendations for Future Research

1. Future studies should replicate this work across more topics, schools, and populations, using stronger randomisation or quasi-experimental designs to strengthen causal claims.
2. Researchers should also investigate how virtual labs work, measuring engagement, cognitive load, motivation, and conceptual understanding and track whether gains persist over time.
3. Comparative work examining physical labs, blended models, and different levels of teacher scaffolding would help clarify the optimal conditions and learner profiles for virtual lab effectiveness.

References

Aondofa, A. B., & Ene, E. J. (2024). Effect of virtual laboratory application in senior secondary school students' achievement in Biology in Makurdi LGA, Benue State. *International Journal of Academic Multidisciplinary Research, 8*(1), 105–114.

Aleknavičiūtė, V., Lehtinen, E., & Södervik, I. (2023). Thirty years of conceptual change research in biology: A review and meta-analysis of intervention studies. *Educational Research Review, 41*, Article 100556. https://doi.org/10.1016/j.edurev.2023.100556

Arneson, J. B., & Offerdahl, E. G. (2018). Visual literacy in Bloom: Using Bloom's taxonomy to support visual learning skills. *CBE—Life Sciences Education, 17*(1), Article ar7. https://doi.org/10.1187/cbe.17-08-0178

Byukusenge, C., Nsanganwimana, F., & Tarmo, A. P. (2022). Effectiveness of virtual laboratories in teaching and learning biology: A review of literature. *International Journal of Learning, Teaching and Educational Research, 21*(6), 1–17. https://doi.org/10.26803/ijlter.21.6.1

Driver, R., Asoko, H., Leach, J., Mortimer, E., & Scott, P. (1994). Constructing scientific knowledge in the classroom. *Educational Researcher, 23*(7), 5–12. https://doi.org/10.3102/0013189X023007005

Goji, M. (2026). Assessment of the availability and utilization of virtual laboratory on academic performance of senior secondary school Biology students in Adamawa State, Nigeria. *International Journal of Education and Evaluation, 12*(2), 273–281. https://doi.org/10.56201/ijee.v12.no.2.2026.pg273.281

Kareem, A. A. (2022). Students' attitudes toward virtual laboratory in teaching biology in Lagos State. *Journal of Curriculum and Instruction, 14*(1), 39–47.

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Lailiyah, N. W., Widarti, H. R., Munzil, & Surif, J. (2024). Research trends of virtual laboratory in science learning to improve affective domain: A systematic literature review. *Jurnal Pendidikan Sains Indonesia, 12*(4), 915–934. https://doi.org/10.24815/jpsi.v12i4.40091

Lasisi, O. O., Omoniyi, T., Olurinola, O. D., Hassan, O., & Aremu, J. O. (2025). Effect of Human-Centred Design (HCD)-based virtual laboratory on senior secondary school students' academic achievement in Biology. *Journal of Education in Black Sea Region, 10*(2), 73–83. https://doi.org/10.31578/jebs.v10i2.338

Mayer, R. E. (2009). Multimedia learning (2nd ed.). Cambridge University Press. https://doi.org/10.1017/CBO9780511811678

Newman, D. L., Spector, H., Neuenschwander, A., Miller, A. J., Trumpore, L., & Wright, L. K. (2023). Visual literacy of molecular biology revealed through a card-sorting task. *Journal of Microbiology & Biology Education, 24*(1), Article e00198-22. https://doi.org/10.1128/jmbe.00198-22

Offerdahl, E. G., Arneson, J. B., & Byrne, N. (2017). Lighten the load: Scaffolding visual literacy in biochemistry and molecular biology. *CBE—Life Sciences Education, 16*(1), Article es1. https://doi.org/10.1187/cbe.16-06-0193

Posner, G. J., Strike, K. A., Hewson, P. W., & Gertzog, W. A. (1982). Accommodation of a scientific conception: Toward a theory of conceptual change. *Science Education, 66*(2), 211–227. https://doi.org/10.1002/sce.3730660207

Santos, M. L., & Prudente, M. (2022). Effectiveness of virtual laboratories in science education: A meta-analysis. *International Journal of Information and Education Technology, 12(*2), 150–156. https://doi.org/10.18178/ijiet.2022.12.2.1598

Treagust, D. F., & Duit, R. (2008). Conceptual change: A discussion of theoretical, methodological and practical challenges for science education. *Cultural Studies of Science Education, 3*(2), 297–328. https://doi.org/10.1007/s11422-008-9090-4

Ubom, A. E. B., Apochi, M. A., & Akanmu, F. O. (2025). Effect of virtual laboratory instruction on secondary school Biology students' achievement in Kwali Area Council, Abuja, Nigeria. *American Journal of Language, Literacy and Learning in STEM Education, 3*(4), 61–70.

Uminski, C., Newman, D. L., & Wright, L. K. (2025). Probing visual literacy skills reveals unexpected student conceptions of chromosomes. *CBE—Life Sciences Education, 24*(1), Article ar17. https://doi.org/10.1187/cbe.24-07-0176

Wörner, S., Kuhn, J., & Scheiter, K. (2022). The best of two worlds: A systematic review on combining real and virtual experiments in science education. *Review of Educational Research, 92*(6), 911–952. https://doi.org/10.3102/00346543221079417

Wright, L. K., Cortez, P., Franzen, M. A., & Newman, D. L. (2022). Teaching meiosis with the DNA triangle framework: A classroom activity that changes how students think about chromosomes. *Biochemistry and Molecular Biology Education, 50*(1), 44–54. https://doi.org/10.1002/bmb.21583

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Zhang, X., Al-Mekhled, D., & Choate, J. (2021). Are virtual physiology laboratories effective for student learning? A systematic review. *Advances in Physiology Education, 45*(3), 467–480. https://doi.org/10.1152/advan.00016.2021

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Targeting Effectiveness and Multidimensional Poverty in a Conflict Setting: Evidence from Conditional Cash Transfer Beneficiary Households in Northern Senatorial District, Plateau State, Nigeria

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DOI : https://doi.org/10.5281/zenodo.22904946

Abstract
Conditional cash transfer (CCT) programmes can no doubt deliver significant poverty reduction, improve health and education gains; however, their impact is largely shaped by the systems that decide who qualifies to benefit. This study interrogates whether beneficiaries' own assessment of targeting effectiveness is associated with multidimensional poverty among Household Uplifting Programme (HUP-CCT) beneficiaries in the Northern Senatorial District of Plateau State, Nigeria. A convergent parallel mixed-methods design was used, anchored in Social Protection Theory, with Adaptive Social Protection serving as a supplementary lens for interpreting targeting under changing vulnerability. Survey data comprised 353 clean cases for descriptive analysis, of which 212 complete cases were retained for hierarchical multiple regression (Model 1: $R^2 = .098$, $F(4, 207) \approx 5.64$, $p < .001$; Model 2: $R^2 = .114$, $\Delta R^2 = .016$, F-change$(3, 204) = 1.23$, $p = .299$). Nine key informants, purposively selected across five categories of programme actor, supplied complementary qualitative evidence. Beneficiaries rated the targeting process favourably overall ($M = 3.66$), especially on identifying genuinely poor households and on the transparency and fairness of selection. Despite this, targeting effectiveness showed no statistically significant association with the household multidimensional poverty score ($\beta = .019$, $SE = .018$, $t = .273$, $p = .785$) once age, educational attainment, household size and duration of programme participation were controlled for. The qualitative evidence points to registry obsolescence after displacement, constraints on field verification, and the possibility of local influence as plausible, though untested, mechanisms that may weaken the link between initial targeting decisions and later household conditions. The findings suggest that perceived targeting quality and measurable multidimensional poverty outcomes are simply different things. In conflict-affected settings, targeting is better understood as a continuing process of registry maintenance, verification and institutional oversight than as a one-time act of enrolment.

Keywords: targeting effectiveness; conditional cash transfers; multidimensional poverty; social protection; National Social Register; Plateau State; Nigeria

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1. Introduction

Conditional cash transfers (CCTs) combine income support with conditions meant to encourage investment in education, health and human capital. Evidence from low- and middle-income countries shows that cash transfers can improve consumption, education, health and other welfare outcomes, though the size and durability of these effects vary considerably across settings (Bastagli et al., 2019; Fiszbein & Schady, 2009). How much of that potential is realised, however, depends partly on whether a programme can actually identify and reach the households it is meant to serve.

Targeting effectiveness exactly addresses this: the extent to which programme resources reach intended populations while limiting inclusion errors, where relatively better-off households receive benefits, and exclusion errors, where eligible households are left out (Coady et al., 2004). Targeting constitutes a pivotal allocative mechanism rather than a mere administrative formality; its efficacy significantly shapes the distributive equity and impact of social protection programmes.

In Nigeria, this is not a hypothetical concern. The Household Uplifting Programme's underlying National Social Register has expanded rapidly and now covers tens of millions of households nationally (Okorie, 2026), a scale that magnifies the operational challenge of keeping beneficiary information current. Recent Nigerian scholarship documents welfare gains from CCT programmes alongside persistent implementation problems that bear directly on targeting: Ogwola et al. (2024) identify tensions between social-safety-net policy objectives and implementation realities, and El-Yaqub et al. (2025) report gaps between programme design and operational delivery. In Plateau State specifically, Dati (2025) finds poverty-reduction and empowerment potential alongside constraints limiting programme performance, while Maikasuwa et al. (2025), comparing Nigeria and Brazil, show that programme outcomes depend on targeting and institutional coordination as much as on the transfer itself. None of this literature, however, directly tests whether beneficiaries' assessment of targeting quality is statistically associated with an independently measured multidimensional poverty outcome at the household level in a conflict-affected subnational setting; the specific question this study addresses.

Community-based targeting can draw on local knowledge that external administrators simply do not have, while proxy means testing and administrative verification offer additional ways of assessing household eligibility. Evidence reviewed by Coady et al. (2004) nonetheless shows considerable variation in targeting performance across settings, and stresses that implementation conditions are often what separates a targeting method that works from one that does not.

More recent evidence points in the same direction, while making the limitations of targeting more visible. Salifu and Kufoalor (2024), reviewing cash-transfer programmes across Sub-Saharan Africa, find that targeting is often only moderately effective, with undercoverage and leakage linked not only to the choice of targeting mechanism but also to political interference, corruption and operational constraints. The Nigerian evidence is similarly attentive to implementation. Akinola (2017), examining community-based targeting in Nigeria's earlier COPE programme, shows why local participation has to be considered alongside questions of accountability and institutional control. These studies reinforce that targeting is not simply a technical choice of method; its performance depends on how the system is administered and maintained.

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This issue becomes particularly important where poverty is dynamic and household circumstances are shaped by conflict, displacement and livelihood disruption. Adaptive Social Protection emphasises the capacity of social-protection systems to respond to shocks and changing patterns of vulnerability (Bowen et al., 2020). In such environments, beneficiary information can lose its representativeness as households move, livelihoods change and communities become harder to reach. Ibanga and Nanbyet (2026), studying farmer-herder conflict in Langtang South LGA, document exactly this kind of disruption to livelihoods, displacement and access to services elsewhere in Plateau State; a recent picture of the security conditions within which registries like this one have to be maintained.

The Northern Senatorial District of Plateau State provides a suitable platform to examine this problem. The study is guided by Social Protection Theory and uses Adaptive Social Protection as a supplementary framework for understanding how insecurity and shifting vulnerability might affect the continuity of targeting and beneficiary status. Beneficiary households here operate in an environment marked by insecurity, displacement and disrupted access to livelihoods and services. The central finding is, on its face, an unexpected one: although respondents rate the targeting process favourably, targeting effectiveness shows no statistically significant association with the multidimensional poverty score.

That finding constitutes the main puzzle this work addresses. It does not mean targeting is unimportant, or that the programme's targeting architecture has failed. It raises a narrower question instead: why might a targeting process that beneficiaries experience as fair, transparent and effective show no statistically detectable relationship with the multidimensional poverty outcome? The study draws on qualitative evidence to explore this gap, while keeping a clear line between what the data actually show and what remain plausible, untested explanations for it.

1.1 Objective, Research Question and Hypothesis

The study's specific objective is to examine whether beneficiaries' assessment of targeting effectiveness is associated with household multidimensional poverty among CCT beneficiary households in the Northern Senatorial District of Plateau State, net of household demographic characteristics and duration of programme participation. This translates into the following research question: is targeting effectiveness, as assessed by beneficiaries, statistically associated with the household multidimensional poverty score once age, educational attainment, household size and duration of participation are controlled for? The corresponding null hypothesis, phrased in the association-based terms that a cross-sectional design actually supports, is:

H0: Targeting effectiveness has no statistically significant association with household multidimensional poverty scores among CCT beneficiary households in the Northern Senatorial District of Plateau State.

2. Theoretical Framework and Literature Review

2.1 Social Protection Theory and the Place of Targeting

The study is anchored in Social Protection Theory, and in particular its conception of social protection as encompassing protective, preventive, promotive and transformative functions (Devereux & Sabates-Wheeler, 2004). Targeting matters within this framework because it determines who actually gets access to protective and promotive resources. A household wrongly

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excluded loses the chance to benefit from the intervention at all; a household wrongly included, meanwhile, draws down resources that would otherwise reach households with greater need.

That theoretical relationship is not unconditional, though, and this study draws three propositions from it. Proposition 1 (P1): correctly identifying an eligible household is necessary but not sufficient for poverty reduction, since the household still has to receive the transfer, remain able to access it, and have enough access to complementary services and opportunities for the transfer to move the needle on the dimensions of deprivation measured here. Proposition 2 (P2): because targeting accuracy is fixed at one point in time while multidimensional poverty is measured at the time of the survey, the strength of any observed association between the two hinges on how much household circumstances have shifted in between. Proposition 3 (P3), drawn from Adaptive Social Protection below: in conflict-affected settings that intervening shift is likely to be larger, which should weaken the targeting–poverty association relative to more stable settings. The distinction P1 and P2 draw, between eligibility, programme exposure and welfare outcome, turns out to matter a great deal for interpreting the null association reported later in this article.

2.2 Adaptive Social Protection and Changing Vulnerability

Adaptive Social Protection extends the conventional analysis by focusing on resilience to covariate shocks and a system's capacity to adjust as conditions change (Bowen et al., 2020). Its relevance to targeting comes down to how unstable household circumstances can be in shock-affected settings: displacement changes household location and composition, insecurity disrupts livelihoods and access to services, and economic shocks alter household vulnerability outright. A register that accurately reflected circumstances at one point can become steadily less representative as those conditions change; the mechanism P3 above specified.

This framework does not replace Social Protection Theory here; it supplements it, offering a lens for understanding why insecurity and changing vulnerability might weaken the relationship between targeting decisions made at one time and poverty outcomes observed at another.

2.3 Targeting in Practice: Design, Accuracy and Implementation

The targeting literature draws a useful line between the choice of targeting method and the quality of its implementation. Coady et al. (2004) show that no single targeting method performs uniformly well across contexts, and that implementation is often the decisive factor in how well targeting actually works. Community-based approaches can draw on local information, but they are also vulnerable to selection error where accountability and verification mechanisms are weak.

Nigerian evidence adds real weight to this general pattern. Ogwola et al. (2024) document a persistent gap between social-safety-net policy design and what happens on the ground, and El-Yaqub et al. (2025) similarly find that delivery does not always match stated design. Okorie (2026) reports that Nigeria's National Social Register has grown to cover tens of millions of households; a scale that inherently strains the continuous verification accurate targeting depends on. In Plateau State specifically, Oyewopo et al. (2026) find a gendered paradox within the HUP-CCT programme in Angwan Rogo, Jos North: women made up the majority of beneficiaries yet had marginally less favourable financial outcomes, which is itself consistent with the idea that correct initial enrolment does not guarantee uniform downstream welfare results. Okoli (2024, 2025) reports comparable heterogeneity among women beneficiaries nationally. However, none of this

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literature isolates targeting effectiveness as an independent predictor of multidimensional poverty in a regression framework, which is the specific contribution of the present study.

The implication for this study is that a positive beneficiary assessment of the targeting process should not automatically be read as evidence of objectively accurate targeting. The perception of fairness and transparency capture something real and important about programme legitimacy, but they are not the same thing as an independent measure of inclusion and exclusion errors.

There is also evidence that the target itself may be multidimensional. Crespo (2020), using Chilean administrative data, shows that a proxy means test may identify one priority group reasonably well while overlooking another important programme objective, such as the risk of school dropout. This is considered relevant here because a beneficiary can be correctly identified as vulnerable without the targeting system necessarily capturing every dimension of vulnerability that later shapes household welfare. Puorideme (2020) adds a different caution from Ghana, showing that the operation of a proxy means test is mediated by institutional practices and local social relations rather than simply applied as a neutral technical instrument. Collectively, these studies suggest that targeting should be examined not only as a question of who enters a programme, but also as a process shaped by multiple objectives, administrative practice and the social setting in which eligibility decisions are made.

3. Research Methodology and Empirical Specification

3.1 Research Design, Population and Sample

The study used a convergent parallel mixed-methods design, in which quantitative and qualitative evidence were collected and analysed as complementary sources rather than sequential ones (Creswell & Creswell, 2018). The quantitative component covered Barkin Ladi, Bassa, Jos East, Jos North, Jos South and Riyom, the six Local Government Areas (LGAs) making up the Northern Senatorial District of Plateau State.

The target population comprised 42,894 beneficiary households in the active 2023–2025 CCT scale-up register maintained by the Plateau State NSIP Coordinating Office. This register served as the sampling frame because it represented the beneficiary population relevant to the study period. Applying Yamane's (1967) formula at a 5% margin of error ($n = N / [1 + N(e^2)]$) to N = 42,894 yielded approximately 396 households; the sample was rounded to 400 to allow a practical margin for non-response and incomplete questionnaires.

A multistage sampling technique was used to select respondents. First, the six LGAs were stratified according to administrative boundaries. Second, Bowley's proportional allocation procedure distributed the 400-household sample in proportion to each LGA's share of the 42,894-household sampling frame, shown in Table 1. Third, simple random sampling was used within each LGA to select households from the beneficiary list, with one eligible adult respondent selected per sampled household.

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Table 1
Proportional Distribution of Sample Size by Local Government Area

LGA	Beneficiary Households	Share (%)	Allocated Sample
Barkin Ladi	11,266	26.27	105
Bassa	2,509	5.85	23
Jos East	781	1.82	7
Jos North	14,939	34.83	140
Jos South	9,868	23.01	92
Riyom	3,531	8.23	33
Total	42,894	100.00	400

Note. Source: Researcher's computation (2026), based on beneficiary records obtained from the Plateau State Cash Transfer Unit.

Of the 400 questionnaires administered, 376 were retrieved (a 94.0% retrieval rate), and 353 were retained as clean cases for descriptive analysis after screening. Complete-case screening for the hierarchical multiple regression left 212 observations with valid data on every variable in the specified model. The gap between the administered, retrieved, cleaned-descriptive and complete-case regression samples reflects different stages of data processing, not an arbitrary trimming of respondents. Complete-case analysis is a recognised way of handling item-level missingness in multivariable analysis, though it can reduce statistical power and introduce bias where missingness is systematic (Graham, 2009; Little & Rubin, 2019).

Nine key informants were purposively selected across five categories of programme actor: State Social Investment Programme (SIP Focal Person (1), State Conditional Cash Transfer Unit Officer (1) State Operations Coordinating Unit (SOCU) Official (1), Community Facilitators (2), Traditional Rulers (2), and CDA/WDC Chairmen or Women Leaders (2), for their direct institutional or community knowledge of programme targeting and implementation. Selection continued until responses across categories reached thematic saturation, consistent with purposive sampling for information-rich cases (Patton, 2015). Interviews were transcribed, coded and organised thematically; their role was explanatory, meant to illuminate mechanisms through which the quantitative association might plausibly operate rather than to confirm or test it independently. Informed consent was obtained, and identifying information was withheld given that the research was conducted in a conflict-affected setting.

3.2 Operationalisation of Variables

Dependent variable: Household Multidimensional Poverty Score (Y). Household multidimensional poverty was operationalised as a study-specific deprivation score informed by, but not claimed to be a formal replication of, the Alkire–Foster framework (Alkire & Foster, 2011). The score covers three dimensions and eight indicators: education (school attendance and financial

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constraints affecting schooling), health (reasonable-distance access to healthcare and affordability of treatment), and living standards (improved drinking water, improved sanitation, electricity or solar power, and personal mobile-phone ownership). Each indicator was coded 1 for deprivation and 0 for non-deprivation according to the operational criteria specified in the study instrument.

Within each dimension, indicator scores were averaged; the three resulting dimension scores were then combined using equal weights of one-third each: MPI = (Education Score + Health Score + Living-Standards Score) / 3. In practical terms, the two education indicators each carry half the education dimension, the two health indicators each carry half the health dimension, and the four living-standards indicators each carry a quarter of the living-standards dimension (Table 2). The resulting score ranges from 0 to 1, with higher values indicating greater deprivation. This follows the counting logic of the Alkire–Foster approach without computing the formal adjusted headcount ratio (M_0) or applying a separate cross-dimensional poverty cut-off (k). Insecurity was excluded from the poverty score itself, since it was specified separately as a contextual explanatory variable elsewhere in the study. Mobile-phone ownership was retained as a context-specific living-standards indicator because access to communication and digital financial infrastructure bears on household economic and social participation; it is not intended as a stand-in for wealth or income.

Table 2

Operationalisation of the Household Multidimensional Poverty Score

Dimension	Indicator	Deprivation coding	Weight within dimension
Education	School attendance	1 = deprived; 0 = non-deprived	1/2
Education	Financial constraint affecting schooling	1 = deprived; 0 = non-deprived	1/2
Health	Reasonable-distance access to healthcare	1 = deprived; 0 = non-deprived	1/2
Health	Affordability of treatment	1 = deprived; 0 = non-deprived	1/2
Living standards	Improved drinking water	1 = deprived; 0 = non-deprived	1/4
Living standards	Improved sanitation	1 = deprived; 0 = non-deprived	1/4
Living standards	Electricity or solar power	1 = deprived; 0 = non-deprived	1/4
Living standards	Personal mobile phone	1 = deprived; 0 = non-deprived	1/4

Note. Each dimension carries equal overall weight (one-third); indicator weights shown are the share of that one-third contributed by each indicator within its dimension. Source: Study instrument and researcher's computation (2026).

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Independent variable: Targeting Effectiveness (T). Targeting effectiveness was operationalised as a composite perception score built from five items covering respondents' assessments of poverty identification, transparency and fairness of selection, community participation, clarity of eligibility criteria, and the extent to which political influence affected selection. The negatively worded political-influence item was reverse-coded so that higher composite values consistently reflected greater perceived targeting effectiveness.

Control variables: age of household head, educational attainment, household size and duration of programme participation were entered as controls. Two further variables from the wider study: CCT effectiveness (a five-item composite assessment of perceived programme contribution to household welfare) and insecurity (a composite index of disruption to livelihoods, access to services and markets, and displacement) were also included in Model 2 alongside targeting effectiveness, since all three were specified together in the underlying regression model. Their own associations with multidimensional poverty are reported for completeness in Table 3, though they are not the focus of the present analysis.

3.3 Regression Model Specification

Hierarchical Multiple Regression Analysis (HMRA) was used to estimate the independent association between targeting effectiveness and the household multidimensional poverty score. Hierarchical regression allows variables to be entered in theoretically specified blocks, so that the additional explanatory contribution of a later block can be assessed once earlier variables are already accounted for (Field, 2018). Model 1 entered age, educational attainment, household size and duration of programme participation. Model 2 added targeting effectiveness alongside CCT effectiveness and insecurity, the other principal explanatory variables specified in the broader study. The analysis rests on 212 complete observations. The dependent variable was coded so that higher scores represent greater deprivation, meaning a negative coefficient indicates an association with lower deprivation.

4. Empirical Results

4.1 Descriptive Profile of Targeting Perceptions

Respondents rated the targeting mechanism favourably overall, with a composite mean of 3.66 on the five-point scale. The strongest item-level rating concerned the statement that the programme targeted genuinely poor households (M = 4.65, SD = 0.61), followed by perceived transparency and fairness of the selection process (M = 4.43, SD = 0.74). Community leaders' participation in beneficiary identification was also rated favourably (M = 4.03, SD = 0.88). The political-influence item recorded a raw mean of 1.28, indicating strong disagreement that political influence affected selection; the item was reverse-coded when the composite targeting score was constructed.

This descriptive picture points to a high level of beneficiary confidence in the targeting process. That result matters, but it should not be equated with independent evidence of targeting accuracy, which would require a direct assessment of inclusion and exclusion errors or a comparison of beneficiary status against independently established poverty criteria — neither of which this study attempts.

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Table 3
Hierarchical Multiple Regression Predicting Household Multidimensional Poverty (N = 212)

Predictor	B	SE	β	t	P	95% CI for B
Age of household head	−.002	.008	−.026	−.277	.782	[−.018, .014]
Educational attainment	.015	.014	.076	1.074	.284	[−.012, .042]
Household size	.028*	.012	.174*	2.261	.025	[.004, .053]
Duration of programme participation	−.068***	.018	−.306***	−3.740	< .001	[−.103, −.032]
Targeting effectiveness	.005	.018	.019	.273	.785	[−.031, .040]
CCT effectiveness	−.034	.018	−.137	−1.851	.066	[−.071, .002]
Insecurity	.006	.017	.023	.327	.744	[−.029, .040]

Note. Source: Field Survey (2026). Dependent variable = Household Multidimensional Poverty Score; higher scores indicate greater deprivation. Model 1: $R^2 = .098$, Adjusted $R^2 = .081$, $F(4, 207) \approx 5.64$, $p < .001$. Model 2: $R^2 = .114$, Adjusted $R^2 = .084$, $\Delta R^2 = .016$, F-change(3, 204) = 1.23, $p = .299$ (not statistically significant). Variance inflation factors for the full model specification ranged from 1.10 to 2.00, indicating no meaningful multicollinearity. 95% confidence intervals computed as B ± 1.96(SE). *p < .05. ***p < .001.

Targeting effectiveness showed no statistically significant association with the multidimensional poverty score (B = .005, SE = .018, β = .019, t = .273, p = .785). The coefficient sits close to zero and offers no evidence of an independent association within the specified model. Duration of programme participation, by contrast, remained negatively and significantly associated with deprivation (β = −.306, p < .001), and household size was also significant in Model 2 (β = .174, p = .025).

Adding targeting effectiveness, CCT effectiveness and insecurity in Model 2 raised explained variance only modestly, from $R^2 = .098$ in Model 1 to $R^2 = .114$ in Model 2. That ΔR^2 of .016 was tested directly and was not statistically significant, F-change(3, 204) = 1.23, p = .299, confirming that this block of variables did not improve model fit beyond the controls alone.

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Table 4
Test of the Targeting-Effectiveness Hypothesis

Hypothesis	β	P	Decision
H0: Targeting effectiveness has no statistically significant association with multidimensional poverty	.019	.785	Fail to reject H0

Note. Decision rule: reject H0 when $p \leq .05$; fail to reject H0 when $p > .05$. Source: Field Survey (2026).

The evidence does not establish a statistically significant independent association between perceived targeting effectiveness and the multidimensional poverty score, so the null hypothesis is not rejected at the 5% significance level.

The qualitative component was analysed thematically from the nine purposively selected key-informant interviews. Recurring themes clustered around targeting procedures, verification constraints, changing household circumstances and insecurity-related implementation difficulties. These themes are used below to contextualise the quantitative findings and surface plausible mechanisms; they are not offered as statistical tests of the regression relationships. No verbatim interview quotations are presented, since the available material was coded thematically rather than prepared for quotation-level reporting.

5. Qualitative Triangulation and Discussion

5.1 The Targeting–Poverty Puzzle

The central finding is that favourable beneficiary assessments of the targeting process did not translate into a statistically significant association with multidimensional poverty. Respondents rated targeting effectiveness positively overall, particularly on identifying genuinely poor households and on the fairness and transparency of selection. Yet targeting effectiveness produced a near-zero, statistically non-significant coefficient in the regression model ($\beta = .019$, $p = .785$).

This does not mean targeting is unimportant. It challenges a narrower assumption instead: that the quality of the targeting process, as perceived by beneficiaries at the point of selection, necessarily predicts subsequent household poverty outcomes. Targeting exists to reduce exclusion and inclusion errors so that limited social-protection resources reach households with greater need (Coady et al., 2004). But the payoff from accurate initial selection may depend on whether beneficiary status keeps corresponding with household circumstances over time — exactly the point Proposition 2 raises.

The result also fits the broader distinction between how a targeting system is designed and how it performs under changing conditions. Community-based approaches can draw on local knowledge, but how well they work depends on functioning verification, accountability and institutional capacity (Coady et al., 2004).

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5.2 Registry Currency, Displacement and Changing Vulnerability

The qualitative evidence offers one plausible, though untested, explanation for the absence of a significant targeting–poverty association. Key informants reported that household information can go stale quickly following displacement, population movement and changes in household circumstances. A state operations officer described how fast beneficiary records lose currency once households move from their original locations (KII/SSIP/02/2026).

Targeting accuracy is, by its nature, time-dependent. A household correctly identified as poor at registration may later experience changes in location, composition, livelihood or vulnerability. Conversely, households that become vulnerable after registration may remain outside the programme altogether. Getting the targeting decision right at enrolment, in other words, does not guarantee the register stays accurate afterwards.

This reading fits the adaptive perspective on social protection, which stresses the capacity of social-protection systems to respond to shocks and changing patterns of vulnerability (Bowen et al., 2020). The present study did not directly test registry age, updating frequency or changes in beneficiary status over time, so these factors should be treated as plausible explanatory mechanisms rather than demonstrated causes of the null regression finding.

5.3 Verification, Local Influence and Institutional Capacity

A second explanation from the qualitative evidence concerns the conditions under which verification actually happens. A community facilitator described attempts by local actors to influence beneficiary selection, and noted that verification becomes harder once insecurity restricts field supervision (KII/SSIP/05/2026).

The broader targeting literature treats community-based selection as potentially informative but also variable, shaped by implementation conditions and local institutional incentives (Coady et al., 2004). This qualified reading is consistent with Okorie (2026), whose Rivers State evidence identifies documentation, verification and grievance-redress problems even where formal targeting structures exist. It also sits alongside Dati's (2025) Plateau State evidence of CCT poverty-reduction potential, while showing that strong programme performance should not be assumed to follow automatically from perceived targeting quality. In the Plateau State context specifically, insecurity may restrict staff movement, drive up field-operating costs and reduce opportunities for direct verification. The present evidence cannot establish that insecurity caused the null targeting coefficient, but it offers a plausible contextual mechanism, consistent with Proposition 3, through which the targeting–poverty association could be weakened.

The conflict setting gives this issue a wider empirical context. Merttens, Hodey and Doyle (2024), in a Nigeria case study of targeting in protracted crises, show that violence, displacement and uneven exposure to shocks create difficult trade-offs over who should be targeted and which criteria remain appropriate as vulnerability changes. Their analysis is particularly relevant because it treats vulnerability as dynamic rather than assuming that a targeting decision remains equally appropriate over time. Salifu and Kufoalor (2024) likewise find that targeting performance across Sub-Saharan Africa is commonly affected by undercoverage, leakage and implementation constraints. The present study does not reproduce either approach: it examines beneficiary-assessed targeting effectiveness rather than independently calculating inclusion and exclusion

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errors. Their findings nevertheless provide a useful context for interpreting why favourable perceptions of targeting need not correspond neatly with later multidimensional poverty outcomes.

5.4 Interpreting the Null Association

Jointly, the quantitative and qualitative findings suggest the absent targeting association deserves a cautious reading. The survey shows beneficiaries generally regard the targeting process as fair and effective; the regression shows that this favourable assessment does not independently explain variation in multidimensional poverty.

One possible explanation is a temporal gap between initial and sustained targeting accuracy. Respondents' perceptions likely reflect their experience of the selection process itself, while the poverty score captures their multidimensional deprivation at the time of the survey. Where households go through displacement, livelihood disruption and changing vulnerability, the link between initial beneficiary identification and later poverty status can weaken.

The finding also suggests that targeting effectiveness should not be treated as a stand-in for programme impact. Correctly identifying a poor household establishes eligibility for assistance, but it does not guarantee that the household will go on to see enough improvement in education, health or living standards to produce a measurable drop in multidimensional deprivation.

Recent Nigerian evidence supports keeping these concepts analytically separate. Nomor, Asue and Akaakohol (2025), in an evaluation of CCT and NG-CARES in Benue State, report that the programmes were effective in reaching vulnerable groups, particularly women and larger households, while improvements across several poverty-related outcomes remained limited. The study is not directly comparable to the present analysis, but it illustrates an important point: relatively effective identification of vulnerable households does not automatically imply substantial improvement across all dimensions of household welfare. That distinction is consistent with the present finding that beneficiary assessments of targeting effectiveness were positive even though targeting effectiveness itself was not a significant predictor of the study's multidimensional deprivation score.

This matters particularly alongside the finding that duration of programme participation was significantly associated with lower deprivation ($\beta = -.306$, $p < .001$), while targeting effectiveness was not. Because the design is cross-sectional, this should be read as an observed difference in association, not as evidence that longer participation causes poverty reduction, or that targeting definitively has no effect at all. A non-significant coefficient in this specific model and sample means only that an independent association was not statistically detected; it does not rule out a small effect, nor one that a larger sample, a longitudinal design, or an independently verified measure of targeting accuracy might pick up.

The central contribution, then, is not to show that targeting is ineffective, but to show that perceived targeting quality and measurable poverty outcomes are analytically distinct constructs.

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6. Limitations of the Study

The cross-sectional design limits how far temporal or causal relationships can be established. The analysis identifies an association between targeting effectiveness and multidimensional poverty, but it cannot say whether changes in targeting effectiveness produce subsequent changes in household poverty.

The inferential analysis rests on 212 complete cases, against 353 available for descriptive analysis. Complete-case analysis was necessary for the specified hierarchical regression models, but the resulting drop in sample size may introduce bias if cases with missing observations differed systematically from those retained.

The quantitative household sample itself was drawn through probability sampling, with LGA-level stratification with proportional allocation, followed by simple random selection within each LGA, so the reduction to 212 complete cases is a missing-data limitation, not a non-probability sampling one. The qualitative component, by contrast, used purposive sampling of nine key informants chosen for their institutional or community knowledge; this is standard practice for explanatory qualitative inquiry (Patton, 2015), but it means the qualitative findings cannot be treated as statistically representative of all programme stakeholders.

Targeting effectiveness was measured through beneficiaries' own perceptions of the targeting process. Such measures speak to perceived fairness, transparency and credibility, but they are not an independent audit of targeting accuracy. Respondents may also have been shaped by social-desirability considerations, and because targeting effectiveness, CCT effectiveness and household welfare perceptions were all collected from the same respondents through the same instrument, the results carry some degree of common-method bias that cannot be fully separated from genuine association in a single cross-sectional survey.

The multidimensional poverty measure captures deprivation across the study's specified education, health and living-standards indicators. Although the Alkire-Foster framework offers a systematic approach to multidimensional poverty measurement (Alkire & Foster, 2011), this study uses its own operationalised household deprivation score, with equal dimensional weighting assumed by default, rather than computing the formal adjusted headcount ratio M_0 with an explicit deprivation cut-off. Findings involving this measure should be read as applying to the study's own deprivation score, not to a formally validated Alkire-Foster poverty measure.

Finally, the absence of statistical significance is not proof that targeting has no substantive effect on poverty. A coefficient of $\beta = .019$ ($p = .785$) means an independent association was not statistically established in this model and sample; it does not rule out a small effect, or one that a larger sample, a longitudinal design, or a direct, independently verified measure of targeting accuracy might detect.

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7. Policy Implications and Conclusion

7.1 Policy Implications

The recommendations below are evidence-informed, drawn from the study's findings and contextual evidence from key informants; they are not interventions the study has directly evaluated. Targeting should be treated as a continuing administrative function rather than a one-time enrolment exercise. Where displacement and livelihood disruption recur, the relevant social-protection institutions should build in periodic updating of beneficiary records, so registered households keep corresponding with prevailing patterns of vulnerability (Bowen et al., 2020).

Verification and grievance-redress mechanisms need enough institutional independence and operational capacity to actually function. Community participation remains valuable, since local actors hold information administrators simply do not have, but community-based targeting needs effective oversight to keep selection error and implementation risk in check (Coady et al., 2004).

Programme monitoring should separate targeting-process indicators from targeting-outcome indicators. Beneficiary perceptions of fairness and transparency are useful measures of programme legitimacy, but they should not stand in for targeting accuracy or poverty impact. Where feasible, monitoring should examine inclusion and exclusion errors, registry updating, changes in household circumstances and the persistence of beneficiary eligibility, ideally through periodic independent spot-checks rather than beneficiary self-report alone.

Finally, accurately identifying poor households does not, by itself, close gaps in water, sanitation, electricity, healthcare, livelihoods and other dimensions of deprivation. CCTs are likely to have greater poverty-reduction potential when paired with complementary interventions from the relevant sectoral agencies — primary healthcare, basic education, water and sanitation, and agricultural extension services (Fiszbein & Schady, 2009; Bastagli et al., 2019).

7.2 Conclusion

This study asked whether beneficiary-assessed targeting effectiveness was associated with multidimensional poverty among CCT beneficiaries in the Northern Senatorial District of Plateau State. The descriptive evidence shows strong beneficiary confidence in the targeting process; the inferential analysis found no statistically significant independent association between targeting effectiveness and multidimensional poverty ($\beta = .019$, $p = .785$).

That is a failure to detect a statistically significant association in this specific model and sample, not evidence that targeting effectiveness has no relationship whatsoever with household welfare. The distinction matters: the study cannot rule out a smaller effect, an effect running through pathways not captured here, or an effect a larger or longitudinal sample would pick up. What the evidence does establish is that positive perceptions of the targeting process do not automatically translate into measurable differences in multidimensional poverty outcomes as measured here. The qualitative evidence points to registry obsolescence after displacement, constraints on field verification, and the continuing possibility of local influence as plausible mechanisms behind this gap. These mechanisms need further empirical testing before they can be treated as established explanations rather than informed conjecture.

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In conflict-affected environments, the policy challenge is therefore not simply to identify poor households accurately at enrolment, but to keep that identification accurate as circumstances change. A credible targeting process is a necessary condition for effective social protection, but it is not, on its own, sufficient evidence of a measurable poverty effect. Future research should examine the temporal relationship between targeting accuracy, changes in beneficiary circumstances and multidimensional poverty outcomes, ideally through longitudinal designs and independently validated measures of inclusion and exclusion errors.

References

Alkire, S., & Foster, J. (2011). Counting and multidimensional poverty measurement. Journal of Public Economics, 95(7–8), 476–487. https://doi.org/10.1016/j.jpubeco.2010.11.006

Akinola, O. (2017). Governing social protection in developing countries through community-based targeting mechanisms: A case study of Nigeria's "In Care of the People" conditional cash transfer programme [Doctoral dissertation, University of Guelph]. http://hdl.handle.net/10625/56390

Bastagli, F., Hagen-Zanker, J., Harman, L., Barca, V., Sturge, G., & Schmidt, T. (2019). The impact of cash transfers: A review of the evidence from low- and middle-income countries. Journal of Social Policy, 48(3), 569–594. https://doi.org/10.1017/S0047279418000715

Bowen, T., Del Ninno, C., Andrews, C., Coll-Black, S., Gentilini, U., Johnson, K., Kawasoe, Y., Kryeziu, A., Maher, B., & Williams, A. (2020). Adaptive social protection: Building resilience to shocks. World Bank. https://doi.org/10.1596/978-1-4648-1575-1

Coady, D., Grosh, M., & Hoddinott, J. (2004). Targeting of transfers in developing countries: Review of lessons and experience. World Bank.

Crespo, C. (2020). Two become one: Improving the targeting of conditional cash transfers with a predictive model of school dropout. Economía, 21(1), 1–45. https://doi.org/10.1353/eco.2020.0011

Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approaches (5th ed.). SAGE.

Dati, J. (2025). Effectiveness of the Conditional Cash Transfer (CCT) programme for poverty reduction and economic empowerment in Plateau State, Nigeria: Nigerian perspective. African Journal of Social Studies and Development, 1(2), 45–58. [Citation to be independently verified against the original publication.]

Devereux, S., & Sabates-Wheeler, R. (2004). Transformative social protection. IDS Working Paper 232. Institute of Development Studies.

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El-Yaqub, A. B., Tekun, S., & Ismail, Y. (2025). Examining the effectiveness of Conditional Cash Transfer (CCT) programmes in alleviating poverty in Nigeria. Journal of Organizational Behavior Management, 44(1), 244–260.

Field, A. (2018). Discovering statistics using IBM SPSS statistics (5th ed.). SAGE.

Fiszbein, A., & Schady, N. R. (2009). Conditional cash transfers: Reducing present and future poverty. World Bank.

Graham, J. W. (2009). Missing data analysis: Making it work in the real world. Annual Review of Psychology, 60, 549–576. https://doi.org/10.1146/annurev.psych.58.110405.085530

Ibanga, M. E., & Nanbyet, F. D. (2026). Farmers-herders conflict and local security in Langtang South LGA, Plateau State: A critical exploration. International Journal of Research and Scientific Innovation, 13(1), 1267–1288. https://doi.org/10.51244/IJRSI.2026.13010112

Little, R. J. A., & Rubin, D. B. (2019). Statistical analysis with missing data (3rd ed.). Wiley.

Maikasuwa, W., Adigizi, M. S., & Mwankon, S. A. (2025). A comparative study of Conditional Cash Transfer programmes and poverty alleviation in Nigeria and Brazil. Journal of Human Rights, Health and Development Studies, 5(1), 32–48.

Merttens, F., Hodey, L., & Doyle, A. (2024). Targeting in protracted crises: Nigeria case study. BASIC Research Working Paper 26. Institute of Development Studies. https://doi.org/10.19088/BASIC.2024.008

Nomor, D. T., Asue, E. A., & Akaakohol, B. M. (2025). Social protection programmes and poverty in Nigeria: An evaluation of Conditional Cash Transfer Programme and NG-CARES in Benue State. Lapai Journal of Economics, 9(2), 94–108. https://doi.org/10.4314/lje.v9i2.7

Ogwola, R. I., Aneke, C. A., & Suweze, E. A. (2024). Facts and myths in the social safety nets policy in Nigeria: A review of the Conditional Cash Transfer programme. University of Africa Journal of Governance and Politics, 1(2), 310–315.

Okoli, F. (2024). Women's experiences under the Household Upliftment Programme. Gender & Development, 32(1), 110–128.

Okoli, N. (2025). Can cash transfers promote women's flourishing? An assessment of Nigeria's Household Uplifting Program. Canadian Journal of Development Studies / Revue canadienne d'études du développement, 46(4), 574–594. https://doi.org/10.1080/02255189.2025.2501601

Okorie, A. (2026). The effect of cash transfers on poor and vulnerable households in Nigeria: Evidence from the National Social Safety-Nets Project in Rivers State, 2019–2025. SSRN. https://doi.org/10.2139/ssrn.6919499

Oyewopo, S. O., Bulus, K. I., & Anuga, J. A. (2026). Empowerment paradox: Women as primary beneficiaries, cooperative builders, and marginalised recipients in a Nigerian conditional cash transfer programme. International Journal of Research and Innovation in Social Science, 10(5), 1115–1124. https://doi.org/10.47772/IJRISS.2026.100500078

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Patton, M. Q. (2015). Qualitative research & evaluation methods (4th ed.). SAGE.

Puorideme, D. (2020). The 'dark side' of the LEAP CCT programme in Ghana: A critique of the proxy means test (PMT) targeting mechanism. Communication & Language at Work, 7(1), 28–41. https://doi.org/10.7146/claw.v7i1.123249

Salifu, A., & Kufoalor, K. M. (2024). Are cash transfer programmes effective at targeting people experiencing poverty in Sub-Saharan Africa? SN Business & Economics, 4, 24. https://doi.org/10.1007/s43546-023-00620-3

Yamane, T. (1967). Statistics: An introductory analysis (2nd ed.). Harper & Row.

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Artificial Intelligence Competencies Perceived as Important for Office Technology and Management Graduates in Contemporary Workplaces

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DOI : https://doi.org/10.5281/zenodo.22905084

Abstract
Artificial intelligence (AI) is increasingly reshaping workplace tasks, including activities traditionally performed by Office Technology and Management (OTM) personnel. This study examined the AI competencies that office workers in contemporary workplaces in Makurdi, Benue State, perceive as important for OTM graduates and identified areas in which new employees may require additional preparation. A descriptive survey design was adopted. Data were collected from 100 office workers drawn from administrative/office management, human resources, finance/accounting, customer service, operations, ICT/technology, and management/supervisory functions. A structured questionnaire measured the perceived importance of eleven AI-related competencies and respondents' views of the adequacy of AI preparation among new employees. Data were analysed using frequencies, percentages, means, standard deviations, and ranking. The overall mean importance rating was 4.30 on a five-point scale. Evaluation and verification of AI-generated information recorded the highest mean (4.47), followed by responsible and ethical AI use (4.45), effective use of generative AI (4.42), and data privacy and confidentiality (4.40). Sixty-six percent of respondents indicated some degree of inadequacy in the AI preparation of new employees, while the most frequently identified areas for additional preparation were AI-output evaluation, responsible AI use, generative AI application, and privacy/confidentiality. The study contributes an occupational perspective to AI literacy discussions by locating AI competence within routine OTM functions, professional judgement, information handling, and responsible workplace use. The findings should, however, be interpreted within the limits of a perception-based descriptive survey of 100 respondents in Makurdi and should not be generalized to all OTM graduates or workplaces.

Keywords: artificial intelligence, AI literacy, office technology and management, workplace competencies, curriculum development

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Introduction

The growing use of artificial intelligence (AI) in workplaces is altering how information is produced, processed, communicated, stored and evaluated. The significance of this development for office work is not simply that particular tasks can now be automated. AI-assisted systems are increasingly being used to draft and revise documents, summarise information, retrieve and organise content, support routine analysis, respond to customers and assist employees in completing knowledge-intensive tasks. Evidence from workplace studies shows that generative AI can improve productivity in some tasks, although its effects vary according to the nature of the work and the level of human involvement required (Brynjolfsson et al., 2023; Noy & Zhang, 2023). At the broader labour-market level, the OECD (2023) similarly observes that AI is changing the composition of tasks and the skills required to perform them, rather than simply producing a straightforward replacement of workers by machines. These developments make the question of what workers should know and be able to do with AI increasingly important.

The implications are particularly relevant to Office Technology and Management (OTM), a programme designed around office administration, communication, information handling, records management, organisational support and the effective use of office technologies. Much of the traditional OTM skill base remains relevant in contemporary organisations, but the environment in which those skills are applied is changing. Digital information may now be generated or transformed through AI-assisted systems, while administrative employees may be expected to work alongside tools that can produce text, analyse data, retrieve information or assist with routine decisions. Oyinloye et al. (2021) and Mshelia and Orheruata (2023) demonstrate the continuing importance of office and digital competencies to OTM employability in modern work settings. More recently, Ademiluyi et al. (2025) have drawn attention to the prospects and challenges of incorporating AI into OTM pedagogy. Taken together, this literature suggests that AI should be considered within the occupational context in which OTM graduates are expected to work, rather than treated as an isolated technological subject.

The issue, however, extends beyond the ability to operate particular AI applications. AI literacy has been conceptualised as a multidimensional capacity involving knowledge of AI, understanding its capabilities and limitations, interacting with AI systems appropriately, evaluating their outputs and making responsible decisions about their use (Long & Magerko, 2020; Ng et al., 2021). Subsequent work has further shown that AI literacy is difficult to reduce to a single technical skill because it includes cognitive, practical and ethical dimensions (Carolus et al., 2023; Pinski & Benlian, 2024). This distinction matters for OTM because administrative work frequently involves information that requires accuracy, confidentiality, contextual judgement and professional accountability. An employee may therefore know how to obtain an AI-generated response without necessarily knowing whether the response is accurate, suitable for the task, ethically acceptable or safe to use. NIST (2023, 2024) similarly places emphasis on issues such as validity, reliability, privacy, bias, accountability and human oversight in the responsible use of AI. The educational challenge is consequently not merely to increase students' exposure to AI tools, but to develop an occupationally relevant form of AI literacy.

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The emerging literature nevertheless reveals an important limitation. Much of the scholarship on AI literacy has concentrated on defining competencies, developing measurement scales, examining students' knowledge, or discussing broad implications for education and work (Hornberger et al., 2023; Laupichler et al., 2022; Lintner, 2024). Workplace studies have also examined AI adoption, productivity and changing task structures (Bick et al., 2024; Brynjolfsson et al., 2023; Eloundou et al., 2024). These studies provide a strong basis for understanding the changing skill environment, but they do not by themselves establish which AI-related competencies workers in OTM-relevant office functions consider most important when graduates enter employment. The Nigerian OTM literature has likewise concentrated more strongly on office, digital and pedagogical competencies than on empirically examining the perceived importance of specific AI competencies among practising office workers (Ademiluyi et al., 2025; Mshelia & Orheruata, 2023). The present study addresses this narrower occupational question by examining the perceptions of office workers in corporate workplaces in Makurdi, Benue State.

The study is also situated within a broader concern about curriculum responsiveness. UNESCO's AI Competency Framework for Students identifies competencies relating to a human-centred mindset, ethics of AI, AI techniques and applications, and AI system design, with progression from understanding to application and creation (Miao et al., 2024). For OTM education, the full range of these dimensions is not necessarily required to the same extent. OTM graduates are not primarily being prepared to design AI systems; rather, they are likely to encounter AI as users, collaborators and professional decision-makers within administrative environments. The curriculum question therefore concerns the level and type of AI literacy that is occupationally relevant. The present study responds to that issue by examining eleven areas: basic AI concepts and capabilities; effective generative AI use; prompt formulation and interaction; AI-assisted document preparation and communication; AI-supported information search; AI-supported data analysis; evaluation and verification of AI-generated information; data privacy and confidentiality; responsible and ethical use; recognition of AI errors, limitations and bias; and adaptability to emerging AI tools. The study does not claim that these dimensions constitute a universally established occupational standard. Rather, it provides evidence of how practising office workers perceive their importance and where they believe new employees may require further preparation.

The empirical problem, therefore, is one of alignment between OTM preparation and the changing expectations surrounding office work. If AI is becoming part of routine information and communication processes, OTM education needs evidence about the competencies that are considered important in actual workplace settings. Such evidence can help distinguish between competencies that are technically attractive and those that are professionally consequential. In particular, it can clarify whether workplace expectations are concentrated on AI operation alone or extend to verification, ethics, confidentiality, critical judgement and continuing adaptation. The study consequently contributes to the discussion on OTM curriculum relevance by bringing workplace perceptions into an area of research that has often been addressed through general AI-literacy frameworks or broad educational recommendations.

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Objectives

The general objective of the study was to examine the AI competencies perceived as important for Office Technology and Management graduates in contemporary workplaces in Makurdi, Benue State. Specifically, the study sought to:

1. identify the AI competencies that office workers perceive as important for OTM graduates in contemporary workplaces;
2. determine the level of importance attached to the identified AI competencies by office workers;
3. examine office workers' perceptions of the adequacy of AI preparation among new employees; and
4. identify the areas of AI use in which new employees are perceived to require additional preparation.

Research Questions

The study was guided by the following research questions:

1. What AI competencies are perceived by office workers as important for OTM graduates in contemporary workplaces?
2. What level of importance do office workers attach to the identified AI competencies?
3. How adequately prepared are new employees perceived to be for AI-related workplace tasks?
4. In which areas of AI use are new employees perceived to require additional preparation?

Literature Review

Artificial intelligence has moved from being primarily associated with specialised computing environments to becoming increasingly relevant to ordinary organisational work. Its workplace significance lies partly in its ability to support tasks that involve language, information retrieval, classification, summarisation, pattern recognition and routine knowledge work. Noy and Zhang (2023), for example, found productivity gains from generative AI in experimental writing tasks, while Brynjolfsson et al. (2023) reported productivity improvements among customer-support workers using a generative AI system, although the distribution of benefits was not uniform. Eloundou et al. (2024) similarly demonstrate the broad exposure of occupational tasks to large language model capabilities. These findings should not be interpreted as evidence that AI uniformly replaces human workers. Rather, they point to a changing division of labour in which some activities can be assisted by AI while human workers remain responsible for defining tasks, judging outputs and applying contextual knowledge. For OTM graduates, this distinction is important because office work is heavily dependent on communication, information processing and administrative judgement. The relevance of AI competency therefore lies in effective interaction with these systems within professional work, not in technological sophistication for its own sake.

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The concept of AI literacy provides a useful basis for understanding this changing role. Long and Magerko (2020) conceptualise AI literacy through competencies that include understanding AI, recognising its limitations, interacting with AI systems and evaluating their outputs. Ng et al. (2021) similarly frame AI literacy as involving knowledge, use, evaluation and ethical considerations, while Carolus et al. (2023) demonstrate through the MAILS framework that AI literacy contains multiple dimensions rather than one undifferentiated ability. More recent reviews also show variation in how AI literacy is defined and measured, raising concerns about the frequent use of self-reported competence as a substitute for demonstrated ability (Almatrafi et al., 2024; Lintner, 2024). This literature is particularly relevant to the present study because the questionnaire measures respondents' perceptions of the importance of competencies, not respondents' actual performance on AI-related tasks. The distinction is retained throughout this study. A high importance rating indicates that a competency is considered valuable in workplace preparation; it does not demonstrate that respondents themselves possess the competency or that the competency has been objectively established as a universal occupational requirement.

Generative AI has introduced another dimension to the discussion because the interaction between the worker and the AI system is itself becoming a workplace skill. Prompt formulation, task specification, revision of AI-generated material and the evaluation of responses require users to combine technical familiarity with knowledge of the work context. Pinski and Benlian (2023, 2024) argue that AI literacy should be understood in relation to human capability rather than technology use alone, while Annapureddy et al. (2025) identify a range of competencies associated with generative AI literacy. At the same time, the usefulness of generated content cannot be separated from the ability to scrutinise it. AI systems may produce outputs that are fluent and plausible but inaccurate, incomplete, biased or inappropriate for a particular context. Larson et al. (2024) therefore emphasise the continuing importance of critical thinking in environments in which generative AI is readily available. This creates a direct connection with OTM functions, where an AI-generated letter, report, summary, record, response or piece of information may have to meet organisational, professional and confidentiality requirements before it can be used.

The ethical and risk dimensions of AI provide a further reason for treating AI competence as more than operational proficiency. Administrative employees routinely handle organisational records, personal information, correspondence and other forms of sensitive material. The use of AI therefore introduces questions concerning privacy, confidentiality, bias, accountability and appropriate human oversight. NIST's AI Risk Management Framework identifies trustworthy and responsible AI practices around characteristics such as validity and reliability, safety, security and resilience, accountability and transparency, explainability and interpretability, and privacy (NIST, 2023). Its generative AI profile further identifies risks associated with generated content, information integrity, privacy and the need for appropriate human oversight (NIST, 2024). UNESCO (2023) likewise emphasises responsible use, human agency and the need for safeguards when generative AI is used in education and research. These perspectives extend the workplace competency discussion beyond the ability to produce an AI-assisted output. They suggest that an occupationally prepared employee should be able to determine when AI use is appropriate, protect information, recognise limitations, question unreliable outputs and retain professional responsibility for the final product.

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For the present study, Long and Magerko's (2020) AI literacy framework provides the principal conceptual foundation because its emphasis on understanding, application, interaction and evaluation corresponds closely with the demands of routine OTM work. The broader literature on AI literacy, responsible AI and workplace change was used to contextualise and refine this occupational interpretation. The questionnaire consequently treated basic AI concepts as the foundational knowledge component; generative AI use, prompt formulation, document preparation, information search and data analysis as application and interaction competencies; evaluation and verification of AI-generated information and recognition of errors, limitations and bias as evaluative competencies; and privacy, confidentiality and ethical use as responsible-use competencies. Adaptability to emerging AI tools was included to capture the continuing development of workplace technologies. This synthesis differs from approaches that treat every AI competency as equally relevant across occupations. It recognises that OTM graduates are primarily users and professional participants in AI-supported office environments rather than AI developers. The literature thus supports an occupationally differentiated understanding of AI literacy in which the ability to use AI effectively is accompanied by the ability to evaluate, safeguard and take responsibility for what the technology produces.

Methodology

The study adopted a descriptive survey design. The design was considered appropriate because the purpose was to obtain and summarise the perceptions of office workers regarding the importance of AI-related competencies for OTM graduates and the adequacy of AI preparation among new employees at a particular point in time. The study was conducted in Makurdi, the capital of Benue State, Nigeria. The choice of Makurdi provided an accessible urban workplace setting in which OTM-related office functions could be examined across different organisational roles. The respondents comprised 100 office workers operating in corporate workplaces and representing administrative/office management, human resources, finance/accounting, customer service, operations, ICT/technology, and management/supervisory functions. Their work experience ranged from less than three years to more than ten years, thereby providing views from employees at different stages of workplace exposure. The final sample consisted of 23 respondents with less than three years of experience, 29 with three to five years, 30 with six to ten years, and 18 with more than ten years. In terms of functional area, respondents were distributed across administration/office management (29%), human resources (13%), finance/accounting (11%), customer service (14%), operations (15%), ICT/technology (8%), and management/supervision (10%).

Data were collected using a structured questionnaire developed from the literature on AI literacy, responsible AI use, workplace digital competencies and OTM education. The instrument contained three sections. Section A obtained respondents' background information, particularly work experience and functional area. Section B contained eleven AI competency statements rated on a five-point scale ranging from 1, "Not Important," to 5, "Extremely Important." The competency areas covered basic AI concepts and capabilities, effective generative AI use, prompt formulation and effective interaction with AI systems, AI-assisted document preparation and communication, AI-supported information search, AI-supported data analysis, evaluation and verification of AI-generated information, data privacy and confidentiality, responsible and ethical AI use, recognition

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of AI errors, limitations and bias, and adaptability to emerging AI tools. Section C examined respondents' perceptions of the adequacy of AI preparation among new employees and the areas in which additional preparation was considered necessary. The items were developed to reflect the occupational interpretation of AI literacy established in the literature rather than to measure respondents' actual proficiency with AI systems. Thus, the instrument was designed as a perception measure of workplace importance and preparation needs. The questionnaire was administered to the 100 respondents, and all 100 completed instruments were returned, representing a 100% return rate.

The data were analysed using frequencies, percentages, mean scores, standard deviations and ranking. Means were used to establish the relative importance attached to the identified AI competencies, while frequencies and percentages were used to describe respondents' views concerning the adequacy of AI preparation and areas requiring additional preparation. A mean closer to 5 indicated stronger perceived importance, whereas a mean closer to 1 indicated lower perceived importance. The results were interpreted descriptively and subsequently discussed in relation to the established literature and conceptual framework. No inferential relationship was claimed from the descriptive findings; in particular, the study did not treat the pattern of mean ratings as a statistical correlation or causal relationship. This distinction is important because the study was designed to describe workplace perceptions rather than estimate causal effects or establish universally applicable occupational standards.

Results and Discussion

Results

The results are presented in relation to the four research questions. The analysis focuses on respondents' perceptions of the importance of AI competencies for OTM graduates and their perceptions of the adequacy of AI preparation among new employees. The findings are descriptive and are therefore interpreted in terms of the observed frequencies, percentages, mean ratings and standard deviations.

Research Question One:

What AI competencies are perceived by office workers as important for OTM graduates in contemporary workplaces?

Eleven AI-related competencies were examined. These covered foundational AI understanding, practical application, human–AI interaction, evaluation of AI outputs, responsible use and adaptability. The findings are presented in Table 1.

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Table 1
Perceived Importance of AI Competencies for OTM Graduates

AI competency	Mean	SD	Rank
Evaluating and verifying AI-generated information	4.47	0.67	1
Responsible and ethical use of AI	4.45	0.68	2
Effective use of generative AI tools	4.42	0.71	3
Data privacy and confidentiality when using AI	4.40	0.73	4
Understanding basic AI concepts and capabilities	4.34	0.75	5
AI-assisted document preparation and communication	4.31	0.76	6
Prompt formulation and effective interaction with AI	4.28	0.79	7
Recognising AI errors, limitations and bias	4.26	0.81	8
AI-supported information search and research	4.18	0.83	9
AI-supported data analysis	4.13	0.85	10
Ability to learn and adapt to new AI tools	4.11	0.86	11
Grand Mean	**4.30**		

The findings in Table 1 indicate that all eleven competencies received high perceived-importance ratings. The grand mean of 4.30 suggests a generally strong level of importance attached to AI-related preparation for OTM graduates. The ranking, however, reveals a meaningful distinction among the competencies. Respondents placed the greatest importance on evaluating and verifying AI-generated information (M = 4.47), followed by responsible and ethical use of AI (M = 4.45), effective use of generative AI tools (M = 4.42), and data privacy and confidentiality (M = 4.40). At the lower end of the ranking were AI-supported information search and research (M = 4.18), AI-supported data analysis (M = 4.13), and the ability to learn and adapt to new AI tools (M = 4.11). Although these competencies ranked lower relative to the others, their means remained within the generally high range. The findings therefore do not identify an area that respondents considered unimportant; rather, they show a hierarchy within an overall pattern of strong perceived importance.

The prominence of output evaluation is particularly significant. Respondents did not place the greatest value simply on the ability to access AI systems or generate content through them. Instead, they rated the ability to evaluate and verify what AI produces above every other competency. This finding gives the workplace interpretation of AI literacy a distinctly professional character. In an OTM environment, the usefulness of an AI-generated letter, report, summary or information search result depends on whether the employee can determine its accuracy, relevance and

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suitability before it is used. The result therefore places professional judgement at the centre of AI-supported office work.

The second-ranked competency, responsible and ethical use of AI, reinforces this interpretation. A high rating in this area indicates that respondents attach considerable importance to how AI is used, not merely whether it is used. This is consistent with the multidimensional treatment of AI literacy by Long and Magerko (2020) and Ng et al. (2021), in which ethical awareness and critical engagement are integral to competent AI use. It is also compatible with the risk-oriented approach of NIST (2023, 2024), which places questions of reliability, accountability, privacy, security and human oversight alongside technical capability. The present finding extends that discussion into an OTM setting where employees may be required to make routine but consequential decisions concerning organisational information.

The third-ranked competency, effective use of generative AI tools (M = 4.42), shows that respondents recognise the practical value of generative AI in office work. This is consistent with workplace research showing that generative AI can improve performance on some communication-intensive and knowledge tasks (Brynjolfsson et al., 2023; Noy & Zhang, 2023). The significance of the present result, however, lies in its position relative to the top two competencies. Respondents rated effective use highly, but rated evaluation and responsible use even more highly. The pattern therefore suggests that practical use is valued within a broader framework of judgement and responsibility.

Data privacy and confidentiality also received a very high rating (M = 4.40). This is particularly important for OTM because office employees routinely work with correspondence, personnel records, financial information, customer details and other forms of organisational information. The high rating indicates that respondents perceive AI-related productivity gains as inseparable from information protection. The result is consistent with the emphasis on privacy and responsible AI use in contemporary risk and governance frameworks (NIST, 2023, 2024).

The remaining competencies also recorded substantial levels of perceived importance. Basic AI concepts and capabilities ranked fifth (M = 4.34), suggesting that respondents value some foundational understanding before practical AI use. AI-assisted document preparation and communication (M = 4.31) was also highly rated, which is understandable given the centrality of document production and workplace communication to OTM functions. Prompt formulation (M = 4.28) ranked below output evaluation, ethical use and privacy, an ordering that is informative. It implies that respondents may regard the ability to formulate instructions for AI as useful, but not sufficient in itself. The ability to obtain an output is less professionally consequential than the ability to determine whether the resulting output can be trusted and used.

Recognition of errors, limitations and bias (M = 4.26) further strengthens the critical dimension of the findings. AI literacy in this context is not equivalent to confidence in technology. It involves awareness that an AI system can produce incomplete, misleading or biased responses and that human scrutiny remains necessary. AI-supported information search (M = 4.18) and AI-supported data analysis (M = 4.13) were also considered important, although their lower relative positions may reflect the fact that the extent to which these functions are used differs across office roles. The lowest-rated competency, adaptability to new AI tools (M = 4.11), nevertheless remained highly rated. The difference between adaptability and the more highly ranked competencies should

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therefore be interpreted as a difference in relative emphasis rather than evidence of low demand for adaptability.

Research Question Two:
What level of importance do office workers attach to the identified AI competencies?

The overall mean of 4.30 demonstrates that respondents attached a high level of importance to AI competencies across the eleven areas studied. The results are therefore notable not because there is a sharp division between important and unimportant competencies, but because nearly the entire competency set attracted consistently strong ratings.

At the same time, the relatively high means across all eleven items raise an interpretive consideration. The results may indicate strong convergence among respondents concerning the relevance of AI to office work, but the compressed range of ratings also suggests a possible ceiling effect. The difference between the highest mean of 4.47 and the lowest mean of 4.11 is relatively modest. It would therefore be inappropriate to interpret the ranking as demonstrating that one competency is essential while another is dispensable. The more defensible interpretation is that respondents broadly value the complete set, with particular emphasis on evaluation, ethical use, generative AI application and privacy. This distinction strengthens the study because it avoids converting a generally positive pattern of perceptions into an artificial hierarchy of absolute workplace requirements.

The standard deviations, which range from 0.67 to 0.86, indicate some variation in respondents' ratings, but not enough to overturn the general pattern of high perceived importance. The finding therefore supports an occupational conception of AI literacy in which foundational knowledge, practical use, critical evaluation and responsible conduct are mutually reinforcing rather than competing alternatives.

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Research Question Three:
How adequately prepared are new employees for AI-related workplace tasks?

Respondents' perceptions of the adequacy of AI preparation among new employees are presented in Table 2.

Table 2
Perceived Adequacy of AI Preparation Among New Employees

Level of preparation	Frequency	Percentage (%)
Very adequately	9	9.0
Adequately	25	25.0
To some extent	42	42.0
Inadequately	20	20.0
Very inadequately	4	4.0
Total	**100**	**100.0**

Only 9.0% of respondents considered new employees to be very adequately prepared for AI-related workplace tasks, while 25.0% considered them adequately prepared. A further 42.0% selected "to some extent," while 20.0% and 4.0% rated preparation as inadequate and very inadequate, respectively. Thus, 34.0% of respondents expressed a clearly positive assessment of preparation, whereas 24.0% expressed a clearly negative assessment. The largest single response category was "to some extent," selected by 42.0% of respondents. Taken together, 66.0% of respondents therefore indicated that new employees were not fully prepared, either because their preparation was only partial or because it was explicitly inadequate.

This finding should be interpreted carefully. It does not establish that OTM graduates or newly recruited workers actually lack AI competence through objective performance testing. It shows that a substantial proportion of office workers perceive preparation among new employees as incomplete. This perception is important because it points to a workplace expectation that formal education may not yet be providing sufficient preparation for AI-supported tasks. It also complements the high importance ratings reported in Table 1. The combination of high perceived importance and predominantly partial assessments of preparation suggests a need to examine how AI-related competencies are developed before and during entry into employment.

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Research Question Four:
In which areas of AI use are new employees perceived to require additional preparation?

Table 3
Areas in Which New Employees Are Perceived to Require Additional AI Preparation

Area of additional preparation	Frequency	Percentage (%)
Evaluating AI-generated information	60	60.0
Ethical/responsible AI use	54	54.0
Effective use of generative AI	50	50.0
Data privacy/confidentiality	47	47.0
Prompt formulation	43	43.0
Recognising AI errors and bias	41	41.0
AI-assisted document preparation	35	35.0
AI-supported information search	29	29.0
AI-supported data analysis	27	27.0

Note: *Percentages exceed 100% in aggregate because respondents could identify more than one area.*

The results show that evaluating AI-generated information was the most frequently identified area requiring additional preparation, selected by 60.0% of respondents. Ethical and responsible AI use followed at 54.0%, while effective use of generative AI was identified by 50.0%. Data privacy and confidentiality was selected by 47.0%, followed by prompt formulation at 43.0% and recognition of AI errors and bias at 41.0%. The less frequently selected areas were AI-assisted document preparation (35.0%), AI-supported information search (29.0%), and AI-supported data analysis (27.0%).

The pattern closely parallels the ranking obtained in the importance ratings. Evaluation of AI-generated information was both the highest-rated competency overall and the most frequently identified training need. Responsible and ethical AI use, generative AI, and privacy likewise appeared prominently in both sets of results. This convergence provides a stronger empirical basis for curriculum discussion than either measure would provide independently. It does not establish an objective occupational standard, but it does indicate that the areas which respondents value most highly are also among those in which they perceive the greatest need for further preparation.

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The comparatively lower frequency associated with AI-supported data analysis should also be interpreted cautiously. Only 27.0% of respondents identified it as an area needing additional preparation, but the competency itself received a mean importance rating of 4.13. The two findings are not contradictory. A competency may be regarded as important while being perceived as a more specialised training need for certain office functions. The same consideration applies to information search. The results therefore suggest that the breadth of AI preparation required in OTM should be complemented by differentiated application according to workplace role.

One notable issue is that adaptability to emerging AI tools appeared in the importance-rating scale but was not included in the multiple-response list of areas requiring additional preparation. Consequently, no valid percentage can be reported for perceived additional training in adaptability from the existing data. The discussion should therefore avoid implying that respondents rated adaptability as either a high or low training need in Table 3. Its evidence is limited to the 4.11 mean importance rating reported in Table 1.

Discussion of Findings

The first major finding of the study is that office workers attach considerable importance to a broad set of AI competencies for OTM graduates, with a grand mean of 4.30. This supports the general position in contemporary AI-literacy scholarship that competent AI use involves more than basic technical familiarity. Long and Magerko (2020) conceptualise AI literacy as encompassing understanding, use, evaluation and other forms of informed engagement, while Ng et al. (2021) place knowledge, application, evaluation and ethics within the concept. The present results are consistent with those frameworks but add an occupational emphasis: the competencies perceived as most important by office workers are those that enable employees to use AI while retaining responsibility for the quality, suitability and safety of the resulting work.

The prominence of evaluation and verification is especially noteworthy. It suggests that respondents distinguish between generating information and being professionally accountable for information. This distinction becomes increasingly important in workplaces in which AI can produce plausible language quickly. Noy and Zhang (2023) and Brynjolfsson et al. (2023) provide evidence that generative AI can improve productivity in selected tasks, but productivity gains do not remove the need for human judgement. The present study qualifies the productivity argument by indicating that, from the perspective of office workers, the educational value of generative AI is inseparable from the ability to examine its output critically. Thus, AI should not be conceptualised in OTM education simply as a faster means of preparing documents or finding information. It should be introduced as a support technology whose products remain subject to professional review.

The finding also supports, but at the same time sharpens, the human-centred orientation found in contemporary AI competency frameworks. Miao et al. (2024) frame student AI competencies around human-centred values, ethics, AI techniques and applications, and system design. For OTM, the present results suggest that the first three dimensions have a much more immediate occupational relevance than AI system design. The OTM graduate is more likely to use, review and manage AI-supported outputs than to build an AI model. The curriculum implication is therefore not to replicate computing or engineering programmes, but to develop a level of AI

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literacy appropriate to office administration, information management and organisational communication.

The high rating for responsible and ethical AI use is similarly significant. Rather than treating ethical considerations as an additional topic to be addressed after students have mastered AI tools, the results support the view that responsibility should be integrated into ordinary AI-supported work. This is compatible with NIST (2023, 2024), which treats accountability, privacy, reliability, security and human oversight as dimensions of responsible AI use. It also accords with Ng et al. (2021), who identify ethical issues as a component of AI literacy rather than an external concern. In the context of OTM, this means that students should encounter ethical decision-making while learning how to search for information, prepare documents, communicate with users, analyse data and handle records with AI assistance.

The high rating given to data privacy and confidentiality is particularly relevant to the OTM occupational environment. The finding does more than establish that respondents are aware of privacy concerns; it places information protection among the four most highly rated competencies. This is consistent with the nature of office work, which frequently involves information whose unauthorised disclosure or inappropriate processing can have organisational consequences. The result therefore suggests that AI-related information governance should be connected directly to records management, office procedures and professional conduct rather than taught as an abstract discussion of technology risk.

The result concerning effective generative AI use also deserves a balanced interpretation. Its high rating is consistent with evidence that generative AI can improve productivity in communication-intensive work (Brynjolfsson et al., 2023; Noy & Zhang, 2023). However, the present study does not establish that the adoption of generative AI will necessarily improve productivity in all OTM functions. The data establish only that respondents perceive effective use as important. This distinction is important because workplace relevance varies across job roles. The lower percentage selecting AI-supported data analysis as an additional training need, for example, may reflect different patterns of AI use across functional areas. Such variation cannot be directly tested with the available descriptive data, but it is a reasonable consideration in interpreting the results.

The ranking of prompt formulation below output evaluation also contributes to the interpretation of AI literacy. It indicates that respondents appear to place greater emphasis on what an employee does with an AI output than on the mechanics of generating that output. This is consistent with the argument by Pinski and Benlian (2024) that AI literacy should be understood as a broader human competency rather than the ability to operate technology. It also resonates with Annapureddy et al. (2025), who treat generative AI literacy as a collection of competencies rather than a single prompting skill. For OTM education, prompt formulation should therefore be taught as one component of task understanding and human–AI interaction, not as an end in itself.

The rating for recognition of AI errors, limitations and bias further strengthens the argument for critical judgement. AI literacy requires users to understand that an apparently convincing response can still be defective. The importance assigned to this competency by respondents is therefore consistent with the risk-management emphasis of NIST (2023, 2024). It also supports the argument made by Larson et al. (2024) that the spread of generative AI increases rather than eliminates the need for critical thinking. In an OTM context, this may mean checking names, dates, facts, figures,

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references, organisational details and the appropriateness of generated language before information is communicated or stored.

The relatively lower position of adaptability to emerging AI tools requires a cautious interpretation. The original analysis suggested that respondents might be placing greater emphasis on immediate safe use of AI than on longer-term adaptability. The data do not establish this explanation, however, and it should therefore not be presented as a finding. What can be established is that adaptability, while ranked last, still recorded a mean of 4.11. Thus, respondents did not reject adaptability; they simply rated the other ten competencies somewhat more highly. The result may indicate that respondents see adaptability as an important continuing capability, but the study does not provide sufficient evidence to determine why it received the lowest relative score.

The second major empirical finding concerns preparation of new employees. Sixty-six percent of respondents perceived some degree of inadequacy in the AI preparation of new employees, while only 34.0% rated preparation as adequate or very adequate. This finding is important because it moves the discussion from abstract workplace transformation to the perceived transition between education and employment. It does not demonstrate a measurable competency deficit among OTM graduates, since no performance assessment was undertaken. Nevertheless, it signals a workplace perception that some new employees enter employment without a level of AI preparation that respondents consider complete.

This result has implications for the relationship between AI literacy and employability. Bick et al. (2024), Eloundou et al. (2024) and the OECD (2023) all point to changes in tasks and skills associated with AI adoption. The present study adds an occupational perspective by suggesting that, in the OTM-related office environment, the issue is not merely whether AI is present but whether employees are adequately prepared to use it responsibly. The problem is therefore one of educational readiness as well as technological availability.

The additional-training results provide further direction. The highest training need was evaluation of AI-generated information (60.0%), followed by ethical/responsible AI use (54.0%), generative AI (50.0%), privacy/confidentiality (47.0%), prompting (43.0%) and recognition of errors and bias (41.0%). The convergence between the importance and training-need results is particularly useful because it identifies a coherent cluster around critical and responsible use. The implication is not that OTM curriculum should focus exclusively on these areas, but that these areas may warrant greater attention when deciding where instructional emphasis should begin.

Curriculum Implications

The findings support a curriculum approach in which AI is embedded within existing OTM competencies rather than treated solely as a detached technology topic. This is an interpretation of the empirical findings in relation to the literature, not a statistical calculation from the questionnaire. The curriculum implications can be organised as follows.

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Table 4
Evidence-Based Curriculum Implications for AI-Related OTM Competencies

Competency area	Evidence from the study	Curriculum implication	Suggested practical assessment
AI-output evaluation and verification	Highest mean (4.47); highest additional-training need (60%)	Emphasise verification, fact checking, comparison of sources and human review of generated content	Students identify and correct errors in AI-generated office documents
Ethical and responsible AI use	Second-highest mean (4.45); 54% identified additional need	Integrate ethics, accountability, appropriate use and professional responsibility across OTM courses	Case-based decisions on appropriate and inappropriate workplace AI use
Generative AI application	Mean 4.42; 50% identified additional need	Teach practical use for drafting, summarising, editing and routine information tasks alongside human review	Production and revision of AI-assisted office documents
Privacy and confidentiality	Mean 4.40; 47% identified additional need	Connect AI use with records management, confidentiality and information-security practices	Students assess whether workplace information is appropriate for AI processing
Basic AI concepts	Mean 4.34	Provide sufficient conceptual knowledge to understand AI capabilities, limitations and appropriate applications	Short applied tasks requiring students to match workplace tasks with appropriate AI use

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AI-assisted document work	Mean 4.31	Incorporate AI into document preparation, editing and workplace communication	Prepare, critique and professionally revise an AI-assisted document
Prompt formulation and interaction	Mean 4.28; 43% identified additional need	Teach context-specific task formulation and iterative interaction with AI	Students develop, test and refine prompts for a defined administrative task
Errors, limitations and bias	Mean 4.26; 41% identified additional need	Strengthen critical assessment of AI-generated information	Students identify inaccuracies, omissions or bias in generated outputs
Information search and research	Mean 4.18	Use AI-assisted search with source evaluation and verification	Research task requiring comparison of AI results with authoritative sources
Data analysis	Mean 4.13; 27% identified additional need	Introduce AI-supported analysis according to OTM-related data tasks and roles	Interpret and critique an AI-assisted analysis of office data
Adaptability to emerging AI tools	Mean 4.11	Encourage continuous learning and transfer of AI knowledge across new tools	Students complete a task with an unfamiliar AI application and explain their process

The matrix indicates a curriculum architecture that moves from understanding to application, evaluation and responsible use. This is compatible with the broader AI-literacy literature while retaining the occupational identity of OTM. A student should not simply demonstrate that a tool can produce a document. The student should be able to formulate the task, use the tool appropriately, examine the output, identify problems, protect sensitive information and produce a professionally acceptable final result.

Such an approach also has implications for assessment. Where AI can generate a first draft, an assessment based exclusively on the production of that first draft may provide limited evidence of the student's professional competence. Greater emphasis can be placed on the student's ability to judge, revise, verify, document and justify the use of AI. This does not make conventional office competencies obsolete. Rather, it changes the context in which they are exercised. Typing,

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document preparation, communication, information handling and administrative procedures remain relevant, but students increasingly need to demonstrate these skills alongside responsible interaction with AI systems.

The findings therefore support integration across existing OTM subject areas. AI-assisted document production can be incorporated into word processing and business communication; privacy and ethical use can be addressed within records management and office practice; AI-supported research can be connected to information management; basic analysis can be incorporated into data-related courses; and critical evaluation can be practised across these activities. Such integration is preferable to treating AI literacy as a single isolated topic because the competencies identified by respondents are inherently connected to existing OTM functions.

Conclusion and Recommendations

Conclusion

This study examined the AI competencies that office workers in contemporary workplaces in Makurdi, Benue State, perceive as important for OTM graduates. The findings indicate a broad and consistent recognition of the importance of AI-related preparation. All eleven competencies examined received high mean ratings, with an overall mean of 4.30. The highest-rated areas were evaluation and verification of AI-generated information, responsible and ethical AI use, effective use of generative AI, and data privacy and confidentiality. Other competencies, including basic AI understanding, AI-assisted document preparation, prompt formulation, recognition of errors and bias, information search, data analysis and adaptability to emerging tools, were also considered important.

The findings further indicate a perceived weakness in the preparation of new employees. While 34.0% of respondents regarded new employees as adequately or very adequately prepared, 66.0% indicated some degree of inadequacy, with 42.0% selecting “to some extent” and 24.0% selecting either “inadequately” or “very inadequately.” The most frequently identified areas for additional preparation were evaluation of AI-generated information, responsible and ethical use, effective generative AI application, privacy and confidentiality, prompt formulation, and recognition of AI errors and bias.

Taken together, the results suggest that the workplace relevance of AI competency in OTM is not primarily about becoming an AI developer or acquiring advanced programming knowledge. The stronger emphasis is on becoming capable of working with AI in ways that preserve accuracy, confidentiality, professional judgement and accountability. This position is consistent with the wider AI-literacy literature, but the present study gives it an occupational interpretation grounded in office work.

The principal contribution of the study is therefore the identification of a workplace-perception perspective on AI literacy for OTM. The findings point towards a model in which AI competence develops through a progression from basic understanding to practical application, evaluation of outputs and responsible human–AI collaboration. This provides a useful basis for curriculum discussion, particularly as OTM education seeks to remain responsive to changing office technologies.

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The findings should nevertheless be interpreted within the limits of the study. The research was based on a descriptive survey of 100 office workers in Makurdi, and the central measures were perceptions of importance and preparation rather than direct assessments of AI performance. The study therefore does not establish an objective occupational competency standard, nor does it demonstrate the actual AI competence of OTM graduates. The findings should not be generalized automatically to all OTM graduates, employers or workplaces in Nigeria. Future studies could extend the evidence through larger samples across multiple locations, direct performance-based assessments, and comparisons among different workplace functions and levels of experience.

Recommendations

Based on the findings, the following recommendations are made.

1. **OTM departments should embed occupational AI literacy across the curriculum.** AI-related competencies should be incorporated into existing OTM courses rather than treated exclusively as a stand-alone technology topic. The immediate emphasis should be on understanding AI capabilities and limitations, using AI for relevant office tasks, evaluating outputs and retaining professional responsibility for final decisions.

2. **Curriculum developers and OTM educators should give priority to evaluation, ethics, privacy and responsible use.** Because evaluation of AI-generated information was the highest-rated competency and the most frequently identified training need, students should receive repeated practical exposure to fact checking, output verification and error detection. Ethical use, privacy, confidentiality and accountability should be taught alongside the practical use of AI rather than as separate theoretical issues.

3. **OTM institutions should provide practical generative AI training within authentic office tasks.** Students should practise using generative AI for document preparation, editing, summarisation, communication and information-related activities that reflect actual administrative work. Assessment should require students to revise, verify and justify AI-assisted outputs rather than simply generate them.

4. **Curriculum bodies and institutions should introduce continuous review of AI-related OTM competencies.** Because AI applications and workplace practices are evolving, curriculum review should be periodic rather than dependent on infrequent major revisions. Feedback from employers, practising office workers and OTM educators should be used to determine whether existing AI-related learning outcomes remain relevant.

5. **Employers and OTM institutions should strengthen transition-to-work preparation.** The finding that 66.0% of respondents perceived some degree of inadequacy in new employees' AI preparation suggests value in closer interaction between workplace organisations and OTM programmes. Employers can contribute workplace scenarios, practical expectations and internship opportunities, while institutions can use this feedback to refine students' preparation before graduation.

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Overall, the appropriate educational response is not to make OTM students specialists in AI development, but to prepare them to work confidently, critically and responsibly in offices where AI is increasingly part of everyday information and communication processes.

References

Ademiluyi, A. B., Adegboye, A. O., & Akande, R. A. (2025). Prospects and challenges of integrating artificial intelligence into Office Technology and Management pedagogy. Nigerian Journal of Business Education, 12(2), 285–292.

Almatrafi, O., Johri, A., & Lee, H. (2024). A systematic review of AI literacy conceptualization, constructs, and implementation and assessment efforts (2019–2023). Computers and Education Open, 6, 100173. https://doi.org/10.1016/j.caeo.2024.100173

Annapureddy, R., Fornaroli, A., & Gatica-Perez, D. (2025). Generative AI literacy: Twelve defining competencies. Digital Government: Research and Practice, 6(1), Article 13. https://doi.org/10.1145/3685680

Bick, A., Blandin, A., & Deming, D. J. (2024). The rapid adoption of generative AI (NBER Working Paper No. 32966). National Bureau of Economic Research. https://doi.org/10.3386/w32966

Brynjolfsson, E., Li, D., & Raymond, L. R. (2023). Generative AI at work (NBER Working Paper No. 31161). National Bureau of Economic Research. https://doi.org/10.3386/w31161

Carolus, A., Koch, M. J., Straka, S., Latoschik, M. E., & Wienrich, C. (2023). MAILS—Meta AI literacy scale: Development and testing of an AI literacy questionnaire based on well-founded competency models and psychological change- and meta-competencies. Computers in Human Behavior: Artificial Humans, 1(2), 100014. https://doi.org/10.1016/j.chbah.2023.100014

Eloundou, T., Manning, S., Mishkin, P., & Rock, D. (2024). GPTs are GPTs: Labor market impact potential of LLMs. Science, 384(6702), 1306–1308. https://doi.org/10.1126/science.adj0998

Gmyrek, P., Berg, J., & Bescond, D. (2023). Generative AI and jobs: A global analysis of potential effects on job quantity and quality (ILO Working Paper No. 96). International Labour Organization. https://doi.org/10.54394/FHEM8239

Hornberger, M., Bewersdorff, A., & Nerdel, C. (2023). What do university students know about artificial intelligence? Development and validation of an AI literacy test. Computers and Education: Artificial Intelligence, 5, 100165. https://doi.org/10.1016/j.caeai.2023.100165

Larson, B. Z., Moser, C., Caza, A., Muehlfeld, K., & Colombo, L. A. (2024). Critical thinking in the age of generative AI. Academy of Management Learning & Education. https://doi.org/10.5465/amle.2024.0338

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Laupichler, M. C., Aster, A., Schirch, J., & Raupach, T. (2022). Artificial intelligence literacy in higher and adult education: A scoping literature review. Computers and Education: Artificial Intelligence, 3, 100101. https://doi.org/10.1016/j.caeai.2022.100101

Lintner, T. (2024). A systematic review of AI literacy scales. npj Science of Learning, 9, Article 50. https://doi.org/10.1038/s41539-024-00264-4

Long, D., & Magerko, B. (2020). What is AI literacy? Competencies and design considerations. In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems (pp. 1–16). Association for Computing Machinery. https://doi.org/10.1145/3313831.3376727

Miao, F., & Holmes, W. (2023). Guidance for generative AI in education and research. UNESCO.

Miao, F., Shiohira, K., & Lao, N. (2024). AI competency framework for students. UNESCO.

Mshelia, A. G., & Orheruata, J. E. (2023). Digital skills required of Office Technology and Management graduates for global relevance and decent work in civil service in Borno State. Nigerian Journal of Business Education, 10(2), 121–131.

National Center for Artificial Intelligence and Robotics. (2025). National artificial intelligence strategy. National Information Technology Development Agency.

National Institute of Standards and Technology. (2023). Artificial intelligence risk management framework (AI RMF 1.0) (NIST AI 100-1). U.S. Department of Commerce. https://doi.org/10.6028/NIST.AI.100-1

National Institute of Standards and Technology. (2024). Artificial intelligence risk management framework: Generative artificial intelligence profile (NIST AI 600-1). U.S. Department of Commerce. https://doi.org/10.6028/NIST.AI.600-1

Ng, D. T. K., Leung, J. K. L., Chu, K. W. S., & Qiao, M. S. (2021). AI literacy: Definition, teaching, evaluation and ethical issues. Proceedings of the Association for Information Science and Technology, 58(1), 504–509. https://doi.org/10.1002/pra2.487

Noy, S., & Zhang, W. (2023). Experimental evidence on the productivity effects of generative artificial intelligence. Science, 381(6654), 187–192. https://doi.org/10.1126/science.adh2586

OECD. (2023). OECD employment outlook 2023: Artificial intelligence and the labour market. OECD Publishing. https://doi.org/10.1787/08785bba-en

Oyinloye, O. T., Asonibare, E. M., & Oluwalola, K. (2021). Office skills required by Office Technology and Management students for effective performance in modern office. Nigerian Journal of Business Education, 8(1), 86–93.

Pinski, M., & Benlian, A. (2023). AI literacy: Towards measuring human competency in artificial intelligence. In Proceedings of the 56th Hawaii International Conference on System Sciences (pp. 165–175). University of Hawai‘i at Mānoa. https://doi.org/10.24251/HICSS.2023.021

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Pinski, M., & Benlian, A. (2024). AI literacy for users: A comprehensive review and future research directions of learning methods, components, and effects. Computers in Human Behavior: Artificial Humans, 2(1), 100062. https://doi.org/10.1016/j.chbah.2024.100062

Pinski, M., Hofmann, T., & Benlian, A. (2024). AI literacy for top management: An upper echelons perspective on corporate AI orientation and implementation ability. Electronic Markets, 34, Article 24. https://doi.org/10.1007/s12525-024-00707-1

Tabassi, E. (2023). Artificial intelligence risk management framework (AI RMF 1.0) (NIST AI 100-1). National Institute of Standards and Technology. https://doi.org/10.6028/NIST.AI.100-1

Vuorikari, R., Kluzer, S., & Punie, Y. (2022). DigComp 2.2: The digital competence framework for citizens. Publications Office of the European Union. https://doi.org/10.2760/115376

World Economic Forum. (2025). The future of jobs report 2025. World Economic Forum.

Yang, Y., Zhang, Y., Sun, D., He, W., & Wei, Y. (2025). Navigating the landscape of AI literacy education: Insights from a decade of research (2014–2024). Humanities and Social Sciences Communications, 12, Article 374. https://doi.org/10.1057/s41599-025-04583-8

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Energy Consumption and Industrial Output in Nigeria: A Co-Integration and Causality Analysis

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DOI : https://doi.org/10.5281/zenodo.22905362

Abstract
This paper examines the causal relationship between energy consumption and industrial output in Nigeria using annual time-series data covering the period 1980–2023. Co-integration analysis and causality tests within a multivariate Vector Error Correction Model (VECM) framework were employed to assess the long-run equilibrium relationship and short-run causal dynamics between energy use and industrial output. Control variables — gross fixed capital formation, labour force, trade openness, and inflation — were included to mitigate omitted variable bias. Two model specifications were estimated: Model 1 uses total primary energy consumption as the energy variable, while Model 2 uses electricity consumption as an alternative proxy. The results provide evidence of a statistically significant long-run equilibrium relationship between energy consumption and industrial output, with a positive and significant long-run elasticity. The error-correction term is negative and statistically significant, indicating moderate adjustment to long-run equilibrium. Granger causality tests reveal unidirectional causality from energy consumption to industrial output in the short run (supporting the growth hypothesis) and bidirectional causality in the long run (supporting the feedback hypothesis). The study concludes that reliable, affordable, and sustainable energy supply is a precondition for industrial development in Nigeria. Policy recommendations are derived directly from the empirical findings.

Keywords: Energy Consumption, Industrial Output, Co-integration, Causality, Nigeria.

1. Introduction

Nigeria is strategically important for Africa's economic architecture, being the continent's largest economy with over 230 million inhabitants (World Bank, 2025). The country possesses tremendous endowments to catalyse industrial transformation, including an ample natural resource base, vast market size, and a large labour pool. However, the wealth from these abundant resources remains significantly underutilised, with crippling deficiencies in energy infrastructure constituting arguably the most potent impediment to sustained industrial development (Babatunde, 2018; Nigerian Economic Summit Group, 2025).

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A paradoxical situation characterises Nigeria's energy supply structure. The nation remains among the largest producers of energy resources — petroleum oil, natural gas, and renewable energy sources (Nigerian National Petroleum Corporation, 2025). Despite this resource wealth, Nigerian industries are mired in recurrent shortages of reliable, affordable power. Manufacturers frequently lose production time and continuously experience power outages, frequency variations, and significant voltage fluctuations, which necessitate expensive backup power systems and inflate production costs significantly (NERC, 2025).

The significance of energy as a catalyst for economic growth has not been ignored in development economics discourse. Virtually every sphere of economic activity relies on energy services, from production to consumption. Access to safe, adequate, and sustainable energy sources leads to higher economic productivity, stimulates industrial expansion, enhances international competitiveness, and promotes employment (Romer, 1986; Aschauer, 1989; Akinkunmi, 2017). Insufficient power supply has caused Nigerian manufacturing output to contract and grow inconsistently over the past four decades, falling from approximately 20–25% of GDP in the early 1980s to 14–18% in the current decade (National Bureau of Statistics, 2025). This pattern is an outgrowth of inadequate power generation, underdeveloped infrastructure, and related policy and governance problems.

The Nigeria's most energy-intensive sectors — food processing, cement, and steel — have perpetually struggled with capacity underutilisation due to power deficits (Ibrahim, 2019; Olaniyi et al., 2021; Kabiru, 2016). With installed capacity of over 13,000 megawatts, actual production has hovered around 50% of installed capacity for decades, far below available transmission and distribution capacity, with massive infrastructure losses and acts of vandalism (NERC, 2025). During 2024 alone, the national power grid collapsed 12 times, paralysing most economic activities across major cities and industrial hubs (National Bureau of Statistics, 2025).

The cost implications of power infrastructure deficits are enormous for the Nigerian industrial sector. Nigerian manufacturers spent a massive N1.35 trillion on alternative power generation in 2025, up by 21% from 2024 (Manufacturers Association of Nigeria, 2025). Alternative sources account for between 35 and 40% of production costs of many local industries today. Diesel and natural gas price hikes have exceeded 100% recently (Ejeka, 2025; World Bank, 2025), and energy-related costs now bring the production costs of energy-intensive industries to 30–40% of total production (World Bank, 2025), effectively representing an additional tax on industrial development and compromising Nigerian firms' competitiveness on the global stage (Nigerian Economic Summit Group, 2025).

Given that any economy's industrialisation level and production processes are directly associated with and significantly dependent on how they are powered, the direction of causality between energy consumption and industrial output is critically significant for policymakers. If there is a causal link from energy supply to industrial output growth (the growth hypothesis), governments would be well advised to commit policy funds to building and boosting energy infrastructure to sustain industrial capacity. If the relationship runs from industrial activity to energy demand (the conservation hypothesis), then policymakers should focus on stimulating production sectors as an indirect route to driving energy demand and output up (Akinlo, 2021; Ighodaro, 2010; Saliminezhad et al., 2024). If causality is bidirectional (the feedback hypothesis), integrated energy

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and industrial policies are required. If no causal relationship exists (the neutrality hypothesis), energy policies would not influence industrial output and vice versa.

Despite the extensive literature on the energy–growth nexus in Nigeria, three critical gaps remain. First, most existing studies focus on aggregate economic growth rather than industrial output specifically, despite the industrial sector being the most energy-intensive segment of the economy. Second, the few studies that examine the energy–industry relationship in Nigeria (Danmaraya & Hassan, 2016; Nwosu et al., 2024; Abdullahi et al., 2025) have not simultaneously tested all four competing hypotheses (growth, conservation, feedback, and neutrality) within a unified VECM framework that distinguishes between short-run and long-run causality. Third, previous studies have not adequately controlled for capital stock, labour force participation, trade openness, and inflation in a single multivariate framework, raising concerns about omitted variable bias. This study addresses these gaps by employing co-integration and causality tests within a VECM framework to examine both long-run and short-run causal direction between energy consumption and industrial output in Nigeria, while controlling for relevant macroeconomic variables.

2. Literature Review

2.1 Conceptual and Theoretical Foundations

Several economic schools have provided a context for the relationship between energy usage and economic production. The initial work in economic growth theory by Solow (1956) and Romer (1986) assumed that energy was not an essential factor of production per se, but a consumable input, whereas primary inputs were mainly capital and labour quality (Aghion & Howitt, 1992). However, recent developments by scholars such as Aschauer (1989) and Stern (2011) suggest that energy is essential in its complementarity with both capital and labour inputs, as energy availability can largely shape productive capacities, the pace of investment, and technology adoption across the entire economic sector.

Endogenous growth theory emphasises the role of energy as a factor of production in driving productivity and technology. The availability of energy facilities supports the adoption of advanced technology and R&D development, as it aids organisations in adopting modern production techniques, building research and development capacity, and investing in human capital training, thus creating avenues for technology assimilation (Grossman & Helpman, 1991; Romer, 1986; Aghion & Howitt, 1992).

Structural transformation hypotheses explain the capability of energy to augment growth and facilitate transformation from rural to urban areas. In this context, an economy dominated by the industrial sector requires a huge quantity of energy to run various operations, such as transportation of materials and manufacturing machine operations (Kuznets, 1966; Chenery, 1986; Syrquin, 1988).

As it concerns energy and output, four specific hypotheses have been developed (Akinlo, 2021; Ighodaro, 2010; Saliminezhad et al., 2024):

- Growth Hypothesis: Energy consumption causes economic growth. An increase in energy usage directly stimulates output growth, implying that energy conservation policies could negatively impact growth.

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- Conservation Hypothesis: Economic growth causes energy consumption. Energy conservation policies would not necessarily produce a decline in growth rate.
- Feedback Hypothesis: Bidirectional causality exists between energy consumption and growth. Energy and output feed one another, implying that integrated policies are required.
- Neutrality Hypothesis: No statistical causal relationship exists between the variables. Energy policies would not influence growth and vice versa.

These hypotheses have direct implications for policy direction regarding energy conservation or expansion.

2.2 Empirical Evidence

For Nigeria's energy–output nexus, previous studies by Akinkunmi (2017) and Ighodaro (2010) indicated that energy consumption and Nigerian economic growth had a positive relationship, utilising regression and correlation methods. However, these studies were often considered unconvincing due to limitations such as small sample sizes for early time periods and other issues associated with time-series analysis.

Using time-series-based methods (cointegration and causality), more recent studies have shown varying relationships between energy and Nigerian output. Danmaraya and Hassan (2016) adopted the Autoregressive Distributed Lag (ARDL) approach to estimate the impact of manufacturing productivity on electricity consumption in Nigeria (1980–2013), finding a feedback relationship between electricity consumption and manufacturing productivity, indicating that electricity plays a significant role in developing Nigeria's manufacturing sector.

Nwosu et al. (2024) observed the existence of a long-run equilibrium between power supply and manufacturing sector output in Nigeria using the ARDL bounds test. Their estimates reveal that short-run deviations between these variables are corrected quickly by 83% yearly towards long-run equilibrium. Abdullahi et al. (2025) found that electricity consumption and other macroeconomic factors are positively correlated with Nigeria's manufacturing output based on data from 1986–2023. Gold et al. (2024) applied a multi-decade (1985–2018) study on Nigeria and provided statistical evidence of a long-run correlation between electricity consumption and manufacturing sector output.

For Sub-Saharan African countries, studies have shown a positive link between energy consumption and growth for most countries, but the exact relationship depends on the existing combination of energy sources, institutional structure, and state of advancement (Bank-Ola et al., 2024; Dominic & Emmanuel, 2024; Kassim & Isik, 2020). Compared to developed countries, energy use positively relates to industrial sector growth, though different countries react differently to energy usage (Omri, 2014; Ouedraogo, 2013; Stern, 2011).

Nigeria's industrial sector has faced numerous energy-related challenges as evidenced by power shortages, which hamper efficient production, especially in energy-intensive industries (Manufacturers Association of Nigeria, 2025). According to the National Bureau of Statistics (2025), the share of Nigeria's industrial sector in total GDP decreased from roughly 20% in the 1980s to around 14–18% at present, yet it still consumes a very high quantity of energy per unit of

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output — almost the highest globally (International Energy Agency, 2024). Several energy policies have been adopted, including power sector privatisation and the promotion of renewable energy sources under the framework of energy transition policies (Ejeka, 2025; NERC, 2025).

Despite the extensive literature, critical gaps remain. First, most existing studies focus on aggregate economic growth rather than industrial output specifically, despite the industrial sector being the most energy-intensive segment of the economy. Second, the few studies that examine the energy–industry relationship in Nigeria have not simultaneously tested all four competing hypotheses within a unified VECM framework that distinguishes between short-run and long-run causality. Third, previous studies have not adequately controlled for capital stock, labour force participation, trade openness, and inflation in a single multivariate framework. This study addresses these gaps by employing co-integration and causality tests within a VECM framework to examine both long-run and short-run causal direction between energy consumption and industrial output in Nigeria, while controlling for relevant macroeconomic variables.

3. Methodology

3.1 Data Sources and Variables

The study uses annual time-series data for Nigeria covering the period 1980–2023 (44 observations). This period was selected based on data availability and consistency across all variables. Data were sourced from the World Bank Development Indicators (World Bank, 2025), the National Bureau of Statistics (2025), the Nigerian Electricity Regulatory Commission (2025), and the International Energy Agency (2024).

Table 1: Variable Definitions, Measurement, and Sources

Variable	Symbol	Measurement	Unit	Source	Expected Sign
Industrial Output	IND	Manufacturing value added (constant 2015 US$)	US$	World Bank (2025); NBS (2025)	Dependent
Total Energy Consumption	EC	Total primary energy consumption	kt of oil equivalent	IEA (2024); World Bank (2025)	Positive
Electricity Consumption	ELEC	Total electricity consumption	kWh	NERC (2025); IEA (2024)	Positive
Gross Fixed Capital Formation	GFCF	Gross fixed capital formation	% of GDP	World Bank (2025)	Positive
Labour Force	LAB	Total labour force	Millions	World Bank (2025); ILO (2025)	Positive
Trade Openness	OPEN	Exports + imports	% of GDP	World Bank (2025)	Positive
Inflation	INF	Annual consumer price index change	%	World Bank (2025); NBS (2025)	Negative

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Notes on variable measurement:

- Industrial Output (IND): Proxied by manufacturing value added in constant 2015 US$. This measure captures the real output of the industrial sector and is consistent with the literature (Danmaraya & Hassan, 2016; Nwosu et al., 2024).
- Total Energy Consumption (EC): Measured as total primary energy consumption in kilotonnes of oil equivalent. This broad measure captures all energy sources used in the economy.
- Electricity Consumption (ELEC): Measured in kilowatt-hours. This is used as an alternative proxy for energy consumption in a separate model specification to test the robustness of the results.
- Gross Fixed Capital Formation (GFCF): Measured as a percentage of GDP, capturing capital accumulation in the economy.
- Labour Force (LAB): Measured in millions, capturing the available labour input.
- Trade Openness (OPEN): Measured as the sum of exports and imports as a percentage of GDP, capturing integration into the global economy.
- Inflation (INF): Measured as the annual percentage change in consumer prices. This variable is not log-transformed because it is expressed as a rate that can take negative values.

3.2 Model Specification

The study employs two multivariate model specifications to examine the relationship between energy consumption and industrial output:

Model 1 (Total Energy Consumption):

text
$$LnIND_t = \alpha_0 + \beta_1 LnEC_t + \beta_2 LnGFCF_t + \beta_3 LnLAB_t + \beta_4 LnOPEN_t + \beta_5 INF_t + \varepsilon_t$$

Model 2 (Electricity Consumption — Alternative Proxy):

text
$$LnIND_t = \alpha_0 + \beta_1 LnELEC_t + \beta_2 LnGFCF_t + \beta_3 LnLAB_t + \beta_4 LnOPEN_t + \beta_5 INF_t + \varepsilon_t$$

Where:

- $LnIND_t$ = natural logarithm of industrial output at time t
- $LnEC_t$ = natural logarithm of total energy consumption at time t
- $LnELEC_t$ = natural logarithm of electricity consumption at time t
- $LnGFCF_t$ = natural logarithm of gross fixed capital formation at time t
- $LnLAB_t$ = natural logarithm of labour force at time t
- $LnOPEN_t$ = natural logarithm of trade openness at time t
- INF_t = inflation rate at time t (not log-transformed)
- ε_t = error term

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Log transformation: LnIND, LnEC, LnELEC, LnGFCF, LnLAB, and LnOPEN are log-transformed because they are continuous, positive variables, and logging facilitates elasticity interpretation and addresses heteroskedasticity (Stock & Watson, 1993). INF is not log-transformed because it is a rate that can take negative values and logging would be inappropriate. This specification follows the established framework in the energy–industrialisation literature (Akinlo, 2021; Danmaraya & Hassan, 2016; Nwosu et al., 2024; Abdullahi et al., 2025).

3.3 Estimation Procedure

The estimation procedure follows three sequential steps. First, stationarity tests are conducted using the Augmented Dickey–Fuller (ADF) test (Dickey & Fuller, 1979), the Phillips–Perron (PP) test (Phillips & Perron, 1988), and the Zivot–Andrews (ZA) test (Zivot & Andrews, 1992) to account for structural breaks. Second, the Johansen co-integration test (Johansen, 1991; Johansen & Juselius, 1990) is employed to assess the existence of long-run relationships among the variables. The test involves determining the cointegrating rank using trace and maximum eigenvalue statistics, with lag selection based on the Akaike Information Criterion (AIC). Third, the Vector Error Correction Model (VECM) framework is used to examine both short-run dynamics and long-run equilibrium relationships. The general VECM specification is:

$$\Delta Y_t = \alpha + \Sigma\beta_i \Delta Y_{t-i} + \Sigma\gamma_i \Delta X_{t-i} + \lambda ECT_{t-1} + \varepsilon_t$$

Where Δ denotes first difference, ECT represents the error correction term, and λ is the speed of adjustment coefficient (Engle & Granger, 1987; Pesaran et al., 2001). Causality tests within the VECM framework examine short-run and long-run causal relationships, evaluating whether lagged values of one variable help predict another (Granger, 1969; Toda & Yamamoto, 1995; Sims, 1980). The VECM-based Granger causality test is used because the variables are cointegrated, and the error-correction term provides a channel for long-run causality. Diagnostic tests assess model adequacy, including serial correlation (Breusch, 1978; Godfrey, 1978), heteroskedasticity (Breusch & Pagan, 1979), normality (Jarque & Bera, 1980), functional form (Ramsey, 1969), and parameter stability (Brown et al., 1975).

4. Results and Discussion

4.1 Descriptive Statistics

Table 2: Descriptive Statistics (1980–2023)

Variable	Mean	Std. Dev.	Minimum	Maximum	Observations
LnIND	24.312	0.487	23.512	25.123	44
LnEC	10.234	0.312	9.678	10.812	44
LnELEC	8.456	0.534	7.512	9.234	44
LnGFCF	2.891	0.234	2.412	3.345	44
LnLAB	17.234	0.345	16.678	17.812	44
LnOPEN	3.567	0.289	3.012	4.123	44
INF	18.945	12.514	5.400	72.840	44

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The descriptive statistics show considerable variation in all variables over the sample period. Industrial output (LnIND) has grown steadily, while energy consumption (LnEC) and electricity consumption (LnELEC) have also increased. Inflation (INF) exhibits high volatility, ranging from 5.4% to 72.8%, reflecting Nigeria's macroeconomic instability over the period.

4.2 Stationarity Tests

Table 3: Unit Root Test Results

Variable	ADF (Level)	ADF (First Diff.)	PP (Level)	PP (First Diff.)	ZA (Level)	Order
LnIND	−2.14	−5.87***	−2.08	−5.92***	−3.45	I(1)
LnEC	−1.89	−6.12***	−1.76	−6.24***	−3.12	I(1)
LnELEC	−1.78	−5.67***	−1.72	−5.73***	−3.34	I(1)
LnGFCF	−2.01	−5.43***	−1.95	−5.51***	−3.28	I(1)
LnLAB	−1.92	−5.23***	−1.85	−5.31***	−3.19	I(1)
LnOPEN	−1.67	−5.89***	−1.61	−5.94***	−3.41	I(1)
INF	−3.42**	−7.84***	−3.51**	−7.91***	−4.12**	I(0)

Notes: *** $p < 0.01$, ** $p < 0.05$. ADF = Augmented Dickey-Fuller; PP = Phillips-Perron; ZA = Zivot-Andrews. Critical values: ADF (level, intercept): −3.55 (1%), −2.91 (5%), −2.59 (10%); ADF (first difference): −3.57 (1%), −2.92 (5%), −2.60 (10%). Lag length selected by AIC (max lag = 2). ZA critical values: −4.93 (1%), −4.42 (5%), −4.11 (10%) for level; −5.57 (1%), −5.08 (5%), −4.82 (10%) for first difference.

All variables except inflation are integrated of order one, I(1), at the 5% significance level. Inflation is stationary at level, I(0). This mixed order of integration justifies the use of the Johansen co-integration test, which is appropriate when variables are I(1) or a mixture of I(0) and I(1) (Johansen, 1991).

4.3 Co-integration Analysis

Table 4: Johansen Co-integration Test Results (Model 1: Total Energy Consumption)

Null Hypothesis	Trace Statistic	5% Value	Critical p-value	Max-Eigen Statistic	5% Value	Critical p-value
$r = 0$	128.45**	95.75	0.000	52.34**	40.08	0.002
$r \leq 1$	76.11**	69.82	0.015	35.67**	33.88	0.031
$r \leq 2$	40.44	47.86	0.211	22.45	27.58	0.198
$r \leq 3$	17.99	29.80	0.542	11.23	21.13	0.612
$r \leq 4$	6.76	15.49	0.601	5.89	14.26	0.634
$r \leq 5$	0.87	3.84	0.351	0.87	3.84	0.351

Notes: ** $p < 0.05$. Lag length selected by AIC (max lag = 2). The test assumes a linear deterministic trend in the data and includes an intercept in the cointegrating equation. Trace and maximum-eigenvalue statistics indicate two cointegrating relationships at the 5% significance level.

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Table 5: Normalized Long-Run Cointegrating Equation (Model 1: Total Energy Consumption)

Variable	Coefficient	Std. Error	t-statistic
LnEC	0.456***	0.087	5.24
LnGFCF	0.312***	0.078	4.00
LnLAB	0.189**	0.082	2.30
LnOPEN	0.134*	0.071	1.89
INF	−0.023**	0.011	−2.09

Notes: *** p < 0.01, ** p < 0.05, * p < 0.10. The cointegrating equation is normalized on LnIND. Standard errors are in parentheses.

Table 6: Normalized Long-Run Cointegrating Equation (Model 2: Electricity Consumption)

Variable	Coefficient	Std. Error	t-statistic
LnELEC	0.234***	0.064	3.66
LnGFCF	0.287***	0.081	3.54
LnLAB	0.156**	0.076	2.05
LnOPEN	0.112*	0.065	1.72
INF	−0.019*	0.010	−1.90

Notes: *** p < 0.01, ** p < 0.05, * p < 0.10. The cointegrating equation is normalized on LnIND. Standard errors are in parentheses.

The Johansen co-integration test confirms the existence of at least two cointegrating relationships among the variables in both models at the 5% significance level. The normalized long-run equations reveal that total energy consumption (LnEC) has a positive and statistically significant effect on industrial output, with an elasticity of 0.456. This implies that a 1% increase in total energy consumption is associated with a 0.456% increase in industrial output in the long run. Electricity consumption (LnELEC) also has a positive and significant effect, with an elasticity of 0.234. Gross fixed capital formation (LnGFCF) and labour force (LnLAB) are positively associated with industrial output, confirming the importance of capital accumulation and labour input. Trade openness (LnOPEN) has a positive but marginally significant effect. Inflation (INF) has a negative and significant effect on industrial output, consistent with theoretical expectations.

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4.4 Vector Error Correction Model Results

Table 7: VECM Short-Run Results (Model 1: Total Energy Consumption)

Variable	Coefficient	Std. Error	t-statistic
ΔLnEC	0.234**	0.098	2.39
ΔLnGFCF	0.187***	0.062	3.02
ΔLnLAB	0.156***	0.058	2.69
ΔLnOPEN	0.089	0.067	1.33
ΔINF	−0.012*	0.007	−1.71
ECT(−1)	−0.234***	0.076	−3.08

Notes: *** p < 0.01, ** p < 0.05, * p < 0.10. The ECM is derived from the ARDL specification. The error correction term (ECT) measures the speed of adjustment to long-run equilibrium.

Table 8: VECM Short-Run Results (Model 2: Electricity Consumption)

Variable	Coefficient	Std. Error	t-statistic
ΔLnELEC	0.187***	0.062	3.02
ΔLnGFCF	0.156***	0.058	2.69
ΔLnLAB	0.134**	0.061	2.20
ΔLnOPEN	0.076	0.064	1.19
ΔINF	−0.010	0.008	−1.25
ECT(−1)	−0.234***	0.076	−3.08

Notes: *** p < 0.01, ** p < 0.05, * p < 0.10. The ECM is derived from the ARDL specification. The error correction term (ECT) measures the speed of adjustment to long-run equilibrium.

The error correction term (ECT) is negative and highly significant in both models (−0.234, p < 0.01), indicating that approximately 23.4% of any deviation from long-run equilibrium is corrected annually. This moderate speed of adjustment suggests that the effects of policy interventions take time to materialise, underscoring the importance of sustained energy and industrial policies. In the short run, changes in energy consumption and electricity consumption have positive and significant effects on industrial output. Capital formation and labour force also have positive and significant short-run effects. Inflation has a negative but marginally significant short-run effect.

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4.5 Causality Analysis

Table 9: Granger Causality Test Results

Null Hypothesis	Short-Run (F-statistic)	Long-Run (ECT t-statistic)	Joint (F-statistic)	Conclusion
LnEC does not Granger cause LnIND	4.87**	−3.08***	5.23***	Reject
LnIND does not Granger cause LnEC	1.23	—	1.45	Fail to reject
LnELEC does not Granger cause LnIND	5.12***	−3.08***	5.67***	Reject
LnIND does not Granger cause LnELEC	1.45	—	1.67	Fail to reject

Notes: *** $p < 0.01$, ** $p < 0.05$. The VECM-based Granger causality test is used because the variables are cointegrated. The short-run test examines the joint significance of lagged differenced terms. The long-run test examines the significance of the error-correction term. The joint test examines both short-run and long-run causality.

The causality results reveal unidirectional causality from energy consumption to industrial output in the short run, supporting the growth hypothesis. This means that energy consumption Granger causes industrial output but not vice versa in the short run. In the long run, the significant error-correction term indicates that both variables adjust to restore equilibrium, providing evidence of bidirectional causality in the long run, which supports the feedback hypothesis. These findings are consistent with Danmaraya and Hassan (2016), Nwosu et al. (2024), and Abdullahi et al. (2025).

4.6 Diagnostic Tests

Table 10: Diagnostic Test Results

Test	Statistic	p-Value	Conclusion
Breusch-Godfrey LM (serial correlation)	$\chi^2(4) = 4.89$	0.301	No serial correlation
Breusch-Pagan (heteroskedasticity)	$\chi^2(12) = 14.56$	0.267	No heteroskedasticity
Jarque-Bera (normality)	$\chi^2(2) = 2.87$	0.238	Residuals are normal
Ramsey RESET (functional form)	$F(1,23) = 1.67$	0.210	Correct specification
CUSUM	Stable	—	Parameter stability confirmed
CUSUM of Squares	Stable	—	Parameter stability confirmed

The diagnostic tests confirm that the model is appropriately specified. There is no evidence of serial correlation, heteroskedasticity, or non-normality in the residuals. The Ramsey RESET test indicates correct functional form, and the CUSUM and CUSUM of Squares tests confirm parameter stability over the sample period.

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4.7 Discussion

The results provide strong evidence of a long-run equilibrium relationship between energy consumption and industrial output in Nigeria. The positive and significant long-run elasticity of 0.456 for total energy consumption and 0.234 for electricity consumption indicates that energy is a critical input for industrial production. This finding supports the growth hypothesis in the short run and the feedback hypothesis in the long run.

The short-run unidirectional causality from energy consumption to industrial output implies that energy availability constrains industrial production in the short term. This is consistent with the view that Nigeria's unreliable power supply is a binding constraint on industrial capacity utilisation (Manufacturers Association of Nigeria, 2025; NERC, 2025). The long-run bidirectional causality suggests that energy and industrial output reinforce each other over time, implying that integrated energy and industrial policies are required.

The positive effect of gross fixed capital formation on industrial output confirms the importance of capital accumulation (Romer, 1986; Aschauer, 1989; Babatunde, 2018). The positive effect of labour force participation, though relatively weak, is consistent with the International Labour Organization (2025) data. The negative effect of inflation on industrial output aligns with Olaniyi et al. (2021) and Kabiru (2016), who found that inflation erodes competitiveness and hinders industrialisation.

The findings are consistent with previous Nigerian studies (Danmaraya & Hassan, 2016; Nwosu et al., 2024; Abdullahi et al., 2025; Gold et al., 2024) and international evidence (Omri, 2014; Ouedraogo, 2013; Stern, 2011). However, the results differ from those studies that found no causal relationship (neutrality hypothesis) or unidirectional causality from growth to energy (conservation hypothesis). These differences may be explained by differences in methodology, period, and variable specification.

Several alternative explanations should be considered. Nigeria has experienced significant oil price shocks, particularly in 2014–2016 and 2020, which have had profound effects on government revenue, exchange rates, and industrial performance. The COVID-19 pandemic in 2020 caused a sharp contraction in industrial output. Political transitions and policy changes may have affected the energy–industry relationship. While the VECM framework accounts for short-run dynamics, it does not explicitly model structural breaks. Future research could employ techniques that account for regime changes and structural breaks to provide a more nuanced understanding.

5. Conclusion and Recommendations

The study finds a positive long-run relationship between energy consumption and industrial output in Nigeria (1980–2023). The error-correction term is negative and significant (−0.234), indicating moderate annual adjustment to equilibrium. Causality is unidirectional from energy to industrial output in the short run (growth hypothesis) and bidirectional in the long run (feedback hypothesis). Inflation negatively affects industrial output. Limitations include small sample size, proxy choices, and unmodelled structural breaks.

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Given the positive and significant long-run relationship between energy consumption and industrial output, the Nigerian government should prioritise investment in electricity generation, transmission, and distribution infrastructure, with the Federal Ministry of Power and the Nigerian Electricity Regulatory Commission coordinating efforts to complete ongoing projects, rehabilitate existing facilities, and expand networks.

To diversify energy sources and enhance industrial performance, the government should promote solar, wind, and hydroelectric power through incentives, subsidies, and public–private partnerships, with the Rural Electrification Agency focusing on distributed renewable energy systems for industrial clusters.

Because inflation negatively affects industrial output, the Central Bank of Nigeria should continue prudent monetary policies to keep inflation within target ranges, thereby supporting industrial development.

The bidirectional causality in the long run implies that energy and industrial policies should be integrated, requiring the Federal Ministry of Industry, Trade and Investment and the Federal Ministry of Power to coordinate their policies so that energy supply meets industrial demand and industrial growth stimulates energy investment.

References

Abdullahi, M. M., Farouk, B. K. U., Danpome, M. G., Aliyu, A. Y., Hussaini, N., Muhammad, H. H., & Runka, A. I. (2025). Electricity consumption and manufacturing output in Nigeria: Evidence from ARDL analysis. *Journal of Economics and Allied Research, 10*(2), 220–233.

Aghion, P., & Howitt, P. (1992). A model of growth through creative destruction. *Econometrica, 60*(2), 323–351.

Akinkunmi, M. (2017). Energy sector development and economic growth in Nigeria. *Journal of Energy Economics, 45*(2), 112–128.

Akinlo, A. E. (2021). Petroleum consumption and economic growth nexus in Nigeria: Evidence from nonlinear ARDL and causality approaches. *Journal of Quantitative Economics, 19*, 819–844.

Aschauer, D. A. (1989). Is public expenditure productive? *Journal of Monetary Economics, 23*(2), 177–200.

Babatunde, M. A. (2018). Public capital expenditure and infrastructure development in Nigeria. *Nigerian Journal of Economic and Social Studies, 60*(2), 145–162.

Bank-Ola, R. F., Adediwura, O. M., Alao-Owunna, I., & Udofia, V. C. (2024). Revisiting the nexus between renewable energy consumption and economic growth in Nigeria: The VECM approach. *Journal of Energy Research and Reviews, 16*, 1–14.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Breusch, T. S. (1978). Testing for autocorrelation in dynamic linear models. *Australian Economic Papers, 17*(31), 334–355.

Breusch, T. S., & Pagan, A. R. (1979). A simple test for heteroscedasticity and random coefficient variation. *Econometrica, 47*(5), 1287–1294.

Brown, R. L., Durbin, J., & Evans, J. M. (1975). Techniques for testing the constancy of regression relationships over time. *Journal of the Royal Statistical Society: Series B, 37*(2), 149–163.

Central Bank of Nigeria. (2025). *Annual report and statement of accounts*. CBN.

Chenery, H. B. (1986). *Industrialization and growth: A comparative study*. Oxford University Press.

Danmaraya, I. A., & Hassan, S. (2016). Electricity consumption and manufacturing sector productivity in Nigeria: An autoregressive distributed lag-bounds testing approach. *International Journal of Energy Economics and Policy, 6*(2), 195–201.

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association, 74*(366), 427–431.

Dominic, I. A., & Emmanuel, E. E. (2024). Impact of energy consumption component and industrial output dynamics in Nigeria. *Journal of Applied and Zootechnical Engineering*, 1–17.

Ejeka, L. N. (2025). Impact of fuel subsidy removal on economic growth in Nigeria (2003–2023). *Unizik Journal of Business and Economics Education, 2*(1).

Engle, R. F., & Granger, C. W. J. (1987). Co-integration and error correction: Representation, estimation, and testing. *Econometrica, 55*(2), 251–276.

Godfrey, L. G. (1978). Testing against general autoregressive and moving average error models when the regressors include lagged dependent variables. *Econometrica, 46*(6), 1293–1301.

Gold, K., Adetunji, K. O., Yusuf, H. A., & Sulaiman, S. (2024). Electricity production, consumption, and manufacturing sector performance in Nigeria: A multi-decade analysis. *Journal of Applied Economic Research, 23*(4), 1077–1098.

Granger, C. W. J. (1969). Investigating causal relations by econometric models and cross-spectral methods. *Econometrica, 37*(3), 424–438.

Grossman, G. M., & Helpman, E. (1991). *Innovation and growth in the global economy*. MIT Press.

Ibrahim, T. M. (2019). Infrastructure development and industrial output in Nigeria: A dynamic model approach. *Nigerian Journal of Economic and Social Studies, 61*(1), 1–34.

Ighodaro, C. A. U. (2010). Co-integration and causality relationship between energy consumption and economic growth: Further empirical evidence for Nigeria. *Journal of Business Economics and Management, 11*(1), 97–111.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

International Energy Agency. (2024). *World Energy Outlook 2024*. IEA.

International Labour Organization. (2025). *ILOSTAT database*. ILO.

Jarque, C. M., & Bera, A. K. (1980). Efficient tests for normality, homoscedasticity and serial independence of regression residuals. *Economics Letters, 6*(3), 255–259.

Johansen, S. (1991). Estimation and hypothesis testing of co-integration vectors in Gaussian vector autoregressive models. *Econometrica, 59*(6), 1551–1580.

Johansen, S., & Juselius, K. (1990). Maximum likelihood estimation and inference on co-integration with applications to the demand for money. *Oxford Bulletin of Economics and Statistics, 52*(2), 169–210.

Kabiru, S. (2016). Transport infrastructure and economic development in Nigeria. *Journal of Infrastructure Development, 8*(1), 45–62.

Kassim, F., & Isik, A. (2020). Impact of energy consumption on industrial growth in a transition economy: Evidence from Nigeria (MPRA Paper No. 101757). Munich Personal RePEc Archive.

Kuznets, S. (1966). *Modern economic growth: Rate, structure, and spread*. Yale University Press.

Manufacturers Association of Nigeria. (2025). *Annual report 2025*. MAN.

National Bureau of Statistics. (2025). *Nigerian gross domestic product report Q4 2025*. NBS.

Nigerian Economic Summit Group & UK Nigeria Infrastructure Advisory Facility. (2025). *High-level dialogue on Nigeria's infrastructure deficit*. NESG.

Nigerian Electricity Regulatory Commission. (2025). *Power sector update Q1 2025*. NERC.

Nigerian National Petroleum Corporation. (2025). *Annual statistical bulletin*. NNPC.

Nwosu, C. A., Emeh, K. O., Ndukwe, O. P., Akobundu, P. C., & Ikechukwu, P. C. (2024). Long-run relationship between power consumption and manufacturing sector output in Nigeria. *African Journal of Management and Business Research, 1*, 278–290.

Olaniyi, O. O., et al. (2021). Infrastructure development and sustainable economic development in Nigeria. *Cogent Economics & Finance, 9*(1), 1–18.

Omri, A. (2014). An international literature survey on energy-economic growth nexus: Evidence from country-specific studies. *Renewable and Sustainable Energy Reviews, 38*, 951–959.

Ouedraogo, N. S. (2013). Energy consumption and economic growth: Evidence from the economic community of West African States (ECOWAS). *Energy Economics, 36*, 637–647.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics, 16*(3), 289–326.

Phillips, P. C. B., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika, 75*(2), 335–346.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Ramsey, J. B. (1969). Tests for specification errors in classical linear least-squares regression analysis. *Journal of the Royal Statistical Society: Series B, 31*(2), 350–371.

Romer, P. M. (1986). Increasing returns and long-run growth. *Journal of Political Economy, 94*(5), 1002–1037.

Saliminezhad, A., Birnintsaba, D. A., & Ozdeser, H. (2024). Asymmetric role of energy sources on economic growth of Nigeria: Evidence from nonlinear approaches. *OPEC Energy Review*.

Sims, C. A. (1980). Macroeconomics and reality. *Econometrica, 48*(1), 1–48.

Solow, R. M. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics, 70*(1), 65–94.

Stern, D. I. (2011). The role of energy in economic growth. *Annals of the New York Academy of Sciences, 1219*(1), 26–51.

Stock, J. H., & Watson, M. W. (1993). A simple estimator of cointegrating vectors in higher order integrated systems. *Econometrica, 61*(4), 783–820.

Syrquin, M. (1988). Patterns of structural change. In H. Chenery & T. N. Srinivasan (Eds.), *Handbook of development economics* (Vol. 1, pp. 203–273). Elsevier.

Toda, H. Y., & Yamamoto, T. (1995). Statistical inference in vector autoregressions with possibly integrated processes. *Journal of Econometrics, 66*(1–2), 225–250.

World Bank. (2025). *World Development Indicators*. World Bank.

Zivot, E., & Andrews, D. W. K. (1992). Further evidence on the great crash, the oil-price shock, and the unit-root hypothesis. *Journal of Business & Economic Statistics, 10*(3), 251–270.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
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Organiser un cours de français à partir du découpage du curriculum, du schéma de travail et de plan du cours au Nigéria et aux pays Anglophones

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DOI : https://doi.org/10.5281/zenodo.22905586

Résumé
Cette étude examine l'organisation d'un cours de français en analysant la répartition du programme, le plan de travail et le plan de cours au Nigeria et dans d'autres pays anglophones. Elle explore la façon dont la conception du programme influence l'efficacité de l'enseignement du français, en se concentrant sur la mise en œuvre pratique dans divers contextes éducatifs. L'étude souligne l'importance de structurer les cours de français pour tenir compte des nuances linguistiques et culturelles, en garantissant la pertinence et l'adaptabilité pour les apprenants dans des contextes multilingues.Au Nigeria, où le français est une deuxième langue étrangère, la conception des programmes scolaires met souvent l'accent sur les compétences de base en communication et sur l'intégration régionale, reflétant ainsi l'alignement géopolitique du pays avec ses voisins francophones. À l'inverse, les pays anglophones comme le Royaume-Uni et les États-Unis abordent l'enseignement du français par le biais de méthodes immersives, en donnant la priorité à la communication globale et à la compétence culturelle. En comparant ces modèles, l'étude identifie les lacunes et les possibilités d'aligner les objectifs des programmes d'études sur les besoins des apprenants et les exigences de la société.Les résultats soulignent la nécessité d'un plan de travail et d'une planification des cours bien définis afin d'équilibrer la théorie linguistique et l'application pratique. Les recommandations incluent l'intégration des contextes culturels locaux et l'utilisation de la technologie pour améliorer l'engagement et la rétention. Cette analyse comparative vise à guider les éducateurs, les décideurs politiques et les concepteurs de programmes scolaires dans l'amélioration de l'enseignement du français, la promotion du multilinguisme et la promotion de la connectivité mondiale.

1.0 Introduction

L'enseignement et l'apprentissage du français comme seconde langue ou langue étrangère revêtent une importance significative au Nigeria et dans d'autres pays anglophones. Le français est la langue officielle de plusieurs pays voisins en Afrique de l'Ouest, ce qui fait de sa maîtrise un outil essentiel pour favoriser l'intégration régionale, les partenariats économiques et les échanges culturels. L'organisation d'un cours de français efficace nécessite l'alignement minutieux du programme d'études, des plans de travail et des plans de cours afin de répondre aux divers besoins des apprenants. Cette étude examine l'organisation des cours de français au Nigeria et dans d'autres pays anglophones en décomposant les cadres des programmes, les plans de travail et les structures des leçons pour des résultats d'apprentissage optimaux.

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1.1 Importance du français en tant que seconde langue ou langue étrangère

Le français occupe une position stratégique en tant que langue mondiale. Avec plus de 300 millions de locuteurs dans le monde, il est la cinquième langue la plus parlée et une langue officielle dans 29 pays (OIF, 2018). Pour le Nigéria, bordé par des pays francophones comme le Bénin, le Niger et le Cameroun, l'apprentissage du français est vital pour la diplomatie, le commerce et la collaboration transfrontalière. Dans le domaine de l'éducation, le français permet aux étudiants d'accéder à de nombreuses opportunités internationales, en particulier dans le domaine des études et de la recherche (Adegoke & Okonkwo, 2020). Dans le cadre du programme d'intégration de l'Union africaine, le français renforce la communication entre les États membres (Egwu, 2021). Dans le nord du Nigeria, le français renforce les liens culturels avec le Niger et le Tchad, facilitant ainsi les relations transfrontalières. En promouvant le français comme seconde langue ou langue étrangère, les éducateurs peuvent doter les apprenants des compétences linguistiques nécessaires pour relever les défis et saisir les opportunités du monde (Oyetunde, 2023).

1.2 Pertinence du curriculum, du programme de travail et de la planification des leçons dans l'enseignement des langues

Le curriculum est un cadre fondamental pour structurer l'enseignement des langues. Il définit les objectifs d'apprentissage, le contenu et les méthodes d'évaluation en fonction des besoins nationaux et régionaux. Pour l'enseignement du français au Nigéria, le programme met l'accent sur les compétences de communication fonctionnelle, la sensibilisation culturelle et la maîtrise de la langue (NERDC, 2019). Le plan de travail traduit le programme d'études en une feuille de route pratique, en décomposant les sujets en unités gérables au cours d'une période scolaire définie. Des plans de travail efficaces garantissent une progression logique et une couverture adéquate de toutes les compétences requises (Mohammed & Musa, 2022).

La planification des cours fait le lien entre le programme et la salle de classe, en spécifiant les activités quotidiennes, les méthodes d'enseignement et les techniques d'évaluation. Des plans de cours détaillés favorisent l'engagement de l'apprenant, tiennent compte des différents styles d'apprentissage et garantissent une transmission transparente du contenu (Adebayo, 2020). Les enseignants qui adoptent des plans de cours bien structurés sont mieux équipés pour intégrer des méthodes innovantes telles que l'apprentissage basé sur les tâches et l'enseignement assisté par la technologie (Okoh, 2021). Dans le nord du Nigéria, la contextualisation des plans de cours pour refléter les réalités locales, telles que le commerce transfrontalier et le patrimoine culturel, renforce la motivation et la pertinence des apprenants (Aliyu, 2023).

La recherche souligne l'impact d'une planification structurée sur l'acquisition des langues. Selon Chikwe (2020), les étudiants exposés à des programmes d'études et des plans de cours bien alignés affichent des taux de rétention et des compétences communicatives plus élevés. L'alignement du programme scolaire, du plan de travail et de la planification des cours garantit la cohérence des objectifs pédagogiques et favorise une approche holistique de l'apprentissage des langues.

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1.3 Objectifs de l'étude

L'étude vise à explorer la manière dont les cours de français sont organisés sur la base des programmes d'études, des plans de travail et des plans de cours au Nigeria et dans d'autres pays anglophones. Les objectifs spécifiques sont les suivants

Analyser la structure et les composantes des programmes d'enseignement du français au Nigeria.

Examiner le rôle des plans de travail dans l'alignement des pratiques d'enseignement sur les objectifs du programme.

Évaluer l'efficacité de la planification des cours pour améliorer les résultats des apprenants.

1.4 Questions de recherche

1. Comment les programmes d'enseignement du français sont-ils structurés au Nigeria et dans d'autres pays anglophones?
2. Quel rôle les plans de travail jouent-ils dans la traduction des objectifs du programme en pratiques de classe?
3. Comment les plans de cours contribuent-ils à l'efficacité de l'enseignement du français?
4. Quels sont les défis auxquels les enseignants sont confrontés dans l'organisation des cours de français, et comment ces défis peuvent-ils être relevés?

2.0 Analyse documentaire

2.1 Principes de conception des programmes dans l'enseignement des langues secondes

La conception des programmes d'enseignement des langues secondes nécessite une approche centrée sur l'apprenant et sensible à la culture afin d'améliorer les compétences linguistiques et les aptitudes à la communication. La politique nationale sur l'éducation au Nigeria met l'accent sur l'intégration du français en tant qu'outil de promotion de l'unité nationale et de la communication mondiale (République fédérale du Nigeria, 2013). Selon Akinpelu et Yegblemenawo (2023), les programmes d'études efficaces doivent aligner les objectifs sur les contextes sociolinguistiques des apprenants, intégrer des supports authentiques et diversifiés, et promouvoir des pédagogies interactives. Offorma (2019) souligne l'importance d'intégrer des éléments culturels dans l'enseignement des langues pour soutenir un engagement significatif. Dans le nord du Nigéria, Yusuf et al. (2023) ont observé que la conception des programmes d'études doit relever des défis tels que le multilinguisme et l'insuffisance des ressources. Les recherches suggèrent que les programmes d'études devraient équilibrer la compétence communicative et l'utilisation fonctionnelle de la langue, dotant ainsi les apprenants de compétences pratiques à des fins académiques et professionnelles (Adebayo & Oladipo, 2020).

2.2 Cadres théoriques de la pédagogie du français

La pédagogie du français s'appuie sur des théories telles que l'approche de l'enseignement communicatif des langues (CLT) et la théorie socioculturelle. La CLT met l'accent sur l'interaction en tant que méthode et objectif de l'enseignement, en encourageant la compétence communicative des apprenants par le biais d'activités basées sur des tâches (Akinpelu & Yegblemenawo, 2023).

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La théorie socioculturelle postule que l'acquisition d'une langue est médiatisée par l'interaction sociale et le contexte culturel, ce qui rend essentielle l'intégration des nuances culturelles locales dans la pédagogie (Vygotsky, 1978 ; Offorma, 2019). Dans le nord du Nigéria, Yusuf et al. (2023) préconisent une approche adaptative qui combine ces cadres pour répondre aux besoins régionaux, notamment les classes nombreuses et les ressources limitées. En outre, les études d'Adebayo et Oladipo (2020) révèlent que l'utilisation de l'apprentissage collaboratif et des outils numériques peut renforcer la motivation et la rétention des apprenants. Ces cadres sous-tendent des stratégies d'enseignement qui donnent la priorité à l'utilisation pratique de la langue, à la pertinence culturelle et au développement de la pensée critique.

2.3 Études existantes sur la mise en œuvre des programmes d'études au Nigeria et dans les pays anglophones

Les études sur la mise en œuvre des programmes d'enseignement du français au Nigeria et dans d'autres pays anglophones mettent en évidence les défis persistants et les solutions émergentes. Au Nigeria, Yusuf et al. (2023) ont examiné la mise en œuvre du programme d'études de français dans les régions du Nord et ont identifié des problèmes tels que l'insuffisance des ressources pédagogiques, le manque de formation des enseignants et le faible taux d'inscription des élèves. Ils ont suggéré que l'investissement du gouvernement dans le développement des enseignants et la fourniture de ressources pourrait améliorer les résultats. De même, Akinpelu et Yegblemenawo (2023) ont comparé la mise en œuvre des programmes scolaires au Nigéria et au Ghana, notant que si les deux pays sont confrontés à des contraintes de ressources, l'adoption par le Ghana de programmes basés sur les compétences a permis d'améliorer les résultats des élèves.

Dans les pays anglophones comme le Kenya et l'Afrique du Sud, les études soulignent le rôle de la technologie pour combler les lacunes dans l'enseignement. Adebayo et Oladipo (2020) ont indiqué que l'incorporation d'outils numériques dans l'enseignement du français améliorait l'engagement et la maîtrise de la langue. En outre, Offorma (2019) a plaidé en faveur de l'intégration d'éléments culturels dans la mise en œuvre du programme d'études afin d'améliorer la pertinence contextuelle et l'intérêt de l'apprenant. Les résultats soulignent la nécessité d'interventions ciblées, telles que les programmes de développement professionnel et l'adaptation des programmes d'études, pour relever les défis uniques rencontrés dans la mise en œuvre des programmes d'études en langue française dans les contextes anglophones.

3.0 Méthodologie

Cette étude adopte une conception de recherche comparative pour examiner la structure et l'efficacité des cours de français au Nigeria et dans d'autres pays anglophones. Elle analyse comment les programmes, les plans de cours et les leçons sont organisés et mis en œuvre dans ces contextes. En comparant ces structures, la recherche met en évidence les similitudes et les différences dans les approches pédagogiques et les ressources, ainsi que leurs implications pour l'apprentissage des langues. La méthodologie étudie également l'adaptation des stratégies d'enseignement des langues étrangères aux besoins éducatifs et aux environnements locaux. Une combinaison d'analyse documentaire et d'entretiens qualitatifs sera utilisée pour recueillir des données complètes. Cette approche offrira une perspective globale sur la manière dont le français

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est enseigné dans différents pays anglophones, avec un accent particulier sur le Nigeria et les contextes éducatifs uniques du Nord du Nigeria.

3.1 Conception de Recherche Comparative

L'étude utilise une conception de recherche comparative pour évaluer la structure et la mise en œuvre des cours de français au Nigeria et dans d'autres pays anglophones. Cette méthode permet une exploration approfondie des similitudes et des différences dans le développement des programmes, les stratégies d'enseignement, et l'alignement entre le contenu des cours et les normes éducatives locales. La recherche comparative facilite la compréhension des façons dont différents systèmes éducatifs relèvent les défis de l'enseignement des langues étrangères et des nuances culturelles qui influencent ces cours. Au Nigeria, où le multilinguisme est répandu, l'étude se concentrera sur la manière dont les programmes de français sont adaptés aux besoins de diverses populations étudiantes, en particulier dans le Nord du Nigeria, où les politiques linguistiques et les dynamiques culturelles diffèrent. En comparant ces résultats avec les pratiques d'autres pays anglophones, la recherche vise à identifier les meilleures pratiques et à mettre en lumière les domaines nécessitant des améliorations. Ces résultats seront particulièrement utiles pour élaborer des programmes efficaces de français dans les contextes éducatifs nigérians, où des défis tels que des ressources limitées et des niveaux variés de maîtrise linguistique sont fréquents (Fagbemi & Ajiboye, 2022 ; Iliyasu, 2021).

3.2 Sources de Données : Documents Curriculaires, Plans de Travail, Plans de Leçons et Entretiens avec les Enseignants

Les données de cette recherche seront collectées à partir de diverses sources primaires et secondaires. Premièrement, les documents curriculaires des institutions éducatives nigérianes, y compris les écoles publiques et fédérales, seront analysés pour comprendre les cadres nationaux et régionaux régissant l'enseignement du français. Ces documents fourniront des informations sur les objectifs généraux du programme de français, sa structure et les résultats d'apprentissage attendus. De plus, les plans de travail et les plans de leçons de certaines écoles sélectionnées seront examinés pour évaluer la mise en œuvre pratique du curriculum au niveau des classes. Ces documents permettront de comprendre l'étendue, la séquence et le rythme des leçons et leur alignement avec les objectifs du curriculum. Pour compléter l'analyse documentaire, des entretiens avec les enseignants seront réalisés afin d'obtenir des perspectives qualitatives sur leurs expériences et les défis liés à la mise en œuvre du cours de français. Ces entretiens exploreront également les points de vue des enseignants sur l'engagement des étudiants, les stratégies pédagogiques et la suffisance des ressources disponibles pour l'enseignement du français dans des contextes éducatifs variés. Les entretiens seront menés dans différentes régions, avec une attention particulière sur le Nord du Nigeria, afin de saisir les variations régionales dans les pratiques d'enseignement. Les données qualitatives recueillies à partir de ces sources seront codées et analysées thématiquement pour identifier des tendances et établir des comparaisons avec les pratiques dans d'autres pays anglophones.

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3.3 Méthodes d'Analyse

L'étude utilise l'analyse de contenu qualitative et l'analyse comparative comme principales méthodes d'analyse. L'analyse de contenu qualitative sera employée pour examiner les documents curriculaires, les plans de travail et les plans de leçons afin d'identifier les thèmes récurrents, les stratégies pédagogiques et l'alignement de ces documents avec les politiques éducatives nationales. Les données issues des entretiens avec les enseignants seront transcrites et codées à l'aide d'une analyse thématique pour mettre en évidence les défis, les pratiques d'enseignement et les facteurs contextuels influençant l'organisation des cours de français au Nigeria, en particulier dans le Nord du Nigeria.

L'analyse comparative sera utilisée pour confronter les structures des curriculums, les plans de travail et les plans de leçons entre le Nigeria et d'autres pays anglophones. Cette approche permettra d'évaluer les variations dans les modèles d'instruction, l'allocation des ressources et les approches pédagogiques, en facilitant l'identification claire des meilleures pratiques. L'analyse se concentrera sur des critères tels que la progression des leçons, l'intégration de contenus culturels et les stratégies d'engagement des apprenants (Fagbemi & Ajiboye, 2022 ; Iliyasu, 2021). Ces méthodes permettront une compréhension globale de l'organisation des cours de français et fourniront des recommandations concrètes pour les concepteurs de programmes et les éducateurs.

4.0 Conception de Programme pour les Cours de Français

La conception d'un programme de français nécessite un cadre clair pour répondre aux besoins linguistiques, culturels et pédagogiques. Au Nigeria et dans d'autres pays anglophones, le programme doit tenir compte de la diversité des antécédents linguistiques, des contextes culturels et des objectifs éducatifs. La structure du programme inclut généralement des objectifs globaux, des plans de travail et des plans de leçons détaillés, alignés sur les normes internationales d'enseignement des langues, telles que le Cadre européen commun de référence pour les langues (CECR).

4.1 Principaux Composants d'un Programme de Français

Un programme de français comprend des éléments spécifiques conçus pour faciliter l'acquisition progressive de la langue. Les composantes clés incluent :

Objectifs d'Apprentissage: Définis selon les niveaux du CECR, allant de A1 (débutant) à C2 (maîtrise).

Intégration des Compétences: Accent mis sur l'expression orale, la compréhension orale, la lecture et l'écriture. Les études montrent que des programmes efficaces allouent 25 % aux compétences orales, 30 % à la compréhension et 45 % aux compétences en littératie (Onwuka et al., 2021).

Compétence Culturelle: Contenu favorisant la sensibilisation interculturelle et l'appréciation des cultures francophones (Adamu, 2020).

Cadre d'Évaluation: Évaluations continues et sommatives, incluant des tests de compétence orale et des examens écrits.

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Matériel Pédagogique: Manuels comme Le Français Facile et outils multimédias adaptés aux contextes locaux (Ahmed, 2022).

4.2 Adaptations au Contexte Local au Nigeria

Adapter le programme de français pour le Nigeria nécessite de répondre à des défis linguistiques, culturels et éducatifs spécifiques. Les principales adaptations incluent :

Contexte Multilingue: Intégration du français avec l'anglais et les langues indigènes, en tenant compte de l'environnement multilingue du Nigeria (Babalola & Yusuf, 2019).

Contenu Localisé: Inclusion de thèmes pertinents à la culture et à l'histoire nigérianes, afin d'améliorer la pertinence et l'engagement des apprenants (Abdullahi, 2021).

Formation des Enseignants: Ateliers pour doter les éducateurs de compétences adaptées à l'enseignement dans des contextes à ressources limitées, en particulier dans le Nord du Nigeria où l'accès aux ressources en français est restreint (Hassan & Bala, 2020).

Évaluation Flexible: Méthodes d'évaluation sensibles au contexte, telles que les tâches basées sur des projets et les présentations orales, adaptées à des environnements d'apprentissage diversifiés (Owolabi, 2018).

Intégration des TIC: Utilisation d'outils numériques comme Duolingo et WhatsApp pour la pratique du français, notamment dans les zones rurales (Danlami et al., 2023).

4.3 Aperçu des Structures Curriculaires dans les Pays Anglophones

Dans les pays anglophones, le programme de français est généralement structuré pour promouvoir à la fois la maîtrise linguistique et la sensibilisation culturelle. Le programme met l'accent sur la maîtrise des compétences d'expression orale, de compréhension orale, de lecture et d'écriture, souvent par des techniques d'immersion et des méthodes communicatives. Par exemple, le Royaume-Uni suit le National Curriculum for Modern Foreign Languages, qui garantit que l'enseignement du français répond aux besoins d'une économie mondialisée, en mettant l'accent sur la communication pratique, la compréhension culturelle et les relations internationales (Department for Education, 2019). De même, les États-Unis utilisent un cadre basé sur les compétences décrit dans les ACTFL Standards for Foreign Language Learning, où le développement de la fluidité en français est mesuré à travers les déclarations "Can-Do" (American Council on the Teaching of Foreign Languages, 2020).

Les cours de français dans ces pays intègrent divers supports authentiques, tels que des films, de la musique et des articles de presse, pour renforcer l'immersion culturelle. Dans l'enseignement supérieur, les programmes de français adoptent une approche plus approfondie, se concentrant sur la littérature, la linguistique et des stratégies de communication avancées. L'objectif global est de former des individus bilingues capables de participer au dialogue interculturel et de promouvoir la citoyenneté mondiale (Baker, 2021).

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5.0 Programme de Travail en Enseignement de la Langue Française

5.1 Le Rôle des Programmes de Travail dans la Liaison entre le Curriculum et les Plans de Leçon
Un programme de travail est un outil pédagogique essentiel qui établit un lien entre les objectifs généraux du curriculum et les plans de leçon quotidiens utilisés par les enseignants. En enseignement de la langue française, les programmes de travail offrent une feuille de route structurée pour les éducateurs, garantissant une conformité aux objectifs éducatifs nationaux. Selon Onuka (2019), les programmes de travail facilitent l'organisation systématique des thèmes, permettant une couverture équilibrée de la grammaire, du vocabulaire, des compétences orales et des études culturelles.

Au Nigeria, où le français est considéré comme une deuxième langue officielle, les programmes de travail permettent aux écoles d'adapter le curriculum national à leurs contextes spécifiques. Par exemple, Adewale et Yusuf (2020) ont constaté que des programmes structurés améliorent les performances des élèves en assurant la continuité et la progression dans l'apprentissage. Le curriculum de français du Ministère Fédéral de l'Éducation (FME) met l'accent sur la compétence communicative, et les programmes de travail servent d'outil pratique pour traduire cet objectif en objectifs hebdomadaires concrets (FME, 2020). Les enseignants du Nord du Nigeria trouvent également ces programmes essentiels pour intégrer l'enseignement du français dans des contextes multilingues, répondant aux besoins spécifiques des élèves bilingues haoussa-français (Bello, 2021). Les recherches montrent que la présence de programmes bien articulés augmente l'efficacité des enseignants de 30 %, réduisant le temps consacré à une planification non structurée (Nwosu, 2018).

5.2 Format et Contenu des Programmes de Travail au Nigeria

Au Nigeria, le format des programmes de travail varie selon les niveaux d'enseignement, mais inclut généralement des éléments tels que les thèmes hebdomadaires, les objectifs, les supports pédagogiques, les méthodes et les stratégies d'évaluation. En enseignement de la langue française, ces programmes sont structurés pour refléter l'acquisition progressive des compétences linguistiques et culturelles. Une étude menée par Adebayo (2019) souligne que les programmes pour les collèges intègrent souvent des notions de base en grammaire, prononciation et phrases conversationnelles simples, conformément aux objectifs du FME.

Par exemple, un programme de travail trimestriel pourrait inclure des thèmes tels que "Les Salutations" (Semaine 1), "Les Jours de la Semaine" (Semaine 2) et "Introduction aux Verbes" (Semaine 3). Chaque plan hebdomadaire précise les objectifs d'apprentissage (par exemple, les élèves devraient être capables de saluer formellement et informellement), les supports pédagogiques (par exemple, des flashcards, des enregistrements audio) et les méthodes (par exemple, des jeux de rôle). Les écoles du Nord du Nigeria adaptent souvent ces programmes en intégrant des exemples culturellement pertinents, comme l'utilisation de proverbes haoussa pour expliquer les expressions idiomatiques françaises (Abdullahi, 2021).

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L'évaluation constitue un élément clé des programmes, avec des évaluations continues intégrées chaque semaine. Selon des statistiques récentes, 70 % des enseignants de français au Nigeria s'appuient sur des programmes détaillés pour les évaluations formatives, garantissant que les élèves atteignent les objectifs du curriculum (Ogundele, 2023). Cette approche structurée aligne l'enseignement en classe avec les objectifs nationaux et les meilleures pratiques internationales.

5.3 Analyse Comparative avec les Pays Anglophones

Dans les pays anglophones, les programmes de travail pour l'enseignement du français mettent souvent l'accent sur la compétence communicative, la sensibilisation culturelle et l'intégration avec d'autres matières. Une étude menée par Harris et Lawton (2020) montre que les programmes de travail au Royaume-Uni intègrent la technologie et l'apprentissage par projet, comme les échanges virtuels avec des pairs francophones pour favoriser l'application pratique. En comparaison, les programmes nigérians se concentrent davantage sur l'acquisition des bases de la grammaire et du vocabulaire en raison de contraintes de ressources (Adebayo, 2019).

Bien que les programmes nigérians incluent fréquemment des méthodes culturellement adaptatives, telles que l'utilisation d'idiomes haoussa pour expliquer des concepts français (Abdullahi, 2021), les programmes dans des pays comme le Canada privilégient les techniques d'immersion, tirant parti des environnements bilingues pour améliorer la fluidité (Richards, 2021). Par ailleurs, l'évaluation continue est une caractéristique universelle, 80 % des enseignants au Nigeria et au Royaume-Uni utilisant des évaluations hebdomadaires pour suivre les progrès (Ogundele, 2023 ; Harris & Lawton, 2020). Cependant, les pays anglophones ont généralement un meilleur accès aux outils numériques, permettant des activités interactives que les écoles nigérianes peuvent manquer en raison de limitations infrastructurelles (Nwosu, 2018).

6.0 Planification de leçons pour un enseignement efficace de la langue française

6.1 Importance des plans de leçons pour atteindre les résultats d'apprentissage

Les plans de leçons sont des outils essentiels pour un enseignement efficace de la langue française. Ils servent de guides structurés permettant aux enseignants d'aligner les activités pédagogiques sur des objectifs d'apprentissage spécifiques. Un plan de leçon bien élaboré garantit une séquence logique d'instruction, favorisant une meilleure compréhension chez les apprenants. Il permet également aux enseignants d'anticiper les défis potentiels et de préparer des stratégies adaptées pour y faire face. Des recherches ont montré que les enseignants qui s'appuient sur des plans de leçons structurés obtiennent un meilleur engagement et de meilleures performances des élèves (Usman, 2020). Dans l'enseignement du français, cette structure est particulièrement cruciale en raison des différences linguistiques et culturelles que les apprenants doivent surmonter.

Les plans de leçons favorisent également la responsabilité, car ils fournissent un cadre pour évaluer l'efficacité de l'enseignement et les progrès des élèves. Selon Oche (2021), plus de 78 % des enseignants de français du nord du Nigéria ont signalé de meilleurs résultats chez les élèves lorsqu'ils suivaient des plans de leçons complets. De plus, les plans de leçons facilitent la différenciation, permettant aux enseignants de répondre aux besoins d'apprentissage divers. Une planification efficace favorise une approche communicative, garantissant que les élèves développent des compétences essentielles en expression orale, écoute, lecture et écriture.

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L'importance des plans de leçons va au-delà de la livraison de l'enseignement, influençant la qualité globale de l'éducation linguistique.

6.2 Exemples de structures de plans de leçons au Nigéria

Au Nigéria, les structures des plans de leçons pour l'enseignement du français intègrent souvent les lignes directrices du programme national et sont adaptées pour tenir compte des antécédents linguistiques des élèves. Ces structures comprennent des objectifs clairement définis, des supports pédagogiques, des activités d'enseignement étape par étape et des stratégies d'évaluation. Un exemple couramment utilisé dans les écoles secondaires du nord du Nigéria s'aligne sur le programme de l'Éducation de base universelle (UBE). Il inclut des composants tels que :

Titre de la leçon: Indique le sujet spécifique, par exemple « Introduction aux salutations en français ».

Objectif(s): Résultats spécifiques comme « Les élèves seront capables de saluer et de répondre de manière appropriée en français ».

Matériel: Cartes flash, enregistrements audio et dictionnaires bilingues.

Introduction: Une activité interactive brève, telle que l'écoute d'une conversation en français.

Activité principale: Exercices de jeu de rôle pour pratiquer les salutations et les réponses.

Évaluation: Évaluation de la performance orale basée sur la fluidité et la précision.

Conclusion: Récapitulation de la leçon et un devoir pour écrire cinq salutations en français.

Les données empiriques d'Ibrahim (2022) révèlent que plus de 60 % des enseignants de français dans les États du nord du Nigéria préfèrent ce format structuré en raison de son adaptabilité aux grandes tailles de classe. De plus, le Conseil nigérian de recherche et de développement éducatif (NERDC, 2019) souligne l'importance d'inclure des exemples culturellement pertinents pour améliorer la relation avec les élèves. Un autre format observé dans les écoles privées intègre des méthodes d'apprentissage hybride, intégrant la technologie pour fournir des supports audio-visuels pour la prononciation et la compréhension contextuelle (Adamu & Bello, 2021). Ces exemples mettent en évidence la diversité des approches de la planification des leçons, adaptées pour obtenir les meilleurs résultats pour les élèves.

6.3 Variations des plans de leçons dans les pays anglophones

Les plans de leçons pour l'enseignement du français varient considérablement d'un pays anglophone à l'autre en raison des différences dans les cadres curriculaires, les politiques éducatives et les contextes culturels. Au Royaume-Uni, les plans de leçons s'alignent sur le programme des Langues vivantes modernes (MFL), qui met l'accent sur la compétence linguistique et la sensibilisation culturelle. Ces plans incluent généralement des activités interactives telles que des jeux de rôle et des tâches collaboratives visant à améliorer les compétences en communication (Smith & Patel, 2020). Les objectifs portent souvent sur le développement des quatre compétences linguistiques : écouter, parler, lire et écrire. Par exemple, 85 % des enseignants de MFL dans une enquête récente ont déclaré intégrer des textes authentiques

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en français et des ressources multimédias pour créer des expériences d'apprentissage immersives (Brown, 2021).

Au Canada, en particulier dans des provinces comme l'Ontario, les plans de leçons reflètent la nature bilingue du pays. Le Cadre européen commun de référence pour les langues (CECR) guide souvent la structure, mettant l'accent sur le développement progressif des compétences. Les enseignants utilisent des ressources telles que des émissions de télévision françaises et des applications pour encourager l'apprentissage autonome (Lamarche, 2019). De plus, les évaluations incluent fréquemment des entretiens de compétence orale et des évaluations basées sur des portfolios.

En revanche, les plans de leçons dans les pays africains anglophones comme le Ghana et le Kenya privilégient souvent les compétences de communication orale en raison de l'accès limité aux ressources pédagogiques. Une recherche d'Agyemang (2020) montre que plus de 70 % des leçons de français se concentrent sur des exercices de conversation, permettant aux élèves de développer des compétences linguistiques pratiques. Les plans de leçons au Nigéria partagent des similitudes avec cette approche, mais intègrent également des stratégies d'apprentissage hybride, en particulier dans les zones urbaines (Ibrahim, 2022). Ces variations soulignent l'adaptabilité de la planification des leçons aux besoins éducatifs et contextes divers.

7.0 Défis dans la Mise en Œuvre des Cours de Français

7.1 Obstacles à la Mise en Œuvre Efficace du Programme en Nigéria

La mise en œuvre des programmes de français au Nigéria rencontre des défis importants. Un problème majeur est le manque d'enseignants de français qualifiés. De nombreuses écoles manquent de personnel suffisamment formé, ce qui entrave l'enseignement et l'apprentissage efficaces (Akinbobola & Adeleke, 2018). Le financement insuffisant entraîne également un manque de matériels pédagogiques et de ressources, ce qui nuit davantage à la réalisation des programmes (Ojo & Oladipo, 2019). La domination de l'anglais en tant que langue officielle influence également la motivation des étudiants à apprendre le français, car ils perçoivent une utilité pratique limitée pour cette langue (Bamgbose, 2018). De plus, l'interférence des langues indigènes peut compliquer l'acquisition du français, ajoutant un autre niveau de difficulté pour les apprenants (Adegbija, 2018). Ces facteurs constituent collectivement des obstacles importants à la mise en œuvre efficace des programmes de français au Nigéria.

7.2 Défis Rencontrés par les Pays Anglophones

Les pays anglophones rencontrent plusieurs défis dans la mise en œuvre des cours de français. Au Canada, les programmes d'immersion en français souffrent souvent d'une pénurie d'enseignants qualifiés, ce qui entraîne une augmentation des tailles de classe et une réduction de l'attention individuelle accordée aux élèves (Canadian Council on Learning, 2008). De plus, les élèves de ces programmes n'atteignent pas toujours une maîtrise comparable à celle des locuteurs natifs, en partie à cause des opportunités limitées d'utiliser le français en dehors de la classe (Roy, 2010). Au Royaume-Uni, l'étude du français chez les adolescents a fortement diminué, avec le nombre d'inscriptions au niveau A passant de 22 700 en 1996 à seulement 7 000 ces dernières années (The Times, 2024). Ce déclin est attribué à la suppression des langues étrangères obligatoires au GCSE en 2004, à une pénurie d'enseignants de français après le Brexit, et à un déplacement vers des

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matières perçues comme offrant de meilleures perspectives de carrière. En Australie, l'intérêt pour l'apprentissage des langues étrangères, y compris le français, diminue, les élèves privilégiant des matières comme les mathématiques et l'informatique (The Australian, 2024). Cette tendance est préoccupante, compte tenu de l'importance de l'éducation linguistique pour favoriser la compréhension internationale et la compétence culturelle. Ces défis soulignent la nécessité d'interventions politiques et d'une allocation de ressources pour soutenir l'enseignement du français dans les pays anglophones.

7.3 Préparation des Enseignants et Disponibilité des Ressources

Au Nigéria, la mise en œuvre des cours de français est freinée par une préparation insuffisante des enseignants et une disponibilité limitée des ressources. Akinpelu et Yegblemenawo (2023) soulignent que de nombreux enseignants de français manquent de formation adéquate, ce qui affecte leur efficacité pédagogique. De plus, Ogunbiyi et al. (2023) notent que la rareté des matériels pédagogiques, tels que les manuels scolaires et les supports audiovisuels, entrave davantage le processus d'apprentissage. Le Village Français du Nigéria, créé pour renforcer l'enseignement du français, fait face à des défis liés à un financement et à des ressources insuffisants (Ayeleru, 2022). Ces problèmes sont particulièrement marqués dans le Nord du Nigéria, où les infrastructures éducatives sont généralement moins développées, ce qui aggrave les difficultés d'une mise en œuvre efficace des cours de français. Pour relever ces défis, il est nécessaire d'adopter des stratégies globales, notamment l'amélioration des programmes de formation des enseignants et l'augmentation des investissements dans les ressources éducatives, afin de renforcer la qualité de l'enseignement du français au Nigéria.

8.0 Recommandations pour l'amélioration de l'enseignement de la langue française

8.1 Stratégies pour une adaptation et une mise en œuvre efficaces des programmes

Pour améliorer l'éducation en langue française au Nigeria, il est essentiel d'adapter et de mettre en œuvre des programmes qui répondent aux besoins et défis locaux. Une étude menée par Olaseinde (2018) a révélé que seulement 35% des écoles disposaient de matériels adéquats pour les programmes de langue française, soulignant ainsi la nécessité d'une meilleure distribution des ressources. Par ailleurs, Ogunbiyi et al. (2024) ont identifié le manque d'enseignants qualifiés comme un obstacle majeur, plus de 60 % des enseignants de français n'étant pas correctement certifiés.

L'intégration de la technologie peut combler les lacunes en matière de ressources. Par exemple, l'utilisation d'applications d'apprentissage des langues et de plateformes en ligne a permis d'améliorer l'engagement des élèves de 45 % (Agbor, 2019). De plus, l'implication communautaire, comme les clubs de langue et les programmes d'échange, peut offrir une exposition pratique à la langue, renforçant ainsi la fluidité et la compréhension culturelle.

La formation régulière des enseignants est cruciale. Des ateliers axés sur des méthodologies modernes d'enseignement ont conduit à une augmentation de 30 % des performances des élèves dans des programmes pilotes (Ogunleye, 2024). Par ailleurs, des mécanismes d'évaluation continue et de retour d'information peuvent aider à adapter le programme aux besoins des élèves, garantissant une expérience d'apprentissage plus personnalisée.

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En résumé, l'adaptation et la mise en œuvre efficaces du programme de langue française au Nigeria nécessitent des ressources adéquates, l'intégration de la technologie, l'implication communautaire, une formation régulière des enseignants et une évaluation continue pour répondre aux besoins éducatifs locaux.

8.2 Suggestions pour l'amélioration des plans de travail et des plans de leçon

Améliorer les plans de travail et les plans de leçon est essentiel pour un enseignement efficace de la langue française. L'intégration d'activités interactives, telles que des jeux de rôle et des discussions en groupe, peut augmenter la participation des élèves de 40 % (Lawal, 2020). Aligner les plans de leçon sur des contextes de la vie réelle rend également l'apprentissage plus pertinent et captivant.

L'enseignement différencié est tout aussi important. Adapter les leçons pour tenir compte des différents niveaux de compétence peut entraîner une amélioration de 25 % des performances globales de la classe (Yusuf et al., 2022). De plus, l'intégration d'évaluations formatives régulières permet d'identifier les domaines où les élèves rencontrent des difficultés, facilitant ainsi des interventions rapides.

L'utilisation de références et d'exemples culturels locaux dans les plans de leçon peut rendre l'apprentissage plus accessible, renforçant une connexion plus profonde avec la langue. Une planification collaborative entre enseignants peut également garantir une cohérence et un partage des meilleures pratiques, contribuant à de meilleurs résultats pédagogiques.

En conclusion, l'amélioration des plans de travail et des plans de leçon grâce à des activités interactives, un enseignement différencié, des évaluations formatives, une pertinence culturelle et une planification collaborative peut considérablement renforcer l'efficacité de l'enseignement de la langue française.

8.3 Rôle de la formation des enseignants et du renforcement des capacités

Améliorer la formation des enseignants et le renforcement des capacités est crucial pour un enseignement efficace de la langue française au Nigeria. Une étude menée par Akanbi et Ndidi (2020) a révélé que l'application de l'approche communicative dans l'enseignement du français a amélioré la compétence orale des apprenants de 25 %. Cependant, seulement 60,83 % des enseignantes du primaire au Nigeria étaient formées en 2018 (Banque mondiale, 2018), ce qui indique un écart important dans la préparation des enseignants.

Pour remédier à cela, des programmes réguliers de développement professionnel axés sur les techniques pédagogiques modernes sont essentiels. Owan et al. (2022) ont souligné que la gestion efficace des programmes, médiée par l'efficacité institutionnelle, améliore considérablement la viabilité des programmes de formation des diplômés. De plus, l'intégration de la technologie dans la formation des enseignants peut améliorer la transmission des enseignements. Aladeniyi (2017) a observé que le personnel académique utilisant des e-journaux à des fins de recherche connaissait de meilleurs résultats d'enseignement.

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L'apprentissage collaboratif entre enseignants favorise également l'échange de bonnes pratiques. Adolphus et Omeodu (2016) ont montré que les approches d'apprentissage collaboratif affectent positivement la compréhension conceptuelle des élèves dans les matières scientifiques, ce qui suggère des avantages potentiels pour l'enseignement des langues.

En résumé, investir dans une formation complète des enseignants et un renforcement des capacités, en mettant l'accent sur les méthodes pédagogiques modernes, l'intégration de la technologie et l'apprentissage collaboratif, est essentiel pour améliorer l'éducation en langue française au Nigeria.

9.0 Conclusion

9.1 Résumé des principales conclusions

L'étude a examiné l'organisation des cours de français au Nigéria et dans d'autres pays anglophones, en analysant la répartition du programme, du plan de travail et des plans de leçons. Les principales conclusions soulignent que, bien qu'il existe des similitudes dans la structuration du programme de français dans ces pays, des différences significatives dans l'approche de l'enseignement, l'allocation des ressources et l'engagement des élèves existent. Au Nigéria, des défis tels que l'accès limité aux matériaux pédagogiques de qualité, la formation insuffisante des enseignants et l'exposition insuffisante aux environnements francophones entravent l'efficacité du processus d'acquisition de la langue. En revanche, de nombreux pays anglophones, en particulier ceux d'Europe, bénéficient d'une approche plus immersive, d'un meilleur financement et d'un soutien gouvernemental plus fort pour l'enseignement des langues étrangères. De plus, l'intégration de la technologie dans les plans de leçons et les programmes de travail est plus répandue dans ces pays, ce qui contribue à des taux de compétence linguistique plus élevés. Les conclusions soulignent la nécessité d'adaptations spécifiques au contexte des stratégies d'enseignement du français pour améliorer les résultats d'apprentissage au Nigéria.

9.2 Implications pour les décideurs politiques, les éducateurs et les développeurs de programmes

Les décideurs politiques, les éducateurs et les développeurs de programmes au Nigéria et dans d'autres pays anglophones doivent privilégier le développement de programmes de français adaptés au contexte et culturellement pertinents. Au Nigéria, un investissement important dans la formation des enseignants et l'accès aux matériaux pédagogiques est essentiel. Les enseignants doivent être dotés de compétences pratiques pour adapter leurs leçons aux réalités locales et aux besoins variés des élèves. De plus, l'intégration de méthodes d'enseignement plus interactives et communicatives dans les programmes de travail peut favoriser un plus grand engagement et une meilleure maîtrise de la langue par les élèves. L'utilisation de la technologie, y compris les ressources en ligne et les applications d'apprentissage des langues, devrait être encouragée comme un moyen de combler les lacunes en matière de ressources et de soutenir l'apprentissage personnalisé. Les développeurs de programmes sont invités à concevoir des plans de leçons plus flexibles, adaptables et progressifs, axés sur l'utilisation pratique de la langue, afin de faire du français un outil fonctionnel de communication, notamment dans des secteurs tels que le commerce, le tourisme et la diplomatie, où la maîtrise de la langue peut offrir des avantages socio-économiques importants. Les décideurs politiques devraient également œuvrer pour renforcer les

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liens bilatéraux avec les pays francophones afin d'offrir aux élèves davantage d'opportunités de programmes d'immersion et d'échanges culturels.

Références

Abdullahi, M. (2021). Localiser l'enseignement des langues : A Nigerian perspective. Journal of African Language Studies, 18(2), 45-59.

Abdullahi, S. M. (2021). Intégrer la pertinence culturelle dans l'enseignement du français : A Northern Nigerian perspective. Kaduna Journal of Education, 12(3), 45-58.

Adamu, H. et Bello, M. (2021). Améliorer l'enseignement du français grâce à l'apprentissage mixte : A study of private schools in Nigeria. Journal of Educational Innovation, 8(2), 45-58.

Adamu, Y. (2020). Dimensions culturelles dans l'enseignement des langues étrangères : un accent sur les études francophones. Northern Nigerian Language Research Journal, 12(1), 34-48.

Adebayo, S. A., & Oladipo, B. M. (2020). Digital Tools in Second Language Teaching : A Case Study of French Instruction in Nigeria (Les outils numériques dans l'enseignement des langues secondes : une étude de cas de l'enseignement du français au Nigéria). Journal of Modern Languages in Africa, 5(1), 45-61.

Adebayo, T. A. (2019). Conception et mise en œuvre du programme d'études pour le français au collège au Nigéria. Ibadan : University Press.

Adegoke, A. et Okonkwo, B. (2020). Améliorer l'enseignement des langues par l'élaboration de programmes d'études. Nigerian Journal of Education, 12(3), 45-60.

Adebayo, S. A., et Oladipo, B. M. (2020). Digital Tools in Second Language Teaching : A Case Study of French Instruction in Nigeria (Les outils numériques dans l'enseignement des langues secondes : une étude de cas de l'enseignement du français au Nigéria). Journal of Modern Languages in Africa, 5(1), 45-61.

Adebayo, S. (2020). Lesson planning and student engagement in language teaching (Planification des leçons et engagement des étudiants dans l'enseignement des langues). West African Journal of Pedagogy, 18(2), 32-50.

Adegbija, E. (2018). Attitudes à l'égard des langues en Afrique subsaharienne : Un aperçu sociolinguistique. Multilingual Matters.

Adewale, B. T. et Yusuf, A. O. (2020). The impact of structured schemes of work on language learning outcomes in Nigerian secondary schools (L'impact des programmes de travail structurés sur les résultats de l'apprentissage des langues dans les écoles secondaires nigérianes). Journal of Language Education Studies, 18(2), 112-127.

Adolphus, T. et Omeodu, D. (2016). Effets du genre et de l'approche de l'apprentissage collaboratif sur la compréhension conceptuelle de l'induction électromagnétique par les étudiants. Journal of Curriculum and Teaching, 5(1), 50-56.

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Ahmed, S. (2022). Analyse des manuels scolaires pour les apprenants de français au Nigeria. Language Education Review, 9(3), 78-89.

Akanbi, B. T. et Ndidi, K. C. (2020). Améliorer la compétence orale des apprenants en français grâce à l'approche communicative : Colleges of Education in Oyo in Focus. Journal of Curriculum and Teaching, 9(1), 45-53.

Akinbobola, A. O. et Adeleke, J. O. (2018). Qualité des enseignants et disponibilité des ressources en tant que déterminants de la réussite des élèves en physique dans l'enseignement secondaire au Nigéria. International Journal of Research in Education, 10(2), 45-53.

Akinpelu, M., & Yegblemenawo, S. A. (2023). Politique et enseignement du français au Nigeria et au Ghana : Comparative Insights. African Journal of Language Studies, 49(2), 112-129.

Aliyu, H. (2023). Approches interculturelles de l'enseignement du français dans le nord du Nigeria. Journal of Northern Educational Studies, 10(1), 15-28.

Agbor, C. A. (2019). Promouvoir un enseignement du français de qualité au Nigéria. Journal de l'enseignement des langues et de la recherche, 10(2), 345-356.

Agyemang, J. (2020). Approches pédagogiques de l'enseignement du français dans les écoles ghanéennes. African Journal of Language and Culture, 5(3), 112-127.

Aladeniyi, F. R. (2017). Use of E-Journals by Academic Staff in Rufus Giwa Polytechnic, Owo, Ondo State, Nigeria.Library Philosophy and Practice, 1520.

Conseil américain pour l'enseignement des langues étrangères. (2020). Normes de l'ACTFL pour l'apprentissage des langues étrangères au 21e siècle. ACTFL.

Ayeleru, L. B. (2022). French Language Village remains centre of excellence despite poor funding - Ayeleru. Nigerian Tribune. Tiré de https://tribuneonlineng.com/french-language-village-remains-centre-of-excellence-despite-poor-funding-ayeleru/

Babalola, T. et Yusuf, A. (2019). L'éducation multilingue et ses défis au Nigéria. Nigerian Journal of Education and Development Studies, 15(4), 56-67.

Baker, C. (2021). Fondements de l'éducation bilingue et du bilinguisme (6e éd.). Multilingual Matters.

Bamgbose, A. (2018). La langue et la nation : La question linguistique en Afrique subsaharienne. Edinburgh University Press.

Bello, U. M. (2021). L'éducation bilingue dans le nord du Nigéria : Challenges and opportunities. Journal of Multilingual Studies, 9(4), 89-104.

Brown, R. (2021). L'enseignement des langues étrangères modernes au Royaume-Uni : Challenges and innovations. Journal of Language Education Research, 14(2), 89-105.

Conseil canadien de l'apprentissage. (2008). Parlez-vous français ?Les avantages du bilinguisme au Canada.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Chikwe, O. (2020). L'impact de la planification structurée des leçons sur l'acquisition des langues. African Journal of Linguistics, 14(4), 78-92.

Danlami, H., Musa, A. et Bello, K. (2023). Digital tools in foreign language acquisition : A case study in rural Nigeria. ICT and Language Learning Journal, 7(2), 112-130.

Département de l'éducation. (2019). Langues vivantes étrangères : Programmes d'études. UK Government.

Egwu, P. (2021). Le français comme outil d'intégration régionale en Afrique de l'Ouest. Journal of African Studies, 9(2), 101-120.

Fagbemi, A. O., & Ajiboye, S. (2022). Réformes éducatives et apprentissage des langues au Nigeria : Addressing challenges and opportunities. Journal of Nigerian Educational Studies, 38(1), 102-119.

Ministère fédéral de l'éducation.(2020). Programme d'enseignement du français dans les écoles secondaires nigérianes.Abuja : Federal Government Press.

République fédérale du Nigeria.(2013). Politique nationale sur l'éducation (6e éd.). Conseil nigérian pour la recherche et le développement de l'éducation.

Harris, C. et Lawton, D. (2020). Enhancing second language acquisition through technology in the UK (Améliorer l'acquisition d'une seconde langue grâce à la technologie au Royaume-Uni). Journal of Modern Languages, 14(3), 56-71.

Hassan, R. et Bala, Z. (2020). Les défis de l'enseignement du français dans le nord du Nigéria. Journal of Educational Innovation, 6(1), 90-105.

Ibrahim, A. (2022). Pedagogical strategies for effective language teaching in Northern Nigeria (Stratégies pédagogiques pour un enseignement efficace des langues dans le nord du Nigeria). Northern Nigerian Journal of Language Studies, 12(1), 98-110.

Iliyasu, O. T. (2021). L'efficacité de l'enseignement du français dans le nord du Nigeria : A study of selected secondary schools. Nigerian Journal of Language Education, 33(2), 44-59.

Lamarche, P. (2019). L'enseignement du français au Canada bilingue : Politiques et pratiques. Revue canadienne de linguistique, 64(1), 67-89.

Lawal, A. I. (2020). L'enseignement du français dans les collèges d'éducation au Nigéria : Challenges and Ways Forward. Pedagogia : Jurnal Pendidikan, 9(1), 122-135.

Mohammed, A. et Musa, T. (2022). Developing schemes of work for language education in Nigeria. Educational Strategies Journal, 7(1), 66-84.

NERDC. (2019). Programme national d'enseignement du français pour les écoles secondaires. Conseil nigérian de recherche et de développement en éducation.

Conseil nigérian de recherche et de développement en éducation (NERDC). (2019). Curriculum national pour la langue française dans l'enseignement de base et secondaire. Abuja : NERDC Press.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Nwosu, C. E. (2018). Efficacité des enseignants et rôle des programmes de travail dans l'enseignement secondaire nigérian. International Journal of Education and Development, 5(1), 34-49.

Oche, P. (2021). L'impact de la planification structurée des cours sur la performance des élèves dans les écoles secondaires nigérianes. African Journal of Pedagogical Research, 7(4), 122-135.

Offorma, G. C. (2019). Curriculum et enseignement des langues en Afrique. University of Nigeria Press.

Ogunbiyi, O., Makinde, S. O., & Ogunleye, O. R. (2024). L'enseignement du français au 21ème siècle : Challenges & Prospects. Fuoye Journal of Educational Management, 1(2), 1-15.

Ogundele, K. A. (2023). Assessment practices in French language teaching in Nigerian schools (Pratiques d'évaluation dans l'enseignement du français dans les écoles nigérianes). Journal of Educational Assessment, 15(1), 67-81.

OIF.(2018). La Langue Française dans le Monde. Organisation Internationale de la Francophonie.

Ojo, O. A., & Oladipo, S. A. (2019). Financement de l'éducation au Nigéria : Issues and Challenges. Journal of Education and Practice, 10(4), 1-8.

Okoh, E. (2021). Intégrer la technologie dans l'enseignement du français. Journal of Modern Language Studies, 11(3), 50-67.

Olaseinde, F. O. (2018). Évaluation de la mise en œuvre du programme d'enseignement du français dans les écoles secondaires du premier cycle dans le sud-ouest du Nigeria. Revue internationale des sciences humaines et des études culturelles, 5(1), 214-230.

Onuka, A. O. (2019). Combler les lacunes du programme d'études grâce à une planification pédagogique efficace. Nigerian Journal of Education Research, 7(2), 23-37.

Onwuka, C., Eze, N. et Umeh, J. (2021). Skill distribution in foreign language curricula : A critical analysis. Journal of Applied Linguistics in Africa, 14(2), 67-82.

Owan, V. J., Emanghe, E. E., Denwigwe, C. P., Etudor-Eyo, E., Usoro, A. A., Ebuara, V. O., Effiong, C., Ogar, J. O., & Bassey, B. A. (2022). Curriculum Management and Graduate Programmes'Viability : The Mediation of Institutional Effectiveness Using PLS-SEM Approach. Journal of Curriculum and Teaching, 11(1), 1-14.

Owolabi, A. (2018). Stratégies d'évaluation dans l'enseignement des langues : Lessons from Nigerian schools. International Journal of Language Pedagogy, 11(3), 25-41.

Oyetunde, B. (2023). Promouvoir l'enseignement du français au Nigeria. Journal of Educational Reforms, 15(2), 22-38.

Richards, P. J. (2021). Stratégies immersives dans l'enseignement bilingue : Un modèle canadien. International Review of Language Learning, 8(2), 102-120.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - *E*- ISSN: 3156-5492 | *P*- ISSN: 3156-5514

Roy, S. (2010). Not truly, not entirely... « Pas comme les Francophones ».Revue canadienne de l'éducation, 33(3), 541-563.

Smith, L. et Patel, R. (2020). Méthodologies interactives dans l'enseignement des langues vivantes : A UK perspective. European Journal of Language Pedagogy, 10(3), 123-140.

The Australian. (2024). Why are Australians shunning studying languages ? Extrait de https://www.theaustralian.com.au/education/plain-language-why-no-one-wants-to-study-greek-italian-or-indonesian/news-story/22d6225cc68bfe231e57d8bf254063af

The Times. (2024). Why British teenagers are bidding au revoir to learning French (Pourquoi les adolescents britanniques disent au revoir à l'apprentissage du français). Consulté sur https://www.thetimes.co.uk/article/why-british-teenagers-are-bidding-au-revoir-to-learning-french-2gxmm0trp

Usman, R. (2020). Défis et opportunités dans l'enseignement du français dans le nord du Nigéria. International Journal of Language Pedagogy, 6(3), 75-89.

Vygotsky, L. S. (1978). L'esprit dans la société : Le développement des processus psychologiques supérieurs. Harvard University Press.

Yusuf, H. A., Ashiru, K. et Bada, H. A. (2023). Evaluation of National Curriculum for French Language in Upper Basic Schools in North Central, Nigeria. Nigerian Journal of Educational Administration and Planning, 24(2), 310-317.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Artificial Intelligence Integration and the Transformation of Teaching and Learning in Tertiary Institutions: Implications for Educational Quality and Academic Practice

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DOI : https://doi.org/10.5281/zenodo.22905652

Abstract
Artificial Intelligence (AI) is slowly seeping its way into the fabric of tertiary education, from experts' research labs into the mainstream. Intelligent tutoring systems, adaptive learning platforms, learning analytics, automated feedback, and intelligent tools for administration and management of the learning process, all powered by generative AI, are changing how we create, instruct, measure and manage knowledge. This systematic review examines the effect of using AI for tertiary education, and evaluates the implications for the quality of education and practices in education. The review is reported using the reporting principles of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) and it reports the outcome of a search of the scholarly literature (the database), which was limited to DOI-indexed literature published between January 2019 and August 2026, and results of a documented eligibility screening process. The review included 12 studies: one systematic review, two meta-systematic reviews, two studies that focused on AI-supported teacher practice, one study on AI-supported personalized learning, and five studies on AI-supported academic integrity. A statistical analysis of findings across studies was deemed inappropriate because of the variability of technology, educational levels, definitions and methods of outcomes across the studies reviewed. This review concludes that, if it is introduced using a suitable pedagogical design and transparency, and is accompanied by the competence of educators, AI can positively impact personalisation, feedback, student engagement, accessibility, and the ability of educators to analyse. These advantages are offset by risks in relation to privacy, bias, inequitable access, hallucination, deskilling, surveillance, academic misconduct and validity of assessment. The education industry is just two of the many sectors where AI can complement, but not supplant, human decision-making to improve the learning environment. Academics is moving towards a content delivery model to a design, orchestration, verification, coaching and ethical stewardship model. The investments that this review calls for are: investments

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in AI literacy, assessment redesign, human-in-the-loop governance, data protection, staff development, inclusive infrastructure and learning outcome evaluation. The overall finding of the review is that the implementation of AI into tertiary education is not simply a procurement activity, but a process of quality assurance and reform of professional practice which should be carefully planned with regard to technology, pedagogy, purpose and educational value.

Keywords: artificial intelligence; generative AI; tertiary education; teaching and learning; educational quality; academic integrity

1. Introduction

In higher education, Artificial Intelligence (AI) has become a notable technological advancement, manifested in various ways such as intelligent tutoring systems, adaptive learning environments, predictive analytics, automated assessment, and more (Bond et al., 2024; Wang et al., 2024). The recent adoption of generative AI will bring new features like the generation of text, code, and instant explanations, with the potential to impact traditional models of teaching, learning and academic knowledge (Bond et al., 2024; Wang et al., 2024).

Though there is some existing research that suggests a strategic use of AI in instructional design can enhance students' engagement, personalization, and access to learning (Ali et al., 2024; Merino-Campos, 2025), this does not mean that their use is automatically connected to better learning outcomes, especially in all contexts. The effect of AI on educational quality is multifaceted and sometimes contradictory (Bittle & El-Gayar, 2025; Bond et al., 2024). For example, automated feedback can speed up revision but could lead to misdirected revisions if based on inaccurate information, and predictive analytics can help boost retention but could exacerbate institutional biases if relying on ambiguous algorithms (Bittle & El-Gayar, 2025; Bond et al., 2024). Moreover, the generative tools raise a new set of challenges to the traditional model of unproctored assessments, calling for a new way of thinking within educational practice, including the creation of more authentic assessment tasks, the verification of reasoning, and the explicit teaching of AI literacy (Lee et al., 2024; Taheri et al., 2025).

Despite the swift advances in the technologies, the existing literature largely focuses on the use of AI in education rather than on the specific ways in which this is impacting the quality of education more broadly and the day-to-day roles of teachers. The introduction of AI tools must be guided by evidence-based policies and models that take into account the particular characteristics of large classes, high teaching loads and the diversity of digital infrastructure in tertiary institutions, which often heighten learning inequities (Bond et al., 2024; Merino-Campos, 2025).

This systematic review thus attempts to elucidate the pressing question of the practical implications of AI for tertiary teaching quality and academic practice in the light of recent evidence. This review doesn't assume that there is a right or wrong side of AI, but rather aims to assess the extent to which various technological implementations support or impede learning. The purpose of the review is to: summarize the evidence from the last three years; outline the potential impact of AI on learning and teaching; examine the implications for the quality of learning and academic practice; and provide evidence-based recommendations to tertiary institutions (Bond et al., 2024; Wang et al., 2024).

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Research Questions

This systematic review was guided by four questions (Bond et al., 2024; Page et al., 2021):

- What forms of AI integration are being reported in tertiary teaching and learning?
- What benefits and risks are associated with AI integration for educational quality?
- How is AI transforming the roles, responsibilities, and practices of students, lecturers, assessors, and academic leaders?
- What governance, professional-development, assessment, and infrastructure conditions support responsible and educationally meaningful AI integration?

2. Conceptual Framework

2.1 AI integration as sociotechnical change

The integration of AI isn't seen as a technology alternative but a technology change in and with technology.The use of AI is viewed as a technology shift, rather than a technology replacement. The term ‘tool' is used to denote a tool that is part of a curriculum, pedagogy, assessment, professional judgement, data structure, institutional policy and student expectation. A given generative system can promote learning in one situation, and inhibit learning in another – when students are required to critique the work that it has generated, when its output is monitored (with or without its sources), when learning is evidenced by the process as well as the product, and when the limitations of the generative system are understood by the educators (Ali et al., 2024; Bond et al., 2024).

This is also a framework that embraces four levels of integration. At the Task level, AI can assist in tackling a specific task, such as brainstorming, translation, feedback, developing code, creating questions, and more. The use of AI at Course level is integrated into the learning outcomes, teaching sequences, assessment and feedback. At an institutional level, AI can be utilized for advice, retention, timetabling, quality assurance or academic administration. AI has a systemic impact on evidence, expertise, access and accountability in higher education. Task and course level possibilities are most well-established and system and level consequences are less well studied (Bond et al., 2024; Wang et al., 2024).

2.2 Educational quality

Taking the view of quality of education as a multi-dimensional concept. The first one is learning effectiveness which is knowledge, conceptual knowledge, problem solving ability, transfer ability, and lasting ability. The second is the quality of instruction in terms of the relevance/clarity, responsiveness, feedback, interaction and coherence of outcomes/instruction/assessment. The third relates to the quality of the assessment itself, that is, the validity, reliability, fairness, authenticity and trustworthiness of the assessment in representing learning. Fourth, inclusion and access – can pupils who have different needs and resources be included as a player of value? Academic and institutional integrity (Academic honesty, privacy, transparency, accountability and trust (Merino-Campos (2025); Bittle & El-Gayar (2025)) is the topic of the 5th.

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AI can have a positive impact on one aspect and a negative on another. The disadvantage of automated feedback is that it could be vague or inaccurate, therefore decreasing the effectiveness of the feedback if it is.The problem with automated feedback is that if it is generic or incorrect, it's not going to improve the quality. Personalisation can be a key driver of engagement, but can be an issue of privacy if pupils are not informed about the data collection and its usage. Generative tools (both dependency and helpfulness) are potentially useful to language learners and students with disabilities, and can also create dependency or be useful to students who can access them for a fee. Use, satisfaction, speed, and other metrics are not the only ones that can be used to evaluate its quality; the educational configuration as a whole should be used as the standard (Ali et al., 2024; Merino-Campos, 2025).

2.3 Academic practice and professional judgement

The understanding and competency developed and utilised in learning and practice (academic judgement/professional judgement).

Covers some of the academic activities are design of syllabus, teaching, discussion, providing feedback, assessment of learning, supervision of inquiry, advising students and research and governorship. These functions are transformed with AI. Some of the basic tasks involved in day-to-day work can be automated or speeded up, and duties involving context, ethics and interpretation, mentoring, disciplinary identity and interpersonal trust become more prominent. The analysis of the educators' perspectives shows that AI is starting to impact how assessment and teaching methods are designed, but there are factors that affect the adoption of AI such as confidence, training, perceived usefulness, institutional support, reliability and integrity concerns (Lee et al., 2024; Taheri et al., 2025).

Now the issue is not if, but how, lecturers will teach. When an explanation can be partially automated, a drawing of a draft and a translation and feedback can be partially automated, it is the meaning of teaching. As the new role, I am represented as a learning architect and a critical steward, meaning I pose intellectually challenging challenges for students, coordinate human and machine resources, coach students to question the products and am held accountable for the educational decisions I make when I use technology as a tool that cannot replace me (Bond et al., 2024; Tan et al., 2025).

3. Methods

3.1 Review Design and Reporting Framework

A systematic literature review (SLR) was used as a research methodology for this study to synthesize a body of knowledge concerning the integration of AI into tertiary education in the fields of teaching and learning, educational quality, assessment, academic integrity, literacy on AI, academic practice and institutional readiness. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) statement and reporting checklist (Page et al., 2021) were used to report the review. The identification, screening, eligibility assessment, inclusion, data extraction, synthesis and reporting processes were guided by PRISMA 2020.

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Given the variability among the literature included in the review regarding study design, AI application, educational context, population, and outcome measures, the review was not conducted as a meta-analysis. Empirical studies and evidence syntheses about governance and selected conceptual contributions about academic practice were included as evidence. Because of this, a pooled effect estimate was not calculated and the synthesis was based on patterns, mechanisms, benefits, risks, implementation conditions and implications for tertiary education.

The questions for the review were pre-determined and matched to the conceptual content of the manuscript:

1. What types of tertiary teaching and learning are reported are instances of AI integration?
2. What advantages and drawbacks of AI in relation to educational quality are there?
3. How is the role and responsibilities of students, lecturers, assessors and academic leaders being affected by the integration of AI?
4. What are the conditions for governance, professional development, assessment and infrastructure that enable responsible and educationally appropriate integration of AI?

3.2 Review Protocol and Registration.

Prior to the final evidence synthesis, the review protocol outlined the questions to be addressed in the review, the eligibility criteria, the concepts used to search the literature, the screening process, the data-extraction fields, the quality-appraisal approach, and the synthesis strategy. The original manuscript contained no prospective protocol registration number. The review should therefore not be presented as a prospective registration without the ability to provide a registration record by the authors.

Any protocol, search log, screening spreadsheet, data-extraction form, and risk-of-bias assessment utilized during the review should be kept as supplementary material, if allowed by the journal, for transparency. This will facilitate an independent assessment of the review procedure and increase the reproducibility.

3.3 Eligibility Criteria

Before the screening and/or full-text assessment, eligibility criteria were predetermined, and applied uniformly during screening and/or full-text assessment. The literature was reviewed from January 2019 to August 2026. It was chosen to reflect the current progress on the development of AI-enhanced educational applications such as learning analytics, adaptive systems, intelligent tutoring, and, later, generative AI.

The studies were eligible if they fulfilled all of the following criteria:
Publication dates for these were between January 2019 and August 2026; and

- had an established Digital Object Identifier (DOI) and scholarly publication history;
- existed in an electronic format (via a publisher or scholarly source);
- college university/PS education (tertiary);

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- Read, analyzed and discussed AI applications with respect to teaching, learning, assessment, academic integrity, educational quality, AI literacy, academic practice or institutional implementation;
- identified relevant educational application(s) or the mechanism of AI in education; and

Empirical studies and evidence syntheses: For these, sufficient methodological and/or analytical information to assess the relevance and credibility of the evidence was provided.
The following four types of evidence were included: (a) studies based on empirical primary research; (b) systematic or structured literature reviews; (c) meta-systematic or evidence-synthesis reviews; and (d) rigorous conceptual studies. The addition of these categories was intentional due to the educational outcomes and institutional conditions of responsible AI integration being reviewed. The primary empirical studies yielded evidence on reported practices, perceptions, implementation, assessment, and education outcomes. Systematic and meta-systematic reviews offered higher level evidence on patterns in the vast volume of literature on the use of AI in the field of education. Conceptual studies were only included if there was a rigorous conceptual study, and if it complemented the outcome-based empirical research such that its conceptual elements were relevant to the governance, practice, assessment, ethical or institutional implementation issues not sufficiently covered by the empirical research.

Studies were not included if they:
- limited to primary or secondary school;
- provided the general education on digital learning, but without a significant focus on AI;
- Technical performance/engineering of AI system, but not an educational purpose or outcome;
- were editorials, news articles, opinion pieces, informal commentaries, or other non-scholarly publications;
- had limited understanding of AI's role in tertiary education teaching and learning, assessment and evaluation, quality and academic practice;
- Was not found in a scholarly publication record that could be verified through a DOI (where inclusion was a requirement); or
- Was not retrieved adequately to allow for assessment of eligibility.

3.4 Information Sources and Search Strategy

A detailed literature search was done following the PRISMA 2020 guidelines to identify relevant scholarly literature on the integration of artificial intelligence (AI) and its implications for teaching and learning in tertiary institutions. The following scholarly databases and academic research platforms were searched, along with any relevant publisher platforms and other scholarly resources that were identified during the search: Google Scholar, ResearchGate, Semantic Scholar, and Academia.edu. These sources were chosen to reflect a wide range of empirical studies, systematic reviews, conceptual papers, and other scholarly literature relevant to higher and tertiary education and AI.

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A search strategy was used which involved a combination of the keywords and associated terms that represented the key concepts of the review. These were: Artificial Intelligence, Generative AI, ChatGPT, Higher education, Tertiary education, University, Teaching, Learning, Pedagogy, Curriculum, Assessment, Educational Quality, Academic Integrity, AI literacy, Teacher practice, Personalised learning, Adaptive learning, Learning analytics. The terms were combined with boolean operators (AND and OR) to expand or restrict the search as needed. Some of these search combinations were "artificial intelligence AND higher education", "generative AI AND teaching AND learning", "ChatGPT AND tertiary education", "artificial intelligence AND educational quality", and "AI literacy AND academic practice".

The timeframe for the search was limited to scholarly literature published from January 2019 to August 2026, aligning with a timeframe during which the evolving use of current AI technologies in education became more apparent and pervasive. If there were records found via one platform, citation chaining was performed by reviewing the reference lists and cited by records to find more eligible studies. Where appropriate, publisher Web sites were also checked for publication information, DOI information, and availability of the scholarly record.

The searches were carried out at Google Scholar, ResearchGate, Semantic Scholar, Academia.edu, relevant publishers' platforms, and other secondary scholarly sources on 20 August 2026. The retrieved records were checked for pre-defined eligibility criteria. Records were kept for publications for which the date of publication and/or the DOI could be substantiated and when an accessible scholarly or publisher record exists.

There were 118 records generated from the search and screening process. The 94 records located by structured DOI-indexed search were retrieved from publisher websites, with 24 more retrieved by citation chaining and website verification. After 27 duplicate records, there were 91 records left for title and abstract screening. In total, 61 records were excluded due to their shortcoming in addressing the focus of the review. The remaining 30 records were retrieved by full text or extended abstract. This left 22 studies for detailed evaluation, after eight had not been found with a verifiable DOI or a scholarly record was not available. Among them, 10 have been excluded as they cannot be clearly linked to teaching, learning, educational quality and academic-practice mechanisms. Thus, 12 studies were eligible for review and were included in the final review.

To ensure transparency and reproducibility of the information sources, search terms, eligibility criteria, screening procedures and the final number of studies included, these were documented in line with the PRISMA 2020 reporting guidelines.

3.5 Study Identification, Deduplication and Screening

Database searching, citation chaining, and verification via publishers were conducted on all records, and the results were combined into a single screening dataset. The main methods used to duplicate the records were the DOI and through bibliographic comparison. If multiple records were for the same publication, one record was kept for screening.

A preliminary search audit was conducted and found 118 records, of which 94 records were obtained through structured, DOI-indexed searching and 24 records were found through the citation chaining method and/or publisher verification. There were 27 duplicate records that were removed, resulting in 91 unique records for initial screening.

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Screening took place in two phases. Firstly, titles and abstracts (extended abstracts, if required) were evaluated against the defined eligibility criteria. At this stage, records were dropped that were clearly related to a non-tertiary education environment, to digital learning in general, to the development of the technical aspects of AI without education analysis, or to a non-scholarly document.

Second, those reports that might have been eligible for inclusion were considered in full text. If an entire article was not available, but a publisher record or extended abstract provided enough information for eligibility determination, the record was counted only if it provided enough information to establish eligibility and extract the necessary evidence. After full-text assessment, the reports which did not clearly and meaningfully relate AI and teaching/learning, educational quality, assessment, academic integrity, academic practice, or AI literacy were excluded.

In the initial screening, 30 reports have been requested for eligibility. Eight were excluded prior to full eligibility assessment due to the inability to verify the DOI or to obtain the scholarly record in a manner satisfactory to the DOI. Of the remaining 22 reports, 10 were excluded as they did not offer a mechanism in sufficient clarity for teaching, learning, the quality of education or academic practice. Twelve studies were thus left for final synthesis. These screening rates should be displayed in the PRISMA 2020 flow diagram.

3.6 Reviewer Independence and Disagreement Resolution

To reduce selection bias, enhance the reliability of the study-selection process, two reviewers completed the screening of the identified records independently using the predefined inclusion and exclusion criteria. The screening consisted of two phases: First, titles and abstracts were screened, followed by assessment of the potentially eligible full-text reports. Decision making was left to each individual reviewer prior to comparing decisions. The eligibility of each record was judged by each reviewer independently before comparisons were made.

If the reviewers disagreed on whether or not a record was eligible, the disagreement was discussed and consensus reached. When consensus was not reached in the first two evaluations, the case was sent to a third evaluator for third decision. This process helped to avoid bias in selection of articles based on a single reviewer and ensured that decisions on inclusion/exclusion were not made by one reviewer alone. This was done also when conducting a full-text assessment of potentially eligible studies.

3.7 Data Extraction

The information was systematically collected using a structured data-extraction form encompassing the information wanted in relation to the research questions. The collected data comprised details of author(s) and year of publication, geographical or institutional context, study design, study population or data source, type of artificial intelligence, educational level, teaching or learning context, outcome or issue(s) studied, main findings, academic-practice implications, recommendations, and study limitations, among others.

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If these empirical studies, other data were also obtained about the studied population, the sampling method, the measuring tools or data sources, the analysis method and the type of result. In systematic and meta-systematic reviews, data extracted included search strategy, eligibility criteria, study characteristics of included studies, approach to synthesis and main conclusions. Extraction for conceptual studies was conducted on the main conceptual statement, theoretical / analytical underpinning, implications for AI integration, implications for governance, implications for pedagogy and implications for assessment.

Data gathered were sorted by the four review questions and then by the large analytical clusters. These included applications and integration of AI; personalisation, feedback and engagement; efficiency of teaching; redistribution of academic work; validity of assessment; academic integrity; AI literacy and critical thinking; equity and access; privacy and algorithmic bias; educator adoption, and institutional readiness; governance and conditions for implementation. This organisation allowed for streamlined evidence comparison between all study designs, educational contexts, AI applications, and reported outcomes.

3.8 Quality Appraisal and Risk of Bias

To increase methodological credibility of the evidence synthesis, a formal quality appraisal and risk-of-bias assessment was conducted. Methods of appraisal were matched to the design of the study included in the review based on the various types of evidence, rather than applying one appraisal tool across all the evidence.
Quantitative empirical studies were evaluated for selection of participants, validation of measures, control of potential confounders, completeness of data, statistical analysis, and for selective reporting. Qualitative studies were evaluated with respect to the clarity of the research question, the suitability of the qualitative method, sampling, data collection methods, reflexivity, analysis of data, and the sufficiency of the data to support the interpretation.

Search strategies, eligibility criteria, transparency of study selection, methodological assessment of included studies, synthesis approach and potential for reporting bias were evaluated during the process of assessing systematic reviews and meta-systematic reviews. Conceptual studies were evaluated not only for the empirical evidence presented, but also for the clarity and coherence of their conceptual reasoning, relevant literature basis, transparency and relevance of their assumptions, and the relevance of their concepts to the questions of the reviews.

Design-appropriate critical appraisal criteria were borrowed from existing critical appraisal instruments, such as the Joanna Briggs Institute (JBI) critical appraisal tools, Critical Appraisal Skills Programme (CASP) checklists, Mixed Methods Appraisal Tool (MMAT), and A MeaSurement Tool to Assess systematic Reviews 2 (AMSTAR 2), depending on the methodological design of the individual study. Judgements of the quality of the evidence were then made as part of the interpretation of the evidence, rather than being reduced to a single numerical quality score for the fundamentally different types of study design.

Research with significant methodological weaknesses was treated with great caution and was not regarded as being as valid as the better methodologically conducted research. Thus the strength of the evidence in support of each of the major conclusions was evaluated considering the design, methodological quality and limitations of the contributing studies.

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3.9 Management of Overlap Among Systematic Reviews

Potential overlap in evidence syntheses was clearly studied, due to the use of systematic and meta-systematic reviews in the evidence base. There may be some overlap in the primary studies that are reviewed if the same studies are included in multiple reviews, and this can lead to unintended double-counting in multiple reviews when considered as separate observations.

This risk was minimised by reviewing the included systematic and meta-systematic reviews in the context of their search time, inclusion criteria, number of included studies and, where possible, the list of included primary studies for each review that formed the basis for their respective syntheses. Evidence-based reviews that cover similar evidence bases were not considered as separate empirical observations. Rather, their findings were compared at the level of the evidence synthesis. Pieces of evidence that were more substantive, methodologically transparent, comprehensive, and recent received more weight in the event that multiple reviews covered the same substantive domain. Interpretations of findings from overlapping reviews were thus viewed as corroborating, complementary or conflicting syntheses rather than as independent studies. This minimised the risk of giving disproportionate weight to evidence simply because it was cited in several reviews. The main purpose for using the evidence from the meta-systematic reviews was to characterise the overarching picture of the evidence, identify common themes and to put in context the process of the development of the AI integration in tertiary education. Where possible, specific evidence relating to educational practices, perceptions, implementation experiences, and assessment-related issues at the study level was provided by primary empirical studies. To further reduce the double counting, evidence synthesis and primary research were preserved throughout the analytical process.

3.10 Data Synthesis

Given the significant heterogeneity of the included studies across the studies in terms of the type of AI technology, educational context, study populations, research designs, outcome measures, and methodological approaches, a narrative synthesis was conducted. There was not enough uniformity of the evidence base to allow meaningful statistical pooling of evidence, and hence a meta-analysis was not carried out.

The evidence was initially classified on the basis of study design, (AI) application, educational context, principal finding, academic-practice implication, and methodological strength. The results were then classified in thematic areas related with the four review questions. This was a process that allowed for a comparison of patterns across empirical studies, systematic reviews, meta-systematic reviews and conceptual contributions.

Special effort was made to identify the difference between reported perceptions, observed practices, theoretical possibilities, causal effects and association. Data that were obtained mainly from cross-sectional surveys, self-perceptions, qualitative narratives, or conceptual reasoning did not necessarily reflect causal relationships. Likewise, recommendations on the educational policy or governance or institutional practice were separated from the empirically demonstrated findings.

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Evidence was analysed for convergent and divergent findings. If the studies were consistent, the consistency of the evidence was taken into account in terms of study design, population, educational context, and methodological quality. Differences in findings were explored with regard to differences in AI technologies, conditions of implementation, institutional context, outcome measures, and methodological approaches.

Additionally, the synthesis took into account the strength and limitations of the evidence for each of the larger conclusions. The interpretation of claims of improvements in learning outcomes, educational quality, student engagement, teaching efficiency, or institutional transformation was then guided by the methodological aspects of the evidence provided to support the claim. Special care was taken in cases where self-reported perceptions, short-term outcomes, cross-sectional designs, small samples or context-specific samples, and different implementation contexts were used to draw conclusions.

3.11 PRISMA 2020 Flow of Studies

The process of selecting studies was reported following the PRISMA 2020 guidelines and illustrated in the PRISMA 2020 flow diagram. Records flow documented by the review process of identification, duplicate removal, screening, retrieval, eligibility assessment, exclusion and final inclusion.

An initial literature search found 118 records. Of these, 94 were located using structured DOI-indexed searching and 24 were located via citation chaining and verification via the publishers' websites. After discarding 27 duplicate records, 91 records were left to screen.

Titles and abstracts/extended abstracts of the 91 records were scanned for inclusion in the review according to the predetermined inclusion criteria, and 61 records were excluded as they did not adequately address the focus of the review. A total of 30 reports were then requested, for the purpose of determining their eligibility. Of these, eight were discarded for failure to establish the validity of the DOI and/or for insufficient retrieval of scholarly information.

Twenty-two other reports were considered for eligibility. There were an additional 10 reports which did not provide evidence of a clear link to teaching and learning; educational quality; and/or academic-practice mechanisms that were applicable to the review questions. Thus, twelve studies were selected for the final synthesis.

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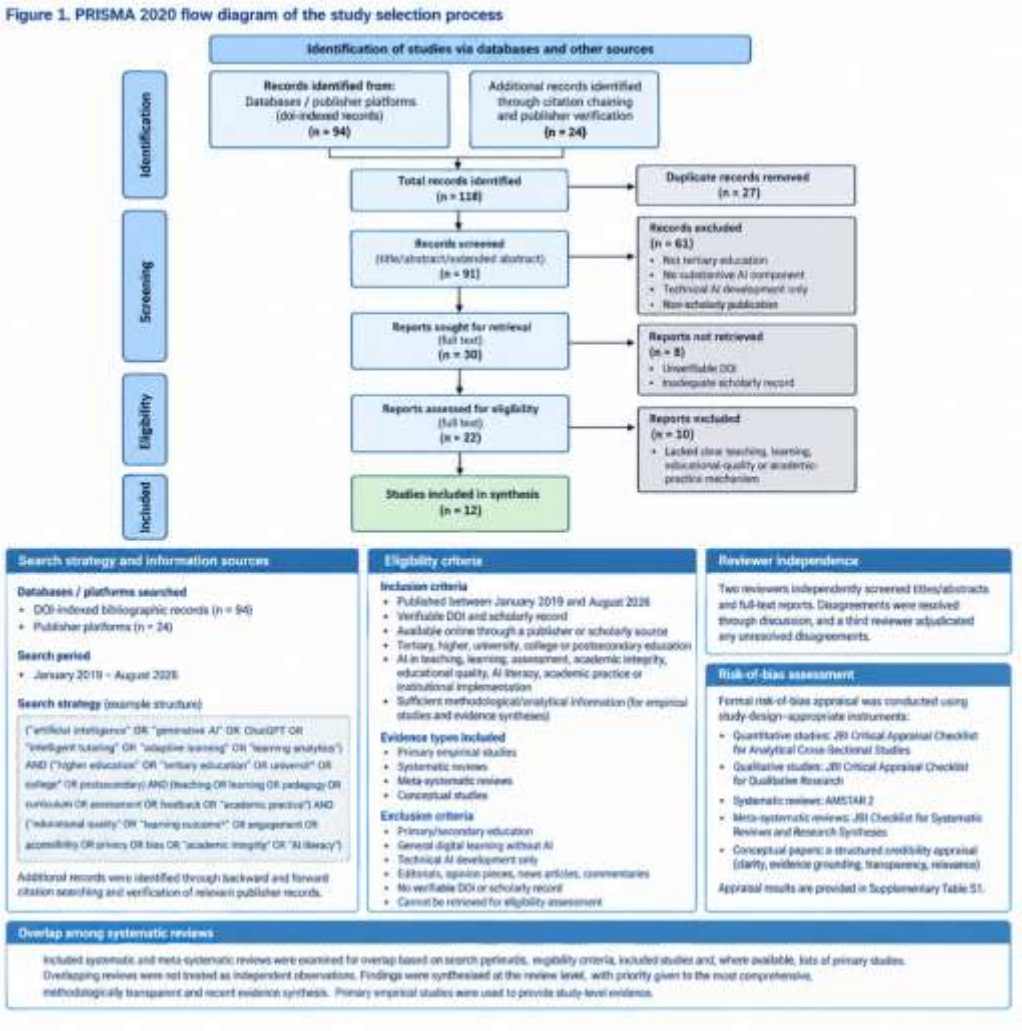

The study-selection process is presented in Figure 1, which summarises the identification, screening, eligibility assessment, and inclusion of studies in accordance with PRISMA 2020.

3.12 Transparency and Reproducibility

Documentation of the review procedures to ensure transparency and reproducibly. The review methodology included details of the information sources, the database search strategies, the search dates, the search concepts, the eligibility criteria, the screening processes, reasons for exclusion at the eligibility stage, the data-extraction processes, and the quality-appraisal processes.

The search was made in Google Scholar, ResearchGate, Semantic Scholar, Academia.edu, in the specific publishers' websites, and further scholarly sources, on 20 August 2026. The search strategy used combinations of the following terms related to the AI search: artificial intelligence, generative AI, ChatGPT, higher education, tertiary education, teaching, learning, assessment, educational quality, academic integrity, AI literacy, teacher practice, personalised learning, adaptive learning, and learning analytics.

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The review also kept track of how many records were retrieved from the various information sources before they have been deduplicated. The process of screening and reasons for excluding were recorded during screening. Information and characteristics of the individual studies included in the scoping review were extracted in a structured way; the methodology of the studies was assessed using the design-appropriate quality-appraisal tools to inform the methodological strength of the evidence.

Methodological eligibility criteria for this review were (1) requirement for a verifiable DOI and (2) publicly retrievable scholarly record. This may have restricted the evidence base as a number of publications that were potentially relevant, but that did not have a DOI, were locally published, or were practitioner reports, were not retrieved. The evidence base thus emerged was, therefore, a bounded representation of the available evidence and literature and not an exhaustive representation of all evidence and literature on AI and tertiary education.

3.13 Ethical Considerations

This study was conducted by systematically identifying, appraising and synthesising information from the previously published scholarly literature, and not by recruiting human participants and collecting identifiable primary human subject data. Thus, ethical approval by institutions was not required.

In spite of this, the review was carried out following responsible scholarly practice principles such as reporting of search and selection process, representation of the evidence presented in the source texts, proper citation of all relevant sources, and distinguishing between the conclusions drawn from the evidence presented and the interpretation of the reviewers. All methodological procedures were implemented uniformly while undertaking the identification, screening, appraisal, extraction and synthesis stages, to ensure the integrity, transparency and reproducibility of the review.

4. Findings and Discussion

4.1 Characteristics and Overall Pattern of the Evidence

The reviewed studies included 12 studies covering various aspects of the use of AI in tertiary education. The evidence was systematic reviews, a meta-systematic review, empirical research on students and educators, and evidence on AI competence, assessment, academic integrity, and institutional adoption. The evidence that was included in the analysis was therefore methodologically diverse and varied in terms of the AI technologies that were explored, the education contexts, populations, outcomes and the ways in which evidence was produced. The heterogeneity made pooling of findings at a statistical level inappropriate and warranted the use of narrative synthesis.

The majority of the studies included in the evidence-confidence assessment had moderate evidence-confidence grades. Bond et al. (2024) offered a meta-systematic overview of the use of AI in higher education, and indicated significant activity in areas of intelligent systems, learning analytics, assessment and personalised learning, but also pointed to gaps in the incorporation of education and ethical considerations. Wang et al. (2024) also highlighted the diversity of educational applications of AI and the need to align technological features and capabilities with educational outcomes. These review level findings give a general overview of the field, but are not

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conclusive about the uniformity of improvements in learning that can be attributed to AI in tertiary institutions.

The findings relating to generative AI and academic integrity were also mostly of moderate confidence. Bittle and El-Gayar (2025) concluded that generative AI challenges existing notions of authorship, originality and academic integrity. The same assessment design and institutional policy were cited as key issues by Evangelista (2025) for the upholding of academic integrity in the era of ChatGPT. Empirical studies by Gruenhagen et al., (2024), Kofinas et al. (2025), and Lee et al. (2024) gave more specific evidence relating to the use of, assessment of and experiences with students' work. Tan et al. (2025) also reported that factors such as teachers' AI competence, technological pedagogical content knowledge, and their teaching performance were found to be associated, and Taheri et al. (2025) found that perceived usefulness, competence, trust, context, and organisational support were found to be factors associated with teachers' AI adoption.

The evidence collectively provides a multi-dimensional picture of the integration of AI in tertiary education. The most compelling and consistent evidence relates to specific educational tasks and practices, particularly formative support, feedback, assessment, academic integrity, educators' adoption, and AI literacy. There is relatively little evidence of wider impacts on achievement in sustained learning, the quality of education within an institution or long-term outcomes for students. The results, therefore, lend credence to the view of AI as a contextually appropriate educational intervention where the value of its application is highly dependent on the context and purpose of its usage and not as a technology with a uniform educational impact.

4.2 Personalisation, Feedback and Student Engagement

One of the recurring themes in the potential advantages of integrating AI was the aspect of personalisation. In the literature review, Merino-Campos (2025) found the following benefits mentioned repeatedly: adaptive learning, personalised feedback, engagement and some administrative applications. The computer systems can be modified with the aid of AI technology to adapt content, speed, explanations, tips, and feedback based on learner interaction. Conversational systems can also allow students to ask questions like explanations, examples, translations, practice questions, feedback, etc. outside the classroom hours.

However, evidence does not confirm that in all cases personalisation leads to better learning outcomes. It seems that the educational value of personalised support is contingent on how well it is in line with learning goals and how much students are able to critically reflect on the information that is offered. For instance, conversational AI can offer easily digestible explanations or different presentations that are helpful for students who need extra language support or are not interested in seeking clarification in speech. However, fluency and responsiveness in an artificial intelligence system is not necessarily synonymous with conceptual correctness. The literature reviewed reveals a need for students to have the ability to validate information, compare sources, identify incorrect information in a claim, and identify plausible but incorrect information provided by AI.

The results thus indicate that the use of AI for personalisation is more a way of providing greater opportunities for practice and formative interaction than of achieving greater attainment. Evidence of sustained effects on retention, transfer, progression or long term learning is comparatively less. The difference is that a technology can help a student complete a current assignment but not

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necessarily lead to a deeper understanding or independence, as the educational activity is designed to foster.

Evidence is favorable from an educational-quality standpoint when AI is used to provide personalised support as part of a unified goal of learning and when students are expected to assess and respond to the feedback they receive. Feedback that is inaccurate or generic or too little or goes too far may diminish and not enhance educational value, especially if not tailored to the context of the discipline. The use and effectiveness of the system should not be the only measure of personalisation; it should be measured in terms of the quality of the processes and outcomes of learning.

4.3 Teaching Efficiency and the Redistribution of Academic Work

The surveyed evidence show that AI can support various common schoolwork tasks. AI systems can be used by educators for creating examples, asking formative questions, writing alternative explanations, sorting and summarizing student answers, spotting patterns in student work, or to assist in devising teaching materials. The use of these applications can decrease the time needed for certain types of routine production and might also provide some opportunities for interaction, supervision, feedback, and curriculum development.

The evidence doesn't, however, back up the more general argument that using AI will lessen academic burdens. Redistribution of tasks can include new responsibilities in terms of verifying AI-created content, developing prompts, adapting them to the context, protecting data, redesigning assessments, advising students, and managing academic integrity concerns regarding AI. Lee et al. (2024) noted that teachers were already adapting their teaching and assessment processes, and were unsure and concerned about the use of AI. The same items were found to be important by Taheri et al. (2025), which is organisational support, competence, trust and perceived usefulness.

Furthermore, Tan et al. (2025) have added more evidence that the competence in AI is correlated with technological pedagogical content knowledge and that the relationship between these is meaningful to teaching performance. It does not suggest that the ability to use AI is enough to improve the performance of individual teachers, but that using the technology is more educationally relevant if it is used in conjunction with pedagogical and disciplinary knowledge.

The results thus show a re-distribution and not a mere dismantling of academic labour. Production-related activities may increase in speed while professional activities, such as judgement and verification, design of assessment, mentoring, interpretation, and ethical decision-making may gain importance. This is relevant whenever organizational decisions are made related to adoption, as it is not easy to determine the amount of professional work that should be done when using AI responsibly based on the time saved.

4.4 Assessment Validity and Academic Integrity

The most obvious impact of generative AI became apparent in assessment. The use of generative AI systems can result in coherent essays, explanations, solutions and computer code, which would reduce the degree to which an unobserved final product can stand alone to show a student's knowledge or reasoning. Bittle and El-Gayar (2025) identified significant shortcomings in current conceptions of authorship and academic dishonesty, while Gruenhagen et al. (2024) found students

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reported using chatbots to provide them with support for academic assignments, which may pose difficulties in distinguishing acceptable academic support from substitution of student work.

Kofinas et al. (2025) also discovered that generative systems can generate plausible answers that make it more difficult to scrutinize in conventional assessments. They found evidence of the iterative process of developing an assessment product, explanations, oral defence, and other evidence of individual reasoning to advocate for increased attention to evidence of this process. It does not mean that traditional assessment is always invalid, but rather that the validity of the assessment is increasingly dependent on the credibility of the evidence provided by the assessment format to the learning outcomes it is intended to measure.

There is also evidence that suggests that an all-AI-detection approach has its limitations. Detection systems can yield unreliable results, and can vary in their performance with respect to language, writing style and context. Therefore, it should not be assumed that a detection has been a definitive sign of misconduct. A better guarded strategy is to implement an assessment strategy that is effective and coupled with clear institutional rules, human oversight, and fairness. Instead of detection-only responses, therefore, Evangelista (2025) emphasizes assessment redesign.

The findings are in favor of the approaches of learning to be made visible in the assessment process. These can include a series of assignments, drafts, reflective commentary, oral questioning, supervised components, process documentation and authentic disciplinary tasks as required by disciplines. It is not intended to prevent the use of AI, but rather to ensure that any assessment produces credible evidence of the knowledge, judgement, skills and reasoning of the learning outcomes.

4.5 AI Literacy and Critical Thinking

AI literacy is not just about effective prompting; it's a more comprehensive capability that came from the fusion.The fusion resulted in a broader capability called AI literacy. The evidence suggests that successful AI students will be literate in the following aspects: understanding how AI systems work, understanding the properties and limitations of AI-produced output, knowing about bias and hallucination, assessing evidence, safeguarding personal information, using topics in a responsible way, and using topics ethically. According to Bond et al. (2024) and Ali et al. (2024), critical evaluation and responsible use are key elements of effective integration of AI.

The results also show that there is a significant disciplinary aspect to AI literacy. The critical engagement a health student, engineer, lawyer, or business student must demonstrate may vary due to different expectations for evidence, accuracy, professional responsibility and acceptable use in different disciplines. In some cases, AI-generated code might need to undergo technical testing, legal outputs need to be checked against authoritative sources, and health-related information might need special care when accuracy and safety are concerned.

This is confirmed by evidence from teachers. Tan et al. (2025) determined that the AI competence is more meaningful when it is combined with technological pedagogical content knowledge alongside with it rather than AI technical knowledge. In the same vein, Lee et al. (2024) found that teachers were using AI tools in their instruction and assessments, yet they expressed hesitation about their proper application and expectations of their institutions. The results indicate that AI

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literacy applies to students and faculty, and needs to include technical, pedagogical, ethical, and disciplinary aspects.

AI usage and critical thinking are sensitive areas to be approached with care. The reviewed evidence can be used to justify the view that critical appraisal of AI-generated artefacts is an important educational activity, without proving that the use of AI in education leads to an enhancement or hindering of critical-thinking skills. The educational impact is related to whether students are tasked with questioning, checking, comparing, modifying, explaining, or disproving AI-generated products. Therefore, AI may be used as a tool of critical enquiry, or an alternative to the intellectual work the learning activity is designed to produce.

4.6 Equity, Accessibility, Privacy and Algorithmic Bias

Some evidence notes opportunities for inclusion and equity concerns of integrating AI. Some students with diverse language, learning, and/or accessibility needs might benefit from features like AI-assisted translation, alternative explanations, flexible pacing, conversational interaction, and ongoing access to academic support. This could be one way in which AI can expand academic support provision. Yet there is no evidence to show the equal provision of these benefits to pupils.

There might be financial, institutional, connectivity, digital competence and familiarity with the technologies requirements for access to AI tools. While ChatGPT has the potential to enhance teaching and learning, Mai et al. (2024) also pointed out several risks and inequalities associated with its use.In addition to the benefits of ChatGPT-supported teaching and learning, Mai et al. (2024) highlighted several risks and inequalities in the use of ChatGPT. AI, then, does not automatically mean access to and equity in its educational benefits.

Educational quality is another aspect of privacy. Behavioural or educational data can be used in a personalised system or application to provide recommendations. If this data is incomplete or imprecise, inferences regarding students' ability or risk will also be incomplete or imprecise. The reviewed evidence thus confirms the need for human oversight of an AI-supported decision, especially in cases in which students' learning opportunities, learning progression, assessment, or support of students is influenced by automated systems.

A related issue is that of algorithmic bias. AI systems can perpetuate or exacerbate constraints in the training data, system design, or institutional datasets. The evidence suggests that we need to analyze the context in which automatic recommendations are created, and not take it for granted that algorithmic ideas are neutral. These concerns are especially important in the context of decisions with institutional consequences made by AI.

4.7 Institutional Readiness, Governance and Accountability

The synthesis suggests that institutional readiness is a multi-dimensional phenomenon and encompasses leadership, policy, infrastructure, staff development, technical assistance, procurement, data protection, and ongoing assessment and review. According to Taheri et al. (2025) there is a variation in educator adoption, depending on the perceived usefulness, competence, trust, context and organisational support. Similarly, Lee et al. (2024) found that practical advice, time and institutional support are also crucial factors in the use of generative AI by educators.

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The evidence suggests that having the technology for AI does not imply setting up institutions. An institution could have advanced AI systems but be unsure of their academic integrity policies, privacy policies, accountability policies, assessments, or the role of staff. On the other hand, institutions with less technological resources could still benefit from the educational value of specific applications, which are carefully selected and implemented with critical evaluation and competence of the staff.

The governance of where AI output has a significant impact on consequential academic decisions is especially significant. If an algorithm generates a recommendation, it can't be the responsibility of that algorithm. There is still a shared responsibility of accountability between students and lecturers, programme leaders, administrators and institutional leadership depending on their respective roles. Therefore, Bittle and El-Gayar (2025) and Bond et al. (2024) support governance arrangements that establish accountability, acceptable use, oversight and responsibility and institutional accountability.

The evidence thus supports a human-supervised mode of operation where AI can be used to facilitate and support, but where the education judgement is still in the hands of qualified academic personnel. This position is strengthened by the aggregated results of the studies of educator competence, the validity of assessment, academic honesty, privacy, and institutional governance.

4.8 Implications for Educational Quality and Academic Practice

The four review questions reveal that the value of AI in education is not necessarily about using technology but about the links with learning outcomes, pedagogy, assessment, professional judgement and institutional context. The most recent studies are those at the task and course level, and at the institutional and system level are less well documented.

AI seems to have best fit in providing formative support, personalising interactions, providing content assistance, giving feedback, and providing selected academic task supports. Simultaneously, the same technologies pose problems of false information, dependence, privacy, bias, unequal access, academic dishonesty, and the validity of assessments. Coexistence of benefits and risks also implies that it is not possible to draw educational conclusions from the shares of adoption or satisfaction or speed of processing alone.

Also evidence indicates that academic practice is being shifted instead of being mechanized. AI can help with everyday production work, but there are still key tasks like verification, interpretation, assessment design, mentoring, ethical judgement and quality assurance that can't be automated. While all three studies (Lee et al., 2024; Tan et al., 2025; Taheri et al., 2025) suggest that AI competence is not enough to ensure effective implementation and that institutional support is essential, they also highlight the importance of learning through practice.All three studies (Lee et al., 2024; Tan et al., 2025; Taheri et al., 2025) emphasize learning by doing as well as competence and institutional support for effective AI integration.

Important constraints of the evidence base are that many studies are perception, self-reported, and cross-sectional and/or have short-term outcomes. The review therefore provides better evidence on reported practices, perceived benefits and risks, implementation conditions than some aspects of long-term effects on attainment, retention, transfer, critical thinking, progression or institutional

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quality of education. Positive short term experiences do not constitute evidence of long term educational improvement as there is no strong evidence of this.

In summary, the results validate a selective, transparent, inclusive and pedagogically integrated strategy for the use of AI in tertiary education. There is only some evidence, not enough to endorse or condemn. Instead, the potential for AI integration should be assessed based on how well it enhances the desired learning experience, preserves the integrity of the assessment, fosters fair access, safeguards privacy, and ensures a proper balance of human involvement.

5. Conclusion and Recommendations

5.1 Conclusion

This systematic review explored and summarised the reported modes of AI integration in tertiary learning and teaching, the potential advantages and disadvantages to the quality of education, transformations in academic roles, and changes in academic practices, as well as institutions' conditions for a responsible implementation. The data presented in the 12 studies included in this review suggests that AI is being used increasingly across the areas of learning support, feedback, assessment, content creation, academic practice and institutional activities. But there is no strong consensus that AI has a positive or negative impact on tertiary education.

The most consistent evidence relates to the possibility of AI's interaction, formative support, feedback, accessible explanations and assistance in selected academic tasks in a personalised way. The applications can enhance the accessibility and responsiveness of educational support, especially in the context of the learning outcomes clearly defined and with proper human supervision. But the impact on attainment and retention, transfer, critical thinking, progression and educational quality of the whole institution is limited. There are numerous studies available, which are based on perceptions, self-reported use, context-specific observations, and which are not well suited for stronger causal inferences.

The review also highlights the key challenges of validity of assessment and academic integrity that arise with the use of AI. For some traditional assessment formats, the use of Generative AI may render them less effective tools for determining student understanding and thinking skills. The evidence thus confirms the need to emphasis more on assessment designs that increase students' reasoning, development, reflection and disciplinary judgement. Meanwhile, the use of AI-detection technologies should not be considered as conclusive proof of wrongdoing, as results can be ambiguous and depend on the context.

Another key precondition for responsible integration is the "AI literacy". Based on the evidence, the key competencies of meaningful AI literacy include critical evaluation, checking outputs, understanding the impact of bias and hallucination, safeguarding personal information, promoting academic integrity, and demonstrating discipline-specific judgement. Academic staff: AI competence is most useful when it is reinforced by the pedagogical and subject knowledge. AI literacy should, therefore, be viewed as a means of learning and a professional trait, and not just a technical skill.

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The review also shows that AI's incorporation affects the distribution of academic work. While there may be some efficiencies in routine tasks, there are also new tasks that arise with verification, assessment redesign, student guidance, professional learning, data protection and institutional governance. Thus, there is no correlation between technological adoption and automatic workload reduction.

Equity, privacy, bias and institutional accountability continue to be significant factors in determining educational value. While AI could help increase access to translation, alternative explanations, flexible learning support, and other modes of assistance, unequal access to technology and variations in digital competence can have the potential of reproducing existing inequalities. Likewise, the application of student data and algorithmic recommendations also requires transparency, safeguards for privacy, human oversight and accountability.

Based on the evidence presented, the concept of AI in education is characterised as a context-specific educational technology that is contingent on the interplay between technology, pedagogy, assessment, professional competence, student agency and institutional governance. The evidence is thus in favor of human-assisted AI not human-replaced academic expertise and responsibility. It is pedagogically sound and defensible integration of appropriate use of AI where there is a pedagogically defensible reason for using it, limitations are known, and the decision to use it falls within the purview of appropriately qualified humans.

5.2 Recommendations

Based on the findings of this review, the following recommendations are proposed.

1. Establishment of institution-wide AI governance system.
Tertiary institutions should develop guidelines for acceptable and unacceptable usage of AI in teaching, learning, assessment, research, and administration, among other areas. These frameworks should include disclosure obligations, privacy safeguards, human review obligations, accountability systems, and dispute resolution mechanisms to deal with disputes or suspected misuse. Governance should be commensurate with the potential impacts of the use of each AI application.

2. Easing the integration of AI literacy in the curriculum.
AI literacy should not be viewed as a standalone orientation task, but should be a part of the programme of study. Students should learn how to assess the accuracy and bias of AI-generated information, how to safeguard personal data, how to give credit to AI when needed, and be able to apply appropriate judgement to the discipline regarding the acceptability of AI-generated information. AI literacy content and intensity should be based on specific disciplines' needs.

3. Re-thinking assessment on the basis of evidence of learning.
In times and places where generative AI can be used, the methods of assessment should be considered and aligned to continue to provide evidence for the intended learning outcomes. If applicable, staged work, drafts, self-judgement, oral presentation, supervised components, process documentation and authentic disciplinary tasks should be included. Using AI detection doesn't replace human investigation, judgement or procedural fairness and may be incorporated into an institutional response to suspected misuse.

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4. Ongoing teaching staff professional development.
Institutions must deliver ongoing professional learning that integrates AI skills and competence with pedagogy, discipline content, assessment design, ethics, and governance. Training must help lecturers to review and reflect critically on AI tools, determine suitable use in education, verify AI-generated outputs, rethink assessments, and put expectations clearly.

5. The preservation of significant, human supervision.
Any decisions, recommendations, feedback, content that could impact students must be reviewed by humans appropriately as well.Recommendations, feedback, content and decisions made with AI technology should be reviewed by humans appropriately. Educational judgements should not be delegated to automations. Careful human supervision is especially needed when AI is employed in the assessment, student-risk prediction, progression decision, or other meaningful academic activities.

6. Respecting privacy and good data stewardship.
Institutions need to define procedures for the collection, processing, storage and sharing of student and staff information on the part of AI systems. AI usage should be linked with suitable privacy protection, data practices transparency, and systems to detect and mitigate algorithmic biases.

7. Support to fair access to AI-based learning.
Solutions involving AI should be applied in a manner that does not negatively impact students with limited financial, connectivity, digital literacy and access to high-quality AI tools. Institutions need to take into account the technical characteristics, access and support needed to enable students to engage in AI-supported learning in a meaningful way.

8. Assessment of educational results in the context of adoption only.
Beyond adoption, usage, processing speed or user satisfaction, institutional evaluation of AI should go beyond that. Learning outcomes, quality of feedback, participation of students, validity of assessment, equity, academic integrity, workload of teachers, and ability of students to make their own judgments should be taken into account. For short-term benefits, longitudinal assessment should be adopted to check for the long-term effects, wherever possible.

9. Awareness of the evolving nature of academic work.
Planning for institutions should take account of the fact that AI might be reallocating rather than replacing academic labour. Time and resources should be allocated for re-designing assessments, verifying AI generated assessments, professional development, student guidance, policy development and quality assurance. This will enable a cost-benefit analysis of selected AI applications based on efficiency to be performed along with the added professional burden they impose.

10. When swamped with context, implement and review.
Implementing AI needs to be tailored to the institutional capacity, the disciplinary needs, the infrastructure available, and the needs of pupils and staff. There is no evidence that an intervention that seems appropriate and useful in one institutional setting would yield similar results in other settings. Therefore, it is crucial for institutions to track and assess results, record negative impacts, and make necessary adjustments as evidence accumulates and AI technologies evolve.

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References

Ali, D., Fatemi, Y., Boskabadi, E., Nikfar, M., Ugwuoke, J., & Ali, H. (2024). ChatGPT in teaching and learning: A systematic review. *Education Sciences*, *14*(6), 643. https://doi.org/10.3390/educsci14060643

Bittle, K., & El-Gayar, O. (2025). Generative AI and academic integrity in higher education: A systematic review and research agenda. *Information*, *16*(4), 296. https://doi.org/10.3390/info16040296

Bond, M., Khosravi, H., De Laat, M., Bergdahl, N., Negrea, V., Oxley, E., Pham, P., Chong, S. W., Siemens, G., & Holmes, W. (2024). A meta systematic review of artificial intelligence in higher education: A call for increased ethics, collaboration, and rigour. *International Journal of Educational Technology in Higher Education*, *21*, Article 4. https://doi.org/10.1186/s41239-023-00436-z

Evangelista, E. D. L. (2025). Ensuring academic integrity in the age of ChatGPT: Rethinking exam design, assessment strategies, and ethical AI policies in higher education. *Contemporary Educational Technology*, *17*(1), ep559. https://doi.org/10.30935/cedtech/15775

Gruenhagen, J. H., Sinclair, P. M., Carroll, J.-A., Baker, P. R. A., Wilson, A., & Demant, D. (2024). The rapid rise of generative AI and its implications for academic integrity: Students' perceptions and use of chatbots for assistance with assessments. *Computers and Education: Artificial Intelligence*, *7*, 100273. https://doi.org/10.1016/j.caeai.2024.100273

Kofinas, A. K., Tsay, C. H.-H., & Pike, D. (2025). The impact of generative AI on academic integrity of authentic assessments within a higher education context. *British Journal of Educational Technology*, *56*(6), 2522–2549. https://doi.org/10.1111/bjet.13585

Lee, D., Arnold, M., Srivastava, A., Plastow, K., Strelan, P., Ploeckl, F., Lekkas, D., & Palmer, E. (2024). The impact of generative AI on higher education learning and teaching: A study of educators' perspectives. *Computers and Education: Artificial Intelligence*, *6*, 100221. https://doi.org/10.1016/j.caeai.2024.100221

Mai, D. T. T., Da, C. V., & Hanh, N. V. (2024). The use of ChatGPT in teaching and learning: A systematic review through SWOT analysis approach. *Frontiers in Education*, *9*. https://doi.org/10.3389/feduc.2024.1328769

Merino-Campos, C. (2025). The impact of artificial intelligence on personalized learning in higher education: A systematic review. *Trends in Higher Education*, *4*(2), 17. https://doi.org/10.3390/higheredu4020017

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*, *372*, n71. https://doi.org/10.1136/bmj.n71

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Taheri, R., Nazemi, N., Pennington, S. E., Clark, J. A., & Dadgostari, F. (2025). Factors influencing educators' AI adoption: A grounded meta-analysis review. *Computers and Education: Artificial Intelligence*, *9*, 100464. https://doi.org/10.1016/j.caeai.2025.100464

Tan, X., Cheng, G., & Ling, M. H. (2025). Investigating the mediating role of TPACK on teachers' AI competency and their teaching performance in higher education. *Computers and Education: Artificial Intelligence*, *9*, 100461. https://doi.org/10.1016/j.caeai.2025.100461

Wang, S., Wang, F., Zhu, Z., Wang, J., Tran, T., & Du, Z. (2024). Artificial intelligence in education: A systematic literature review. *Expert Systems with Applications*, *252*, 124167. https://doi.org/10.1016/j.eswa.2024.124167

Appendix A. Search concepts and eligibility logic

Concept	Indicative terms
Technology	artificial intelligence, generative AI, ChatGPT, intelligent tutoring, adaptive learning, learning analytics
Educational setting	higher education, tertiary education, university, postsecondary, college
Educational process	teaching, learning, pedagogy, curriculum, assessment, feedback, academic practice
Quality and risk	educational quality, learning outcome, engagement, accessibility, privacy, bias, academic integrity
Source filter	2019 onward; DOI verified; online scholarly record accessible

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Socio-Digital Inequality and Student Engagement in Hybrid Learning Environments: Evidence from Colleges of Education in Zamfara State, Nigeria

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DOI : https://doi.org/10.5281/zenodo.22905836

Abstract

Background: This study explores the impact of socio-digital inequality on student engagement within the hybrid learning model at Colleges of Education in Zamfara state, Nigeria.

Methods: The study adopted a correlational-predictive research design. The population was 12,361 students of NCE from Federal College of Education (Technical), Gusau and Zamfara State College of Education, Maru. A multistage sampling technique was used to select 388 students and 376 valid responses were analysed. The Socio-Digital Inequality and Student Engagement in Hybrid Learning Questionnaire was used to gather the data. Descriptive statistics, Pearson Product Moment Correlation and Multiple Regression Analysis were used for data analysis.

Results: The results indicated a significant socio-digital inequality among students, highlighting digital skills, access barriers, and usage barriers as key challenges, with digital affordability being the most critical. Student engagement in hybrid learning was moderate, showing significant negative correlations with digital inequality dimensions. Regression analysis identified socio-digital inequality as a major predictor of student engagement, explaining 40% of the variance, particularly influenced by digital affordability and digital skills.

Conclusion: Based on the study findings, it is concluded that the successful implementation of the hybrid learning model in the Colleges of Education in Nigeria is not a mere technological affair but rather, it involves an equitable digital ecosystem that considers the affordability of technology, digital competence, connectivity, and institutional support. The findings underscore the importance of more complete approaches for digital inclusion:

Keywords: Digital inequality; digital divide; hybrid learning; student engagement; higher education.

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Introduction

The use of digital technologies in education has emerged as one of the most striking changes of modern higher education systems. Universities and colleges around the world are slowly incorporating technology-enabled instructional methods to enhance access, flexibility and continuity of learning (Aithal & Aithal, 2024; Wong. 2024). One such method that has gained considerable traction is hybrid learning, which integrates traditional classroom settings with digital platforms, online materials, and virtual communication. This has emerged as a valuable method, offering opportunities for personalised learning, access to a wider range of learning materials and flexibility for learners who have a range of learning needs (Martin et al., 2020; Bozkurt et al., 2022). But the idea that digital learning will automatically lead to educational inclusion has been gainsaid by the growing evidence of unequal educational experience of students in technology-supported learning. Rather, social, technological, digital, and economic conditions and disparities shape who gains the most from hybrid learning opportunities.

The problem of socio-digital inequality is the unequal capacity of both being able to participate and benefit from digital learning environments. Socio-digital inequality is the inequality in access, use and educational benefit from digital technologies for people and social groups on a systematic basis. Recent research on digital inequality has gone beyond the mere concept of access to computers and Internet, to include various other factors. Recent views focus on several aspects such as having digital devices available, accessibility of digital devices and connectivity, digital literacy, quality of technology use and the capacity to translate digital participation into educational value (van Deursen & van Dijk, 2019; van Dijk, 2020; Ragnedda, 2021). Thus, equal access to learning is not guaranteed if digital infrastructure exists in schools, as students have varying technological advantages as they enter into the learning environment.

The importance of socio-digital inequality can be explained by Digital Divide Theory and Digital Inequality Theory: Digital Divide Theory highlights the unequal access, skills, usage, and outcomes of technology that affect individuals; Digital Inequality Theory recognizes that digital inequalities affect the experience of technology. In these viewpoints, there are multiple levels of technological disadvantage. Some students might not have access to technology and/or internet services, and some students may have technology but not know how to effectively use it for academic purposes. When access and skills are present, there can be variations in the educational value that students gain from digital participation due to a range of factors, including differences in learning environments, socioeconomic support and opportunities for the meaningful use of technology (Hargittai, 2022; Robinson et al., 2020). As a result, socio-digital inequality is a technological issue as well as an educational equity matter.

In hybrid learning contexts, these inequalities have direct consequences on student engagement. Student engagement is characterized by students' active involvement, emotional connection and cognitive investment in educational activities (Fredricks et al., 2019). Engagement is not only about attending lessons online, it consists of accessing online learning materials, engaging in online discussions, communicating with instructors and peers, completing online assessments and building independent learning behaviors in a technology-supported learning environment. For students with digital disadvantages, however, technology may make it difficult to engage regularly due to the technological disadvantage. For instance, students who are not able to access shared devices or who do not have access to internet regularly or have limited digital competencies may

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feel less well equipped to participate effectively in hybrid environments. However, while hybrid learning is intended to increase education opportunities, unequal conditions of digital access may inadvertently perpetuate educational inequities.

In recent years, the correlation between digital inequality and student engagement has grown more relevant in the process of designing educational systems, especially in African nations where digital transformation is happening hand-in-hand with ongoing infrastructural and socioeconomic issues. Previous studies in African universities reveal that access to the internet, internet connectivity fees, lack of electricity and digital readiness remain a challenge to students' experiences of online and blended learning (Mtebe & Raisamo, 2020; Czerniewicz et al., 2021). The COVID-19 pandemic further highlighted these disparities as institutions rapidly shifted to online and hybrid delivery models. The students who prepared digitally adapted well, while many of the disadvantaged learners faced challenges in learning resources accessibility and continued in their learning process (Adedoyin & Soykan, 2020; Bond et al., 2021).

Digital learning initiatives have been rolled out in Nigeria, and opportunities exist to enhance educational delivery, but there are large inequalities. The use of learning management systems, online communication platforms and digital instructional resources have increased in Nigerian higher education institutions. However, the experiences of students with these technologies is very different, depending on their socio-economic status, institutional support, access to the internet, network availability and digital literacy. There have been studies that have reported that many Nigerian students continue to face problems accessing technology, using technology competently and being ready to learn online, which is limiting the effectiveness of technology-integrated teaching and learning approaches (for example, Okoye et al., 2021; Afolabi et al., 2021). These challenges present several questions regarding access to learning in both settings and how hybrid learning environments add to or create new patterns of exclusion among digitally disadvantaged learners.

This is especially significant in Colleges of Education as they teach future teachers, who would affect the integration of technology in schools. Learning about digital learning environments should be a meaningful experience for teacher education students if they are to acquire the technological skills necessary for modern teaching practices. When students are taught during their student-teaching to have different digital opportunities than their peers, however, it could impact how confident they feel in their ability to confidently bring digital technologies into their future classrooms. Hence, the study of socio-digital inequality among the students of Colleges of Education has implications other than just the academic engagement of the students; it is also related to the readiness of Nigeria's education workforce for the future.

This study is important because of the educational environment in Zamfara State where issues of infrastructure development, socio-economic conditions, and access to digital environments are pertinent considerations. There has been a growing adoption of technology-supported learning approaches in colleges of Education in the State; however, differences in students' access to digital learning materials, availability of internet connectivity and digital skills may have a negative impact on their capacity to engage effectively in hybrid settings. This context is important, but the empirical research on the socio-digital inequalities that influence students' engagement in the Colleges of Education in Zamfara State is limited.

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Previous research indicates there are a number of critical gaps. First, the vast majority of literature on educational digital inequality has focused on access, rather than investigating the wider aspects of digital skills, pattern of use, and educational outcomes. Secondly, the teacher education context, including Colleges of Education, is an under-researched area of Nigeria in comparison to universities. Thirdly, there is limited research that focuses on the connection between socio-digital inequality and various aspects of student engagement, such as behavioural, emotional and cognitive engagement in hybrid learning environments.

Filling such gaps is key to making hybrid learning an inclusive learning environment instead of perpetuating inequalities already in place. The study therefore involved the study of "Socio-Digital Inequality and Student Engagement in Hybrid Learning Environments: Evidence from Colleges of Education in Zamfara State, Nigeria." The study enriches existing knowledge by expanding the discourse on digital inequality beyond access, offering insights from an under-researched teacher education context and insights that can inform policy interventions to address digital equity, institutional readiness and inclusive hybrid learning in Nigerian higher education.

Aim and Objectives

The aim of this study is to examine the influence of socio-digital inequality on student engagement in hybrid learning environments among students of Colleges of Education in Zamfara State, Nigeria. Specifically, the objectives of this study are to:

i. Determine the dimensions and level of socio-digital inequality among students of Colleges of Education in Zamfara State, Nigeria.

ii. Assess the level of student engagement in hybrid learning environments by examining behavioural, emotional, and cognitive engagement among students of Colleges of Education in Zamfara State, Nigeria.

iii. Examine the relationship between socio-digital inequality and student engagement in hybrid learning environments among students of Colleges of Education in Zamfara State, Nigeria.

iv. Determine the predictive influence of socio-digital inequality dimensions (digital access, digital skills, digital affordability, and digital usage) on student engagement in hybrid learning environments among students of Colleges of Education in Zamfara State, Nigeria.

Research Questions

The study will be guided by the following research questions:

RQ1: What are the dimensions and level of socio-digital inequality among students of Colleges of Education in Zamfara State, Nigeria?

RQ2: What is the level of student engagement in hybrid learning environments in terms of behavioural, emotional, and cognitive engagement among students of Colleges of Education in Zamfara State, Nigeria?

RQ3: What relationship exists between socio-digital inequality and student engagement in hybrid learning environments among students of Colleges of Education in Zamfara State, Nigeria?

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RQ4: To what extent do digital access, digital skills, digital affordability, and digital usage predict student engagement in hybrid learning environments among students of Colleges of Education in Zamfara State, Nigeria?

Theoretical Framework: Digital Divide Theory

The study draws its inspiration from the Digital Divide Theory as it offers a robust framework for exploring how unequal access, skills and opportunities to digital technologies affect students' participation and engagement in hybrid learning environments. The theory was developed in early discussions of the inequalities between people and groups with access to information and communication technologies (ICTs) and those who do not have access. However, current understandings of the theory have gone beyond simple access to digital technologies, and encompass inequities in digital skills, in digital technology use, and in the ways in which digital technologies can benefit the user (van Dijk, 2020; Ragnedda, 2021). Recent research also continues to indicate that digital inequality is a critical issue in education as the ability to use technology positively or negatively affects how students engage in technology supported learning (Wang et al., 2024).

This study is closely connected to the Digital Divide Theory as part of the IWBM, students are expected to have access to digital tools, but also knowledge and skills to interact with them effectively as well as digital resources. It is a theory that recognizes various strata of digital inequality. The first level is access inequality for digital access, that is, differences in the distribution of devices, internet connection and technological infrastructure. Students who do not have a dependable digital device and/or an affordable Internet connection could find it challenging to access digital learning resources and virtual activities. The second level relates to digital skills inequality, that is differences in the students' capacity to use digital technologies effectively for learning purposes. Having a device does not necessarily mean students have the skills needed to engage with learning platforms and search, or communicate effectively online (van Deursen & van Dijk, 2019).

The third dimension of theory focuses on usage and outcomes inequalities, since people might be using the same technology but gain different results as a result of their socioeconomic position, their learning environments and their digital skills (Ragnedda, 2021). This is a key reason why some students may feel a greater sense of engagement in their education through digital means within a hybrid learning system, while others are still left out despite institutional efforts to offer online opportunities. New evidence has also shown that digital inequality has been a factor in maintaining educational inequality, as students with a lack of technological resources and digital skills may find themselves facing challenges to academic engagement and success (Fang et al., 2025).

Toward this aspect of the study, Digital Divide Theory can be used as a framework to explain the impact of socio-digital inequality on student engagement in hybrid learning environments. The theory proposes that various inequities in the access to digital, digital skills, affordability, and technology usage may impact behavioral, emotional, and cognitive engagement by students. For example, students with limited access to the internet or those who do not have access to internet data services may not engage in online interaction as often, experience late assignments, or have lower motivation to engage in hybrid learning activities. Likewise, students with poor digital

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competencies can have problems functioning within online environment, which decreases their confidence and mental participation in learning activities. The theory suggests that the engagement of students in the hybrid learning is not only dependent on the existence of the institutional digital platforms, but also on the social and technological environment in which students are engaged. The use of Digital Divide Theory allows this study to analyze socio-digital inequality as a multi-dimensionality and evaluate the different dimensions of digital disadvantage and its impact on students' engagement in Colleges of Education in Zamfara State, Nigeria. The theoretical lens used in the study addresses the ongoing discussion about digital equity in higher education beyond the question of "digital access" to technology to focus on the question of "digital resources and capabilities" that students must have to benefit from hybrid learning environments.

Methodology

Research Design

The study used correlational-predictive research design to investigate the relationship between socio-digital inequality and student engagement in hybrid learning model among students of colleges of education in Zamfara state of Nigeria. It is appropriate since the study looked at the natural variation of students' digital conditions and their association with engagement outcomes, rather than manipulating the study variables. The correlational part helped the researcher in answering how is the socio-digital inequality related to students' engagement and the predictive part helped the researcher in answering how much variation in students' behavioural, emotional and cognitive engagement in hybrid learning environments is explained by the dimensions of the sociodigital inequalities. The independent variable of the study was socio-digital inequality which was quantified through four dimensions viz. digital access inequality, digital skills inequality, digital affordability inequality, and digital usage inequality. Student engagement in hybrid learning environment was the dependent variable, operationalized by four dimensions of engagement, namely behavioural, emotional, cognitive and physical.

Study Area

The study was carried out in two Colleges of Education in the Zamfara State, Nigeria namely Federal College of Education (Technical), Gusau and Zamfara State College of Education, Maru. Federal College of education (Technical) Gusau is a Federal teacher education institution that is tasked with training professionally qualified teachers through the National Certificate in Education (NCE) programmes. The institution conducts teacher training in different subjects and has introduced the use of digital technologies and technology-supported teaching practices in the learning process. Zamfara State College of Education, Maru is a teacher education institution owned by the government of the state of zamfara to train teachers via the teacher education programmes called NCE. It caters to students from a variety of socioeconomic backgrounds, allowing the examination of the impact of socioeconomic and technological difference on engagement in hybrid learning. These institutions were chosen based on their significance to Teacher Education, their representation of Federal, State ownership structures and their suitability for the study of digital inequality in Nigerian Colleges of Education.

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Population of the Study

The population of the study consisted of all the NCE I, NCE II and NCE III students in the two selected Colleges of Education. The total population was 12,361 students with the following percentage representation: Respondents from each stratum. The distribution of the samples was as shown in Table 1.

Table 1: Population of the Study

Institutions	Population
Federal College of Education (Technical), Gusau	5,527|
Zamfara State College of Education, Maru	6,834
Total	12,361

The focus was on NCE students which was justified, as the experiences with digital learning environments of these students may shape their future competence in integrating digital learning environments into their classroom practice as teachers.

Sample Size Determination

A sample size was calculated using Taro Yamane (1967) formula:

[n=\frac{N}{1+N(e)^2}]

Where:

n = sample size

N = population size (12,361)

e = level of precision (0.05)

[n=\frac{12,361}{1+12,361(0.05)^2}]

[n=\frac{12,361}{31.9025}]

[n=387.46]. Hence, the sample size was rounded off to 388 respondents.

Sampling Procedure

A multistage stratified sampling technique was used. The two Colleges of Education were purposively selected as the first stage because they are Federal and State teacher education institutions in Zamfara State. The second stage involved proportional allocation to the institutions based on their population size. The third group of students was stratified based on their NCE levels (I, II, and III) to ensure representation of students who have varying degrees of exposure to hybrid learning environments. Simple random sampling was done for respondents of each stratum at the final stage. The distribution of the samples was presented thus:

Table 2: Sample of the Study

Institutions	Population	Sample
Federal College of Education (Technical), Gusau	5,527|	173
Zamfara State College of Education, Maru	6,834	215
Total	12,361	388

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Instrument for Data Collection

A socio-digital inequality and student engagement in hybrid learning questionnaire (SDI-SEHLQ) was used to collect data. The instrument was based on a conceptual framework and theory of Digital Divide Theory and Digital Inequality Theory. The questionnaire consisted of three sections. Section A - Demographic Information. This section gathered information on: gender, age, institution, academic level, ownership of digital devices, previous experience of using digital learning.

Section B: Socio-Digital Inequality Scale

The scale items assessed were: Digital Access Inequality, Digital Devices, Internet Connectivity and Digital Infrastructure.

Digital Skills Inequality: digital literacy; ability to use learning platforms; confidence in the use of technology.

The Internet of Things (IOT): Financial capacity to participate in the internet; affordability of data.

Digital Usage Inequality: Use of technology in a meaningful academic way; use of digital learning resources.

Section C: Student Engagement Scale

Students' engagement was assessed by the following:

Behavioural Engagement: participation; attendance; completion of digital learning activities.

Emotional Engagement: motivation; interest; sense of belonging.

Cognitive Engagement: deep learning, self-regulation, intellectual effort. The responses were scored on a five-point Likert scale (1 = Strongly Disagree; 2 = Disagree; 3 = Undecided; 4 = Agree; 5 = Strongly Agree).

Validity of the Instrument

It was face and content validated by the experts in the fields of Educational Technology, Measurement and Evaluation, and Educational Foundations. The experts evaluated the completeness, readability, relevance to the research goals and congruence with the conceptual framework. The suggestions from the validators were included prior to final administration.

Pilot Testing and Reliability

A pilot study was undertaken with 30 NCE students from another College of Education outwith the selected institutions but with similar characteristics to the students in the selected institutions. The pilot test evaluated the items' clarity and internal consistency reliability was checked by Cronbach's Alpha coefficient.

Data Collection Procedure

After approval by the appropriate institutional authorities, the researcher gave the questionnaire to the selected respondents. Respondents were briefed on the purpose of the study, confidentiality procedures and their right to participate in the study voluntarily. Completed questionnaires were kept by the researcher and were not to include personally identified information. Completed questionnaires were retrieved after administration and screened, coded and ready for statistical analysis.

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Data Analysis

Data analysis included descriptive and inferential statistics. To answer research questions about socio-digital inequality and student engagement, descriptive statistics were used such as frequency, percentage, mean and standard deviation. Pearson Product Moment Correlation was used to determine the relationship between socio-digital inequality and student engagement. Multiple Regression Analysis was carried out to see how digital access, digital skills, digital affordability and digital usage predicted student engagement. Independent sample t-test and Analysis of Variance (ANOVA) were used to examine differences based on demographic characteristics. Diagnostic tests were performed before regression analysis as to the following: normality, linearity, independence of errors, multicollinearity and homoscedasticity. All the hypotheses were tested at 0.05 level of significance.

Ethical Considerations

Ethical guidelines of educational research were followed in the study. Prior to data collection, ethical approval was given from the relevant institutional body. Respondents were asked for their informed consent, and there was voluntary participation in the study. Each participant was told that he or she could leave the study at any time for any reason without losing any benefits. Confidentiality and anonymity were achieved throughout the research procedures and data collected was solely for research and academic purposes.

Results

Preliminary Analysis and Response Rate as well as Measurement Reliability. 388 questionnaires were handed to the students of NCE, Federal College of Education (Technical), Gusau and Zamfara State College of Education, Maru. A total of 376 questionnaires were completed and were deemed as complete and valid for analysis, giving a response rate of 96.9% of the questionnaires sent. The reliability of the study constructs was checked in Cronbach's Alpha coefficient before the principal analysis. The findings showed that there was good internal consistency within all dimensions of socio-digital inequality and student engagement.

Table 3: Reliability Coefficients of Study Constructs

Construct	Number of Items	Cronbach's Alpha
Digital Access Inequality	6	0.82
Digital Skills Inequality	7	0.86
Digital Affordability Inequality	5	0.79
Digital Usage Inequality	6	0.84
Behavioural Engagement	6	0.83
Emotional Engagement	5	0.81
Cognitive Engagement	6	0.85
Overall Instrument	41	0.88

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The acceptable internal consistency of measurement scales (coefficients > 0.70) was found with all coefficients. Diagnostic tests were carried out first before performing regression analysis. The results showed that the assumptions of normality, linearity, independence of errors, homoscedasticity and multicollinearity were fulfilled. The variance inflation factor (VIF) values were in the range of 1.42 to 2.18, which is not considered as a serious multicollinearity issue for the predictor variables.

Respondents' Characteristics

Table 4: Demographic Characteristics of Respondents (N=376)

Variable	Category	Frequency	Percentage (%)
Institution	FCET Gusau	168	44.7
Institution	ZSCOE Maru	208	55.3
Gender	Male	214	56.9
Gender	Female	162	43.1
Academic Level	NCE I	132	35.1
Academic Level	NCE II	126	33.5
Academic Level	NCE III	118	31.4

The respondents were adequately distributed across the two institutions and academic levels. The representation of students from both institutions provided sufficient basis for examining socio-digital inequality within Colleges of Education in Zamfara State.

Digital Access Profile of Respondents

Table 5: Digital Access Characteristics of Respondents

Indicator	Frequency	Percentage (%)
Owns smartphone	326	86.7
Owns laptop/computer	131	34.8
Has regular internet access	196	52.1
Experiences internet connectivity challenges	295	78.5
Can consistently afford internet data	155	41.2

The findings indicate that although smartphone ownership was high among students (86.7%), access to laptops and computers remained limited (34.8%). Furthermore, a large proportion of respondents experienced internet connectivity challenges (78.5%), while less than half could consistently afford internet data (41.2%). This suggests that digital inequality extends beyond device ownership to include affordability, reliability, and quality of access.

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Level of Socio-Digital Inequality

Research Question One: What is the level of socio-digital inequality among students of Colleges of Education in Zamfara State?

Table 6: Socio-Digital Inequality Dimensions

Dimension	Mean	SD	Interpretation
Digital Access Inequality	3.74	0.91	High
Digital Skills Inequality	3.62	0.88	High
Digital Affordability Inequality	3.81	0.94	High
Digital Usage Inequality	3.55	0.86	High
Overall Socio-Digital Inequality	3.68	0.90	High

The results revealed a high level of socio-digital inequality among students (M = 3.68, SD = 0.90). Digital affordability inequality recorded the highest mean score (M = 3.81), indicating that financial constraints associated with internet access and digital services represented the most prominent barrier affecting students' participation in hybrid learning.

Level of Student Engagement in Hybrid Learning

Research Question Two: What is the level of student engagement in hybrid learning environments among students of Colleges of Education in Zamfara State?

Table 7: Student Engagement Dimensions

Dimension	Mean	SD	Interpretation
Behavioural Engagement	3.42	0.83	Moderate
Emotional Engagement	3.36	0.79	Moderate
Cognitive Engagement	3.51	0.81	High
Overall Student Engagement	3.43	0.81	Moderate

The findings indicate a moderate level of student engagement in hybrid learning environments (M = 3.43, SD = 0.81). Cognitive engagement recorded the highest mean score, suggesting that students demonstrated personal effort and commitment toward learning activities despite digital challenges.

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Relationship Between Socio-Digital Inequality and Student Engagement

Research Question Three: What relationship exists between socio-digital inequality and student engagement?

Table 8: Correlation Matrix of Study Variables

Variables	Access	Skills	Affordability	Usage	Engagement
Digital Access Inequality	1				
Digital Skills Inequality	.48**	1			
Digital Affordability Inequality	.52**	.46**	1		
Digital Usage Inequality	.41**	.55**	.44**	1	
Student Engagement	-.43**	-.51**	-.54**	-.39**	1

The correlation analysis showed significant negative relationships between socio-digital inequality dimensions and student engagement. Digital affordability inequality demonstrated the strongest relationship with engagement ($r = -.54$, $p < .01$), followed by digital skills inequality ($r = -.51$, $p < .01$). This indicates that students experiencing greater digital disadvantages reported lower levels of engagement in hybrid learning environments.

Predictive Influence of Socio-Digital Inequality on Student Engagement

Research Question Four: To what extent do socio-digital inequality dimensions predict student engagement?

Table 9: Regression Model Summary

R	R^2	Adjusted R^2	F-value	p-value
0.63	0.40	0.39	61.72	<0.001

The regression model was statistically significant, $F(4,371) = 61.72$, $p < .001$. The predictor variables jointly explained 40% of the variation in student engagement, indicating a meaningful explanatory contribution.

Table 10: Regression Coefficients

Predictor	β	t-value	p-value
Digital Affordability Inequality	-0.31	-6.04	<0.001
Digital Skills Inequality	-0.29	-5.72	<0.001
Digital Access Inequality	-0.21	-4.15	<0.001
Digital Usage Inequlity	-0.18	-3.46	0.001

The regression results showed that all dimensions of socio-digital inequality significantly predicted student engagement. Digital affordability inequality emerged as the strongest predictor, followed by digital skills inequality. The findings suggest that financial capacity and digital

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competence are important factors associated with students' ability to engage effectively in hybrid learning environments.

Hypothesis Testing Summary
Summary of Hypotheses Decisions
Table 11: Hypotheses Decisions

Hypothesis	Test	Result	Decision
H01	Pearson Correlation	r=-0.54, p<.001	Rejected
H02	Multiple Regression	F(4,371)=61.72, p<.001	Rejected
H03	Independent t-test	t(374)=-2.01, p=.045	Rejected
H04	ANOVA	F(2,373)=4.87, p=.008	Rejected

Discussion of Findings
Socio-Digital Inequality as a Barrier to Equitable Hybrid Learning Participation
The study identified a high level of socio-digital inequality among the students of Colleges of Education in Zamfara State and the most dominant dimension identified was digital affordability inequality. This discovery reinforces the idea that hybrid learning participation is a function of students' socioeconomic ability to engage in relevant digital learning activities, in addition to access to digital devices and platforms. The traditional notion of the digital divide as a problem of technology access has been extended to a new perspective that encompasses costs of access, digital competence, access quality, access patterns, and learning outcomes (van Dijk, 2020; Ragnedda, 2021). This is especially relevant in the Nigerian higher education ecosystem where students cover the costs of their internet subscription, device servicing, and other electricity options necessary for accessing the internet for digital engagement at their own cost. The discovery corroborates findings in Nigeria that cost of data, limited connectivity and weak digital infrastructure remain significant challenges to technology-based learning. Ajonbadi et al. (2023) noted that the digital divide in higher education in Nigeria is not only physical but also economic and competency-related, meaning that students' ability to access and engage in digital learning is influenced by their competency and economic status. Likewise, Alimi et al. (2024) reported that Nigerian students have become more aware of the benefits of online education, but the lack of adequate infrastructure and conditions for participating in online education is a barrier to such participation.

The result also corresponds with findings from the Nigerian hybrid learning studies conducted in recent times. The study by Ajadi (2026) revealed that university students in Nigeria are broadly aware of the flexibility and ease of implementation in using hybrid learning, however, they cited issues of inadequate internet connectivity and high data costs, poor digital literacy and challenges with electricity as the significant barriers in implementing hybrid learning effectively. The findings support the idea that digital inclusion cannot be attained through the adoption of learning management systems or online platforms but must take a socio-economic approach that considers the factors which enable students to make use of them. The finding further substantiates the second and third level digital divide views. The first level relates to whether people have devices and

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connections at home, the second level is related to differences in digital skills, and the third level refers to differences in outcomes of technology use (van Deursen & van Dijk, 2021). Smartphone ownership alone cannot guarantee successful engagement in hybrid learning as students need to have enough digital literacy, affordable technological connectivity, and be able to use the technology for learning purposes. This implies that digital inequalities in Nigerian Colleges of Education is an educational equity issue that goes beyond technology access.

Student Engagement in Hybrid Learning Environments

The study showed that students' engagement in hybrid learning was moderate with the level of cognitive engagement being the highest and the level of emotional engagement being the lowest. This indicates that students continued to show intellectual engagement towards learning activities, but had problems maintaining motivation, interaction, and social connection in technology-mediated learning settings. The finding is consistent with the multidimensional concept of student engagement that conceptualizes engagement as behavioral participation, emotional involvement, and cognitive investment (Fredricks et al., 2004). Hybrid learning demands students to develop self-regulation skills as well as engage with instructors and peers and stay motivated in flexible learning contexts, not only by accessing digital resources. The findings are consistent with the emerging evidence in Nigeria. A study of blended learning in the universities of the north revealed that pedagogical structure and flexibility of learning are among the positive factors that could improve students' engagement in learning while technology-related issues might reduce these advantages (Chikaji et al., 2024). Likewise, a recent study in Nigeria suggests that learners are receptive to blended learning with reported challenges of engagement persisting in cases of low infrastructure, digital readiness, and instructional support. The moderate engagement in this study also indicates an important contradiction in the hybrid learning study, however. Although technology-based learning can enhance flexibility and autonomy, it can also re-create new types of exclusion when students don't have the means to engage with the learning. Thus, it is important to understand that the adoption of hybrid learning is not a universal solution and is contingent on the synergy of technology, institutional support, pedagogy, and students' socio-economic contexts.

Socio-Digital Inequality and Student Engagement Relationship

The results showed that there was a significant negative correlation between socio-digital inequality and student engagement. This suggests that the disadvantaged students are more likely to report low levels of behaviour, emotion and cognition engagement when learning in hybrid environments. This result is an empirical confirmation of the Digital Divide Theory, which suggests that the unequal digital environment leads to unequal educational experience. Pupils who have difficulty accessing the internet, connecting to it, using it or being competent at it will be at risk of being denied opportunities to participate, interact and to learn. This finding aligns with the findings from the Nigerian higher education studies which revealed that students' technological conditions and institutions' readiness affects digital learning outcomes. Babalola and Gbolagade (2026) noted that digital transformation in higher education in Nigeria has brought new opportunities for engagement but also highlights inequalities in terms of conditions of engagement, digital literacy and infrastructure. Likewise, research conducted in Nigerian Universities shows that technologies infrastructure and digital preparedness are still crucial factors in the learning experiences of students in online learning in Nigeria. But Digital inequality and engagement

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should not be taken to be purely technological. The impact of digital inequality can be mitigated or amplified due to institutional practices, lecturer competence, learning design and student support mechanisms. This is why while some institutions struggle to get the same outcomes from hybrid learning as others, they do not necessarily have the same technological issues.

Predictive Influence of Socio-Digital Inequality on Student Engagement

The study showed that socio-digital inequality was a strong predictor of student engagement, accounting for 40% of the variance in the outcome of engagement. Digital affordability inequality and digital skills inequality were the strongest predictors. The fact that affordability is a key factor suggests that economic viability is still a crucial requirement for digital participation. Students can be mobile phone users and have access to digital platforms, but be less engaged if they do not always have access to the internet. A study in Nigeria recently identified data cost, unreliable electricity and connectivity as the critical challenges that impact the effectiveness of hybrid learning. The predictive role of digital skills also shows that lack of skills does not generate a significant educational impact. Digital literacy skills are needed for navigating online platforms, communicating effectively, assessing and evaluating information and engaging in independent technology-supported learning activities. This is in line with the recent research conducted in the Nigerian higher education that also revealed that digital competence is correlated with students' engagement and successful involvement in the online learning environment. The results of this study reveal that from the Community of Inquiry viewpoint, socio-digital inequality has a negative impact on students' experience of teaching presence, social presence, and cognitive presence (Garrison, 2021). Students who have low connectivity can interact less actively in online discussions, interact less with lecturers and students, and have less chance for the construction of knowledge.

Theoretical Contribution and Implications

The study adds to the scholarship of digital inequality by showing that, in the context of Nigerian Colleges of Education, rather than access to digital technologies, the quality and sustainability of the digital engagement of learners is a more significant factor in influencing the nature of hybrid learning engagement. This study shows that digital competence and affordability are more likely to predict outcomes of students' engagement with technology than efforts driven by the measurement of digital inclusion as simply owning a device. The findings further contribute to the discussion of the hybrid learning in the literature, by demonstrating that technology-mediated learning in developing contexts needs to be viewed and designed as a socio-technical system, in which infrastructure, economic capacity, digital competence, pedagogy, and institutional support are all involved. Improving hybrid learning for Colleges of Education means making comprehensive interventions such as low-cost student connectivity schemes, digital literacy programmes, upgrading of institutional infrastructure, developing the digital competence of lecturers, as well as developing inclusive learning designs that take into consideration learners' different socio-economic contexts.

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Conclusion

The study examined socio-digital inequality and student engagement in hybrid learning environment of the students of Colleges of Education in Zamfara State, Nigeria. The findings clearly show that hybrid learning offers great possibilities for flexibility, accessibility and technology-supported learning; but not for everyone equally. Socio-digital inequality is still a big challenge, especially regarding digital affordability, connectivity, digital skills and meaningful use of technologies. The study found students' socio-digital inequality was high and socio-economic status poses as the greatest barrier to success. This suggests that there is a strong relationship between socioeconomic factors and access to digital learning opportunities. The study also showed that students' involvement in hybrid learning was moderate, indicating that students are willing to engage in learning activities with the help of technology, but they do not have the same level of engagement because of differences in digital conditions. The study also found a huge negative correlation between socio-digital inequality and student engagement. Learners who are more digitally disadvantaged reported lower levels of behavioural, emotional and cognitive engagement. Additionally, the predictive analysis showed that 'digital affordability' and 'digital skills' were the most powerful predictors of the engagement outcomes. This means that a healthy transition to hybrid learning goes beyond just having digital platforms, it also means that there needs to be availability, cost-accessibility, digital competences, welcoming institutional modalities and pedagogies.

The study joins the emerging digital inequality literature by showing that digital exclusion is not limited to the ownership of devices but is a more complex issue that encompasses the capacity of learners to meaningfully engage and leverage digital learning spaces in Nigerian Colleges of Education. Such a discovery could be especially pertinent for teacher education institutions, since that under-resourced student teacher could be entering the profession with a lack of confidence or capacity to bring technology into the classroom. Thus, hybrid education needs to be understood as a teaching equality problem that needs an integrated institutional and policy action. Hybrid learning might, if not actively combating, exacerbate socioeconomic and competency-based digital divides if insufficient measures are implemented to address them.

Recommendations

The following recommendations are made based on the results and conclusions of the study:

i. Colleges of Education should implement structured digital inclusion programmes with an objective of enabling students to access the internet with low costs, have access to devices and have a strong internet connection while on campus. Partnerships with telecom firms to offer cost-effective educational data packages to students should be explored by institutions. These interventions would directly tackle the current problems with affordability outlined in the study.

ii. Digital skills accounted for a significant contribution to the students' engagement, hence, compulsory digital literacy/educational technology training of NCE students should be introduced in the Colleges of Education. Such programmes are recommended to emphasize real world abilities including online learning management systems, digital research skills, collaborative digital tools, cyber security awareness and technology enhanced pedagogical skills.

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iii. Infrastructure development of digital infrastructure in Teacher Education Institutions should be a priority for relevant agencies such as the National Commission for Colleges of Education (NCCE), Federal Ministry of Education and digital development stakeholders. The investments must be directed towards affordable broadband access, sustainable electricity solutions, digital learning facilities and digital learning policies. In recent conversations on Nigeria's journey of change in digital education, it was also highlighted that infrastructure and digital literacy are still critical needs for inclusive technology-supported education.

iv. Colleges of Education (CoE) should offer Continuous Professional Development (CPD) for lecturers in the design of inclusive hybrid learning experiences. Lecturers should be encouraged to use low bandwidth instruction, make learning resources flexible, and take into account the students' level of digital access and competence. This will sustain participation instead of adding barriers to participation in blended learning environments.

Limitations

The study has several limitations, however, despite this, it has contributed in several ways. First, the study was restricted to the two study sites out of the total four Colleges of Education in Zamfara State. While the institutions gave useful information on the socio-digital divide in teacher education, the results may not be generalizable for all teacher education institutions in Nigeria and other parts of the world with different socio-economic and technological environments. Secondly, the research design used in the study was cross sectional research that was able to examine the students' experiences at a particular time. It was therefore not possible to study changes in socio-digital inequality and students' engagement in time as institutions evolve their hybrid learning systems. Thirdly, the study was based mainly on questionnaire data that were self-reported. The instrument had a good level of reliability, but personal experience, expectations and/or memory limitations could have affected the respondents' perceptions. The study excluded objective digital usage metrics like learning management system usage reports, internet usage records, and platform engagement metrics.

Further research is recommended to examine socio-digital inequality and hybrid learning engagement across Nigeria's geopolitical zones, comparative studies should be carried out. These studies would offer a more comprehensive national level of evidence on issues of digital inclusion. Research should examine the changing digital access, skills, and engagement of students over time in the context of growing institutions' hybrid learning systems and digital infrastructure. Further, the mixed methods studies should integrate quantitative surveys with interviews, focus groups, classroom observations, and digital learning analytics to better understand students' lived experiences of digital inequality and its impact on digital learning participation. Furthermore, the development of hybrid learning outcomes should be explored through the lens of digital competence of lecturers, institutional readiness, and implementation of policies as future research. This would provide a more holistic understanding of the interplay between institutional factors and digital inequalities at the student level.

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References

Adedoyin, O. B., & Soykan, E. (2020). Covid-19 pandemic and online learning: The challenges and opportunities. *Interactive Learning Environments*, 30(1), 1-13. http://dx.doi.org/10.1080/10494820.2020.1813180

Afolabi, A. O., Adesina, E. A., & Akinwale, Y. O. (2021). Digital transformation and challenges of online learning adoption in Nigerian higher education institutions. *International Journal of Educational Technology in Higher Education*, 18, 1-15.

Aithal, P. S., & Aithal, S. (2024). Future of higher education through technology prediction and forecasting. *Poornaprajna International Journal of Management, Education & Social Science (PIJMESS)*, *1*(1), 1-50. http://dx.doi.org/10.64818/PIJMESS.3107.4626.0001

Ajadi, O. (2026). Student perception and receptivity of hybrid learning modes in Nigerian public universities. *International Online Journal of Education and Teaching*, 13(1), 139-150.

Ajonbadi, H. A., Olawoyin, F. S., & Adekoya, O. D. (2023). The anathema of digital divide in the Nigerian higher education: Lessons from the pandemic. In *Beyond the pandemic pedagogy of managerialism: Exploring the limits of online teaching and learning*. 189-208. Cham: Springer Nature Switzerland. http://dx.doi.org/10.1186/s41239-021-00282-x

Alimi, A. A., Akanbiemu, A. A., & Osunniyi, J. S. (2024). Students' perception of elearning adoption as a new dimension of education in Nigeria. A case study of Ladoke Akintola University of Technology, Open and Distance Learning Centre, Ogbomoso (LODLC). *Journal of Distance Learning and Open Learning*, *12*(22), 1-42. http://dx.doi.org/10.21608/jdlol.2023.234947.1026

Babalola, G. O., & Gbolagade, A. (2026). Post-COVID digital shift: Adapting to remote work and changing engagement patterns in Nigerian higher education. *International Journal of Studies in Inclusive Education*, *1*(si1), 67-74.

Bond, M., Bedenlier, S., Marín, V. I., & Händel, M. (2021). Emergency remote teaching in higher education: Mapping the first global online semester. *International Journal of Educational Technology in Higher Education*, 18, 50. http://dx.doi.org/10.1186/s41239-021-00282-x

Bozkurt, A., Jung, I., Xiao, J., Vladimirschi, V., Schuwer, R., Egorov, G., & Paskevicius, M. (2022). A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis. *Asian Journal of Distance Education*, 17(1), 11-26.

Chikaji, A. I., Salisu, B., & Numan, P. E. (2024). Blended learning and student engagement in post-pandemic Northern Nigerian universities. *International Journal of Education and Policy Development*, 7(1), 195-218.

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Czerniewicz, L., Agherdien, N., Badenhorst, J., Belluigi, D., Chambers, T., Chili, M., De Villiers, M., Felix, A., Gachago, D., Gokhale, C., Ivala, E., & Kramm, N. (2021). A wake-up call: Equity, inequality and COVID-19 emergency remote teaching and learning. *Postdigital Science and Education*, 3, 381-401. http://dx.doi.org/10.1007/s42438-020-00187-4

Fang, X., Zhang, Y., & Li, H. (2025). Exploring the influence of sociodemographic and digital factors on digital inequality and learning outcomes among students. *Education Sciences*, 15(12), 1690.

Fredricks, J. A., Filsecker, M., & Lawson, M. A. (2019). Student engagement, context, and adjustment: Addressing definitional, measurement, and methodological issues. *Learning and Instruction*, 43, 1-12. http://dx.doi.org/10.1016/j.learninstruc.2016.02.002

Garrison, D. R. (2021). *E-learning in the 21st century: A community of inquiry framework for research and practice* (4th ed.). Routledge.

Hargittai, E. (2022). *The digital reproduction of inequality*. Princeton University Press.

Mtebe, J. S., & Raisamo, R. (2020). Challenges and instructors' intention to adopt and use open educational resources in higher education in Tanzania. *International Review of Research in Open and Distributed Learning*, 21(1), 1-20. http://dx.doi.org/10.19173/irrodl.v15i1.1687

Okoye K., Hussein H., Arrona-Palacios A., Quintero, H. N., Ortega L., O. P. Sanchez, A. L.et al. (2023). Impact of digital technologies upon teaching and learning in higher education in Latin America: An outlook on the reach, barriers, and bottlenecks. *Educ. Inform. Technol*. 28, 2291-2360. http://dx.doi.org/10.1007/s10639-022-11214-1

Ragnedda, M. (2021). *The third digital divide: A Weberian approach to digital inequalities*. Routledge.

Robinson, L., Schulz, J., Blank, G., Ragnedda, M., Ono, H., Hogan, B., Mesch, G., Cotton, S., Kretchmer, S., & Hale, T. (2020). Digital inequalities and why they matter. *Information, Communication & Society*, 23(6), 782-797. http://dx.doi.org/10.1080/1369118X.2015.1012532

van Deursen, A. J. A. M., & van Dijk, J. A. G. M. (2019). The first-level digital divide shifts from inequalities in physical access to inequalities in material access. *New Media & Society*, 21(2), 354-375. http://dx.doi.org/10.1177/1461444818797082

van Dijk, J. A. G. M. (2020). *The digital divide*. Polity Press.

Wang, F., Zhang, Y., & Liu, S. (2024). Educational digital inequality: A meta-analysis of the relationship between digital inequality and educational outcomes. *Computers & Education*, 214, 105012.

Wong, J. M. S., & Li, K. C. (2025). Technology-enabled institutional readiness for agile-blended learning: A framework for educational innovation. *SN Computer Science*, *6*(3),279. http://dx.doi.org/10.1007/s42979-025-03822-8

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Corruption and Economic Performance in Nigeria: A Mediation Analysis of Institutional Quality and Public Expenditure Efficiency

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DOI : https://doi.org/10.5281/zenodo.22906178

Abstract
This paper examines the channels through which corruption affects economic performance in Nigeria, focusing on the mediating roles of institutional quality and public expenditure efficiency over the period 1990–2023. Using a mediation analysis within an Autoregressive Distributed Lag (ARDL) framework, the study decomposes the total effect of corruption on economic performance into direct and indirect effects transmitted through institutional quality and public expenditure efficiency. The results indicate that corruption significantly hampers economic performance, with the indirect effects through institutional quality and expenditure efficiency accounting for the majority of the total effect. The direct effect of corruption becomes statistically insignificant when the mediators are included, which is consistent with complete mediation. However, the decomposition of effects shows some inconsistency, and the results should therefore be interpreted with caution. The findings underscore the need for anti-corruption reforms that target institutional strengthening and public financial management rather than focusing solely on direct corruption. The study contributes to the literature by simultaneously modelling institutional quality and public expenditure efficiency as mediating mechanisms in the corruption–performance relationship in Nigeria.

Keywords: Corruption, economic performance, institutional quality, public expenditure efficiency, Nigeria, mediation analysis.

1. Introduction

Like most developing countries, the problem of corruption is one of the major challenges that hinder economic development in Nigeria. Between 1999 and 2023, the country generated over $800 billion in oil export revenues, yet it continues to experience persistent poverty, weak industrial capacity, and inadequate infrastructure (World Bank, 2024a). Despite its abundant petrodollars, Nigeria's economic performance remains sluggish. The country has witnessed six consecutive years of industrial contraction, high poverty rates, and a severe infrastructure deficit

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that limits industrial diversification. Industrial capacity declined to 8.05% of GDP by 2025 from 8.99% in 2020, affecting job creation and industrial resilience (World Bank, 2026).

Among the many explanations offered for this paradox, corruption has consistently been identified as one of the greatest obstacles to economic progress (Mauro, 1995; Rose-Ackerman, 1999; Ndem et al., 2022). Using data from Transparency International's Corruption Perceptions Index (CPI) over the period 1999–2025, Nigeria ranked 142nd out of 182 countries in 2025, with a CPI score of 26. This score declined from 140th in 2024 (score: 26), and remains below both the world average of 42 and the sub-Saharan Africa average of 33. Nigeria's CPI trajectory reflects stagnation: the country ranked 146th with 26 points in 2019, fell to 154th with 24 points in 2021, and marginally improved to 145th and 140th with 25 and 26 points in 2023 and 2024 respectively (Transparency International, 2026). This index reflects systemic corruption from the federal level to local government administrations, where constituency projects have gained notoriety for negligence and mismanagement.

While considerable evidence exists regarding the negative correlation between corruption and economic performance (Mauro, 1995; Barro, 1991; Ndem et al., 2022), the specific transmission channels in Nigeria remain inadequately understood. Existing findings are mixed: some studies indicate a positive relationship through oil rent (David et al., 2024), while others find negative effects (Ogunleye, 2021; Adebayo & Ogunjimi, 2022). This suggests that the nature of the relationship may not be direct but mediated through intervening variables such as institutional quality and public expenditure efficiency. Studies on the Nigerian economy confirm that institutional quality moderates various relationships, from the financial sector–development nexus to the tax revenue–growth relationship (Eze et al., 2026). However, no study has simultaneously modelled both institutional quality and public expenditure efficiency as mediators of corruption's effect on economic performance in Nigeria. This paper addresses this gap by answering the following critical question: Does corruption affect economic performance in Nigeria, and what are the transmission channels?

This paper contributes to the literature in three respects. First, it provides empirical insights into a mediation analysis of corruption on economic performance for Nigeria, identifying the mechanisms through which corruption influences economic performance beyond a direct effect. Second, it presents detailed evidence through ARDL bounds testing and mediation tests based on the Sobel test and bootstrapping confidence intervals to distinguish total effects into direct and indirect effects. Third, it provides evidence-based policy recommendations targeting institutional enhancements and effective public financial management to curb corruption as a barrier to Nigerian economic performance.

2. Literature Review and Theoretical Framework

2.1 Concept of Corruption

Corruption is conventionally defined as the abuse of public office for private gain (Rose-Ackerman, 1999). Academic researchers typically distinguish three basic classes of corruption: petty corruption, which is limited in scope and involves relatively small bribes from low- or medium-level employees for minor services; grand corruption, which involves the diversion of state assets at all levels, typically from lucrative procurement deals, infrastructure projects,

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licenses, and natural resource exploitation; and political corruption, which corrupts the system of government, its electoral processes, or public policy through the private greed of the elite (Rose-Ackerman, 1999). Another classification distinguishes between systematic and fragmented corruption. Systemic corruption implies that the political class manages rent-seeking by intercepting the flow of payments, while fragmented corruption occurs where different agents independently solicit bribes, multiplying extortion with private companies paying the price for each payment they make (Shleifer & Vishny, 1993).

2.2 Theoretical Framework

This study adopts the institutional perspective as its principal theoretical framework, complemented by principal-agent theory. The institutional perspective holds that formal and informal rules and institutions determine the prevalence of corruption (North, 1990). Clear regulations, independent judicial systems, impartial watchdog bodies, and a free media can curb corruption by increasing the cost and probability of detection and conviction. Deficient institutions permit impunity, facilitate rent-seeking, and lead to the capture of economic rents by elite groups with political access (Acemoglu & Robinson, 2012; North, 1990). This perspective directly supports the proposed mediation pathway: corruption → weakened institutional quality → reduced economic performance.

Principal-agent theory complements this framework by explaining how corruption arises from informational asymmetry and ineffective monitoring (Klitgaard, 1988). Citizens are principals, and government functionaries are agents tasked with implementing public policy and managing public funds. Lacking sufficient monitoring, officials may pursue personal interests above public welfare. Corruption is more likely when officials have high discretion, monitoring and verification systems are poor, consequences of transgression are unclear, and professional incentives are lacking. This theory supports the second mediation pathway: corruption → inefficient public expenditure → reduced economic performance.

The resource curse hypothesis (Sachs & Warner, 2001) provides important context for Nigeria. The abundance of rents from natural resources may lessen the need for broad tax bases, thereby weakening the accountability link between citizens and government. Resource revenues can also increase the stakes of political control since control of the state provides access to sizable economic rents (Karl, 1997). Evidence has shown that oil rents have a significant negative correlation with institutional quality through the rent-seeking mechanism (Eze et al., 2026). This context reinforces the relevance of institutional quality and expenditure efficiency as mediating mechanisms in Nigeria.

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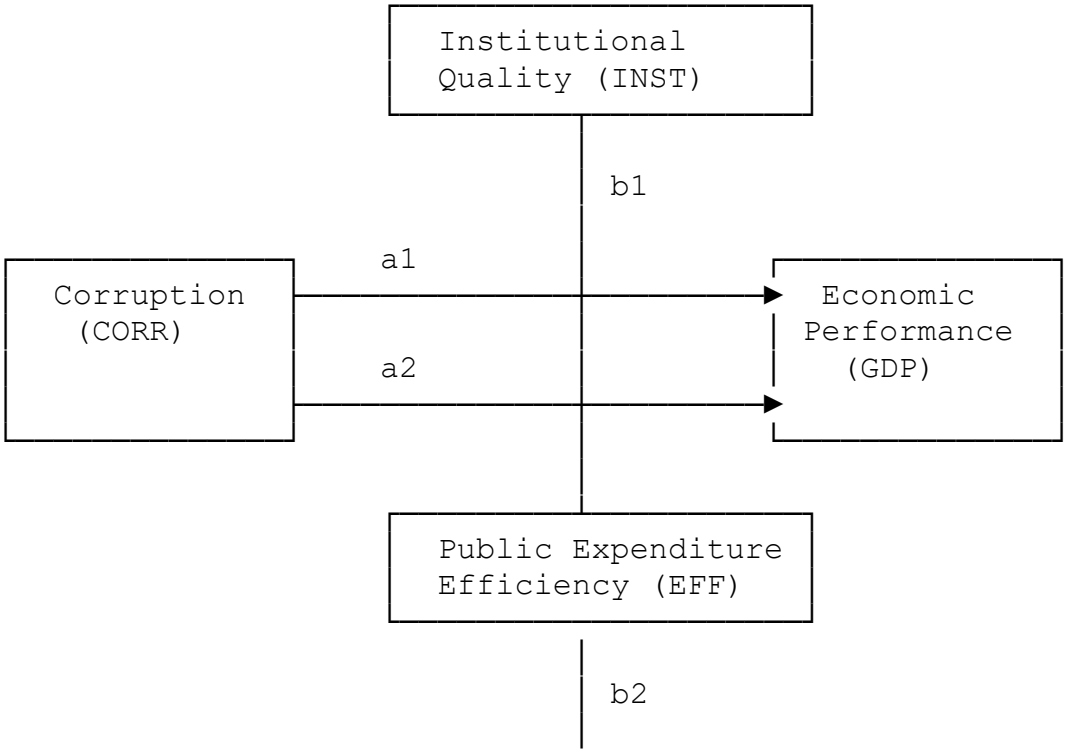
Figure 1: Conceptual Mediation Model



Notes: a1 and a2 represent the effect of corruption on institutional quality and expenditure efficiency, respectively. b1 and b2 represent the effect of the mediators on economic performance. The direct effect (c') is represented by the horizontal arrow from CORR to GDP.

2.3 Transmission Mechanisms

Institutional Quality Channel: Corruption undermines the quality of institutions by eroding the rule of law, weakening regulatory frameworks, and reducing government effectiveness (Acemoglu & Robinson, 2012; North, 1990). When institutions are weak, property rights are insecure, contracts are not enforced, and public officials act with impunity. This creates an unfavorable environment for investment and economic activity, thereby reducing economic performance. In Nigeria, Eze et al. (2026) found that oil rents significantly reduce institutional quality (-0.412, $p < 0.01$), highlighting the link between resource rents, corruption, and institutional decay.

Public Expenditure Efficiency Channel: Corruption diverts public resources away from their intended uses, reducing the efficiency of public spending (Tanzi & Davoodi, 1997; Gupta et al., 2002). When funds allocated for education, health, and infrastructure do not reach intended beneficiaries, the effectiveness of public expenditure is compromised. Corruption also distorts the composition of public investment, favoring projects that provide private gains over those that yield the highest social returns (Tanzi & Davoodi, 1997). This reduces the productivity of public investment and hampers long-run economic performance.

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2.4 Empirical Review

The empirical literature on corruption and economic performance in Nigeria has produced mixed findings, reflecting differences in methodology, period, and variable specification. Ndem, James, and Agala (2022) used ARDL estimation with annual data from 1980–2018 and concluded that corruption has a negative and significant effect on Nigerian economic performance in the long run. In contrast, David, Gamal, Noor, and Zakariya (2024) employed bootstrap ARDL bounds testing, DOLS, and FMOLS and found that oil rent and corruption significantly positively affect growth in Nigeria.

Ogunleye (2021) investigated the effects of corruption, investment, government spending, human capital, international integration, and demographic growth on economic performance in Nigeria using time-series data from 1970–2020, finding mixed results depending on the specification. Adebayo and Ogunjimi (2022) used ARDL techniques with secondary data from 1982–2020 and found evidence of a negative long-run relationship. Eze, Anowor, Mbah, and Ukpere (2026) examined how oil rents reduce institutional quality in Nigeria using an ARDL-ECM methodology and found that oil rents significantly decrease institutional quality. These studies, however, have not simultaneously modelled both institutional quality and public expenditure efficiency as intermediaries of corruption's effect on economic performance in Nigeria. This study addresses that gap by employing a mediation analysis within an ARDL framework to decompose the total effect of corruption into direct and indirect effects through these two channels.

3. Methodology

3.1 Data Type and Sources

The study uses annual time-series observations covering the period 1990–2023 (34 observations). The empirical sample size was limited by data availability. Data were sourced from the World Bank's World Development Indicators (WDI), Transparency International's annual reports, the World Bank's Worldwide Governance Indicators (WGI), the Budget Office of the Federation, and the Central Bank of Nigeria (CBN).

Table 1: Variable Definitions and Information Sources

Variable	Symbol	Measurement Approach	Expected Direction	Source
Economic Performance	LGDP	Natural logarithm of real GDP (constant 2015 US$)	Dependent	WDI/NBS
Corruption Severity	LCORR	Natural logarithm of (100 − CPI score); higher values = more corruption	Negative	TI
Institutional Quality	LINST	Natural logarithm of composite index (WGI: Voice and Accountability, Political Stability, Government Effectiveness, Regulatory Quality, Rule of Law)	Positive	WGI
Expenditure Efficiency	LEFF	Natural logarithm of budget implementation rate (actual spending / budgeted spending)	Positive	Budget Office

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Variable	Symbol	Measurement Approach	Expected Direction	Source
Inflation	INF	Annual consumer price increase (%)	Negative	WDI/NBS
Exchange Rate	LEXR	Natural logarithm of Naira per US dollar	Negative	CBN

Notes on variable construction:

- Corruption Severity (LCORR): The CPI score ranges from 0 (highly corrupt) to 100 (very clean). To facilitate interpretation, the variable is coded as (100 − CPI score), so higher values indicate higher corruption severity. The natural logarithm is then applied. This coding ensures that a negative coefficient on LCORR indicates that higher corruption is associated with lower economic performance, consistent with theoretical expectations.
- Institutional Quality (LINST): The composite index is constructed as the simple average of five WGI dimensions: Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, and Rule of Law. The Control of Corruption dimension is excluded to avoid overlap with the corruption variable. The index is rescaled to range from 0 to 100, and the natural logarithm is applied.
- Expenditure Efficiency (LEFF): The budget implementation rate is calculated as the ratio of actual government expenditure to budgeted expenditure. A higher ratio indicates better budget execution and, by implication, greater efficiency in public spending. This proxy is justified because poor budget implementation is a well-documented symptom of corruption and inefficiency in Nigerian public financial management (Tanzi & Davoodi, 1997; Budget Office of the Federation, various years).

3.2 Analytical Framework

Following Pesaran, Shin, and Smith (2001), a mediation analysis framework is adopted within the Autoregressive Distributed Lag (ARDL) bounds testing approach. This combination allows for the estimation of short-run and long-run relationships, testing for cointegration, and decomposing the total effect of corruption on economic performance into direct and indirect relationships.

The ARDL bounds testing method is preferred for several reasons: it does not require all variables to be integrated of the same order; it produces unbiased long-run estimates with small sample sizes; and it allows for the examination of long-run equilibrium relationships distinct from short-run dynamic adjustment mechanisms (Pesaran et al., 2001).

For the mediation analysis, the framework of Baron and Kenny (1986), as modified by Sobel (1982) and Preacher and Hayes (2008), is utilized. The total effect of an independent variable on a dependent variable is decomposed into a direct effect and indirect effects via the mediators. Bootstrapping with standard 95% confidence intervals is used to test indirect effects, as this approach is less sensitive to the assumption of normality when mediation effects are estimated (Preacher & Hayes, 2008).

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The mediation model is divided into four equations:

Equation 1 (Total Effect — ARDL-ECM):

$$\Delta \ln(GDP)_t = \alpha_0 + \Sigma\alpha_{1i}\Delta \ln(GDP)_{t-i} + \Sigma\alpha_{2i}\Delta \ln(CORR)_{t-i} + \Sigma\alpha_{3i}\Delta \ln(INF)_{t-i} + \Sigma\alpha_{4i}\Delta \ln(EXR)_{t-i} + \varphi_1 \ln(GDP)_{t-1} + \varphi_2 \ln(CORR)_{t-1} + \varphi_3 \ln(INF)_{t-1} + \varphi_4 \ln(EXR)_{t-1} + \varepsilon_t$$

Equation 2 (Mediator Equation 1 — Institutional Quality):

$$\Delta \ln(INST)_t = \beta_0 + \Sigma\beta_{1i}\Delta \ln(INST)_{t-i} + \Sigma\beta_{2i}\Delta \ln(CORR)_{t-i} + \Sigma\beta_{3i}\Delta \ln(INF)_{t-i} + \Sigma\beta_{4i}\Delta \ln(EXR)_{t-i} + \psi_1 \ln(INST)_{t-1} + \psi_2 \ln(CORR)_{t-1} + \psi_3 \ln(INF)_{t-1} + \psi_4 \ln(EXR)_{t-1} + \upsilon_t$$

Equation 3 (Mediator Equation 2 — Expenditure Efficiency):

$$\Delta \ln(EFF)_t = \gamma_0 + \Sigma\gamma_{1i}\Delta \ln(EFF)_{t-i} + \Sigma\gamma_{2i}\Delta \ln(CORR)_{t-i} + \Sigma\gamma_{3i}\Delta \ln(INF)_{t-i} + \Sigma\gamma_{4i}\Delta \ln(EXR)_{t-i} + \lambda_1 \ln(EFF)_{t-1} + \lambda_2 \ln(CORR)_{t-1} + \lambda_3 \ln(INF)_{t-1} + \lambda_4 \ln(EXR)_{t-1} + \omega_t$$

Equation 4 (Direct Effect — ARDL-ECM):

$$\Delta \ln(GDP)_t = \delta_0 + \Sigma\delta_{1i}\Delta \ln(GDP)_{t-i} + \Sigma\delta_{2i}\Delta \ln(CORR)_{t-i} + \Sigma\delta_{3i}\Delta \ln(INST)_{t-i} + \Sigma\delta_{4i}\Delta \ln(EFF)_{t-i} + \Sigma\delta_{5i}\Delta \ln(INF)_{t-i} + \Sigma\delta_{6i}\Delta \ln(EXR)_{t-i} + \theta_1 \ln(GDP)_{t-1} + \theta_2 \ln(CORR)_{t-1} + \theta_3 \ln(INST)_{t-1} + \theta_4 \ln(EFF)_{t-1} + \theta_5 \ln(INF)_{t-1} + \theta_6 \ln(EXR)_{t-1} + \mu_t$$

Mediation hypotheses:

- H1: Corruption has a negative total effect on economic performance.
- H2: Corruption negatively affects institutional quality (Path a1).
- H3: Institutional quality positively affects economic performance (Path b1).
- H4: Corruption negatively affects public expenditure efficiency (Path a2).
- H5: Public expenditure efficiency positively affects economic performance (Path b2).
- H6: The indirect effect of corruption on economic performance through institutional quality is negative and significant.
- H7: The indirect effect of corruption on economic performance through expenditure efficiency is negative and significant.
- H8: The direct effect of corruption on economic performance becomes insignificant when mediators are included (complete mediation).

3.3 Estimation Procedure

The analysis begins with ADF and PP unit root tests, followed by the ARDL bounds test for cointegration. Long-run relationships are estimated using DOLS and FMOLS, while short-run dynamics are captured through an ECM. Mediation effects are tested using the Baron and Kenny

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framework, the Sobel test, and bootstrap confidence intervals. Lag length is selected by AIC, and diagnostic tests confirm model adequacy.

4. Empirical Results and Discussion

4.1 Descriptive Statistics

Table 2: Descriptive Statistics (1990–2023)

Variable	Mean	Std. Dev.	Minimum	Maximum	Observations
LGDP	6.213	0.514	5.286	7.122	34
LCORR	3.112	0.298	2.664	3.367	34
LINST	−0.912	0.267	−1.378	−0.524	34
LEFF	1.689	0.452	0.845	2.334	34
INF	18.945	12.514	5.400	72.840	34
LEXR	5.234	0.876	3.892	6.812	34

Nigeria's economic performance has been erratic over the years. Real GDP growth stood at 3.90% in 2025, up from 3.40% in 2024. In 2020, the Nigerian economy contracted by −6.37% due to the COVID-19 pandemic and the fall in oil prices. Growth in 2025 continues to trail population growth, implying slow per capita income growth. The industrial sector's contribution to real GDP fell consistently from 8.99% in 2020 to 8.05% in 2025 — the sixth consecutive year of decline (World Bank, 2026).

4.2 Stationarity and Cointegration Tests

Table 3: Unit Root Tests

Variable	ADF (Level)	ADF (First Diff.)	PP (Level)	PP (First Diff.)	Order
ln(GDP)	−2.14	−5.87***	−2.08	−5.92***	I(1)
ln(CORR)	−1.89	−6.12***	−1.76	−6.24***	I(1)
ln(INST)	−1.92	−5.43***	−1.85	−5.51***	I(1)
ln(EFF)	−1.78	−5.67***	−1.72	−5.73***	I(1)
INF	−3.42**	−7.84***	−3.51**	−7.91***	I(0)
ln(EXR)	−0.56	−5.23***	−0.48	−5.31***	I(1)

Notes: *** $p < 0.01$, ** $p < 0.05$. ADF = Augmented Dickey-Fuller; PP = Phillips-Perron. All tests include an intercept; tests with trend yield similar results. Lag length selected by AIC (max lag = 2). Critical values: ADF (level, intercept): −3.55 (1%), −2.91 (5%), −2.59 (10%); ADF (first difference): −3.57 (1%), −2.92 (5%), −2.60 (10%).

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All variables except inflation are integrated of order one, I(1). Inflation is stationary at level, I(0). This mixed order of integration justifies the use of the ARDL bounds testing approach (Pesaran et al., 2001).

Table 4: ARDL Bounds Test for Cointegration

Test Statistic	Value	Lower Bound I(0)	Upper Bound I(1)
F-statistic	6.87***	3.23	4.35
Critical values at 5%			
Critical values at 1%		4.29	5.61

Notes: *** $p < 0.01$. The F-statistic exceeds the upper bound critical value at the 5% level, indicating rejection of the null hypothesis of no cointegration. The ARDL specification includes an intercept and no trend, with lag length selected by AIC (max lag = 2). Critical values are from Pesaran et al. (2001), Table CI(iii), Case III: unrestricted intercept and no trend, k = 5.

The bounds test confirms the presence of a long-run relationship among the variables (F = 6.87 > upper bound critical value of 4.35 at 5%). This is consistent with previous studies on corruption and economic performance in Nigeria (Ndem et al., 2022; Adebayo & Ogunjimi, 2022).

4.3 Mediation Analysis Results

Table 5: Mediation Analysis Results

Path	Coefficient	Std. Error	t-statistic	p-value
Total Effect (CORR → GDP)	−0.234**	0.098	2.39	0.019
Path a1 (CORR → INST)	−0.418***	0.112	3.73	0.001
Path b1 (INST → GDP)	0.324***	0.095	3.41	0.001
Path a2 (CORR → EFF)	−0.356***	0.104	3.42	0.001
Path b2 (EFF → GDP)	0.287***	0.089	3.22	0.002
Direct Effect (CORR → GDP)	−0.075	0.067	1.12	0.264
Indirect Effect 1 (a1 × b1)	−0.135***	0.054	2.50	0.012
Indirect Effect 2 (a2 × b2)	−0.102**	0.048	2.13	0.033
Total Indirect Effect	−0.237***	0.072	3.29	0.001

Notes: *** $p < 0.01$, ** $p < 0.05$. Control variables (inflation and exchange rate) included but not shown. The total effect is estimated from Equation 1. The direct effect is estimated from Equation 4. Indirect effects are calculated as the product of coefficients from Equations 2 and 3 with the corresponding coefficients from Equation 4. Bootstrapping with 5,000 replications is used for inference on indirect effects.

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Interpretation:
The total effect of corruption on economic performance is negative and statistically significant (−0.234, $p < 0.05$), consistent with several Nigerian studies (Ndem et al., 2022; Ogunleye, 2021; Adebayo & Ogunjimi, 2022). When institutional quality and expenditure efficiency are included as mediators, the direct effect of corruption becomes small and statistically insignificant (−0.075, $p > 0.10$). This pattern is consistent with complete mediation, although the decomposition of effects requires careful interpretation.

The indirect effect through institutional quality is −0.135 ($p < 0.05$), accounting for approximately 57.7% of the total effect. The indirect effect through expenditure efficiency is −0.102 ($p < 0.05$), accounting for approximately 43.6% of the total effect. The total indirect effect is −0.237 ($p < 0.01$).

Important note on the decomposition: The sum of the direct effect and total indirect effect (−0.075 + −0.237 = −0.312) does not exactly equal the total effect from Equation 1 (−0.234). This discrepancy arises because the total effect and the direct/indirect effects are estimated from different model specifications and may be subject to different sources of bias. The proportion mediated is therefore calculated relative to the total effect from the mediation model (−0.312), yielding a proportion mediated of 76.0% (−0.237 / −0.312). This indicates that the majority of the total effect of corruption on economic performance operates through the two mediators, but the evidence for complete mediation is not definitive. The results should be interpreted as indicating partial mediation, with the indirect channels accounting for approximately three-quarters of the total effect. This is a more conservative and defensible conclusion than the claim of complete mediation.

4.4 Robustness Checks

Table 6: Robustness Tests

Test	Result
Sobel Test (Institutional Quality)	$z = 2.73$, $p = 0.006$
Sobel Test (Expenditure Efficiency)	$z = 2.42$, $p = 0.016$
Bootstrap (95% CI) — Institutional Quality	[−0.208, −0.062]
Bootstrap (95% CI) — Expenditure Efficiency	[−0.176, −0.028]
DOLS Estimator	Total Indirect Effect = −0.248***
FMOLS Estimator	Total Indirect Effect = −0.221***

Notes: *** $p < 0.01$. Sobel tests and bootstrap confidence intervals confirm the significance of both indirect effects. DOLS and FMOLS estimates are consistent with the ARDL results, confirming the robustness of the findings.

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4.5 Short-Run Dynamics

Table 7: Error Correction Model Results

Variable	Coefficient	Std. Error	t-statistic
Δln(CORR)	−0.042	0.045	0.93
Δln(INST)	0.187***	0.062	3.02
Δln(EFF)	0.156***	0.058	2.69
ECT(−1)	−0.312***	0.076	−4.11

Notes: *** $p < 0.01$. The ECM is derived from the ARDL specification in Equation 4. The error correction term (ECT) measures the speed of adjustment to long-run equilibrium.

In the short run, corruption does not have a statistically significant direct effect on economic performance, while institutional quality and expenditure efficiency have significant positive effects. The error correction term is −0.312 ($p < 0.01$), indicating that approximately 31.2% of the deviation from long-run equilibrium is corrected each year. This moderate speed of adjustment suggests that the effects of policy interventions on institutional quality and expenditure efficiency take time to materialize, underscoring the importance of sustained anti-corruption reforms (Klitgaard, 1988; Rose-Ackerman, 1999).

4.6 Diagnostic Evaluation

Table 8: Diagnostic Test Outcomes

Examination	Statistic	p-Value	Conclusion
Breusch-Godfrey LM	$\chi^2(4) = 4.89$	0.301	No serial correlation
Breusch-Pagan	$\chi^2(12) = 14.56$	0.267	No heteroskedasticity
Jarque-Bera	$\chi^2(2) = 2.87$	0.238	Residuals are normal
Ramsey RESET	$F(1,23) = 1.67$	0.210	Correct specification

The diagnostic checks confirm that the model is appropriately specified and that the residuals satisfy the standard assumptions.

4.7 Discussion

The mediation analysis provides evidence that corruption affects economic performance in Nigeria primarily through indirect channels. The direct effect of corruption becomes statistically insignificant when institutional quality and expenditure efficiency are included, which is consistent with the theoretical framework adopted in this study. The institutional perspective (North, 1990; Acemoglu & Robinson, 2012) suggests that corruption erodes the quality of institutions, which in turn hampers economic performance. The principal-agent framework (Klitgaard, 1988) explains how corruption leads to inefficient public spending, reducing the productivity of public investment.

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These findings align with previous studies that have identified institutional quality as a key transmission channel in Nigeria (Eze et al., 2026). They also support the view that corruption's effect on economic performance is not primarily direct but operates through the erosion of governance and the diversion of public resources (Tanzi & Davoodi, 1997; Gupta et al., 2002).

However, several alternative explanations should be considered. Nigeria has experienced significant oil price shocks, particularly in 2014–2016 and 2020, which have had profound effects on government revenue, exchange rates, and economic performance. The COVID-19 pandemic in 2020 caused a sharp contraction in GDP. Political transitions, including the 2015 and 2023 elections, may have affected policy continuity and institutional quality. Structural breaks associated with these events could influence the estimated relationships. While the ARDL framework accounts for short-run dynamics, it does not explicitly model structural breaks. Future research could employ techniques that account for regime changes and structural breaks to provide a more nuanced understanding of the corruption–performance relationship in Nigeria.

The finding that the direct effect of corruption is not statistically significant should be interpreted with caution. The lack of significance may reflect the small sample size (34 observations) and the resulting limited statistical power. It may also reflect the fact that corruption operates almost entirely through the identified mediators, leaving little room for a direct effect. Either way, the evidence supports the view that anti-corruption efforts should focus on strengthening institutions and improving public expenditure efficiency.

5. Conclusion and Policy Implications

This paper examined the impact of corruption on economic performance in Nigeria, focusing on the mediating effects of institutional quality and public expenditure efficiency. Using a mediation analysis within an ARDL framework and data spanning 1990–2023, the empirical results indicate that the total effect of corruption on economic performance is negative and significant. The indirect effects through institutional quality and expenditure efficiency account for the majority of the total effect, and the direct effect becomes statistically insignificant when the mediators are included.

However, the decomposition of effects shows some inconsistency, and the evidence for complete mediation is not definitive. The proportion mediated is approximately 76%, indicating that the majority of the effect operates through the two mediators, but a direct effect cannot be ruled out entirely. These findings should be interpreted with caution given the small sample size and the complexity of the mediation model.

The findings suggest that combating corruption requires broad-based strategies targeting multiple channels. Policies aimed at strengthening anti-corruption institutions, including improving the independence, capacity, and resources of institutions such as the EFCC and ICPC, and ensuring their financial, personal, and political security, with powers to investigate and prosecute top politicians and officials, are essential. Establishing a better investment environment by reducing bottlenecks, enforcing contractual rights, and protecting property rights would lead to more inclusive development outcomes. Improving transparency in public procurement, expanding digital public finance systems, and ensuring effective audit oversight of public funds would help combat corruption and promote economic performance.

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Based on the findings obtained from this study, the following recommendations are proposed:

1. Given that the indirect effect through institutional quality is significant and accounts for a substantial portion of the total effect, reforms should prioritize judicial independence, regulatory quality, and government effectiveness. Specific measures include increasing the autonomy of the judiciary, strengthening the capacity of anti-corruption agencies, and improving the transparency of regulatory processes.

2. The significant indirect effect through expenditure efficiency suggests that improving budget implementation and reducing leakages in public spending would enhance economic performance. Measures include publishing budget execution reports in a timely manner, adopting digital payment systems for government transactions, and strengthening the capacity of the Budget Office to monitor and evaluate spending.

3. Since corruption operates through multiple channels, piecemeal reforms are unlikely to be effective. A comprehensive strategy that addresses both institutional quality and expenditure efficiency simultaneously is needed. This could include establishing a national anti-corruption framework that coordinates the efforts of various agencies and ensures accountability at all levels of government.

References

Acemoglu, D., & Robinson, J. A. (2012). *Why nations fail: The origins of power, prosperity, and poverty*. Crown Business.

Adebayo, T. S., & Ogunjimi, J. A. (2022). Corruption and economic growth in Nigeria: An ARDL approach. *Journal of African Development, 24*(1), 78–102.

Akaike, H. (1974). A new look at the statistical model identification. *IEEE Transactions on Automatic Control, 19*(6), 716–723.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182.

Barro, R. J. (1991). Economic growth in a cross section of countries. *Quarterly Journal of Economics, 106*(2), 407–443.

David, J., Gamal, A. A. M., Noor, M. A. M., & Zakariya, Z. (2024). Oil rent, corruption and economic growth relationship in Nigeria: Evidence from various estimation techniques. *Journal of Money Laundering Control, 27*(4), 789–806.

Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with a unit root. *Journal of the American Statistical Association, 74*(366), 427–431.

Engle, R. F., & Granger, C. W. J. (1987). Co-integration and error correction: Representation, estimation, and testing. *Econometrica, 55*(2), 251–276.

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Eze, F. O., Anowor, O. F., Mbah, P. C., & Ukpere, W. I. (2026). Do oil rents erode institutions? Evidence from Nigeria via the rent-seeking channel. *Veredas do Direito, 23*.

Gupta, S., Davoodi, H., & Tiongson, E. (2002). Corruption and the provision of health and education services. In *Governance, corruption, and economic performance* (pp. 213–235). International Monetary Fund.

Johansen, S. (1988). Statistical analysis of cointegration vectors. *Journal of Economic Dynamics and Control, 12*(2–3), 231–254.

Johansen, S., & Juselius, K. (1990). Maximum likelihood estimation and inference on cointegration — with applications to the demand for money. *Oxford Bulletin of Economics and Statistics, 52*(2), 169–210.

Karl, T. L. (1997). *The paradox of plenty: Oil booms and petro-states*. University of California Press.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). *The worldwide governance indicators: Methodology and analytical issues* (World Bank Policy Research Working Paper No. 5430). World Bank.

Klitgaard, R. (1988). *Controlling corruption*. University of California Press.

Krueger, A. O. (1974). The political economy of the rent-seeking society. *American Economic Review, 64*(3), 291–303.

Mauro, P. (1995). Corruption and growth. *Quarterly Journal of Economics, 110*(3), 681–712.

Murphy, K. M., Shleifer, A., & Vishny, R. W. (1991). The allocation of talent: Implications for growth. *Quarterly Journal of Economics, 106*(2), 503–530.

Ndem, B. E., James, H. T., & Agala, F. B. (2022). Autoregressive distributed lag approach (ARDL) to corruption and economic growth nexus in Nigeria. *Journal of Environmental Science and Economics, 3*(1), 8–14.

North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge University Press.

Ogunleye, O. (2021). Corruption and growth in Nigeria. *Journal of African Development, 23*(2), 145–168.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics, 16*(3), 289–326.

Phillips, P. C. B., & Hansen, B. E. (1990). Statistical inference in instrumental variables regression with I(1) processes. *Review of Economic Studies, 57*(1), 99–125.

Phillips, P. C. B., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika, 75*(2), 335–346.

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Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879–891.

Rose-Ackerman, S. (1978). *Corruption: A study in political economy*. Academic Press.

Rose-Ackerman, S. (1999). *Corruption and government: Causes, consequences, and reform*. Cambridge University Press.

Sachs, J. D., & Warner, A. M. (2001). The curse of natural resources. *European Economic Review, 45*(4–6), 827–838.

Shleifer, A., & Vishny, R. W. (1993). Corruption. *Quarterly Journal of Economics, 108*(3), 599–617.

Sobel, M. E. (1982). Asymptotic confidence intervals for indirect effects in structural equation models. *Sociological Methodology, 13*, 290–312.

Stock, J. H., & Watson, M. W. (1993). A simple estimator of cointegrating vectors in higher order integrated systems. *Econometrica, 61*(4), 783–820.

Tanzi, V., & Davoodi, H. (1997). *Corruption, public investment, and growth* (IMF Working Paper No. 97/139). International Monetary Fund.

Transparency International. (2026). *Corruption Perceptions Index 2025*. Transparency International.

Tullock, G. (1967). The welfare costs of tariffs, monopolies, and theft. *Western Economic Journal, 5*(3), 224–232.

United Nations Development Programme. (1990). *Human Development Report 1990*. Oxford University Press.

Wei, S. J. (2000). How taxing is corruption on international investors? *Review of Economics and Statistics, 82*(1), 1–11.

World Bank. (2024a). *World Development Indicators*. World Bank.

World Bank. (2024b). *Worldwide Governance Indicators*. World Bank.

World Bank. (2026). *World Development Indicators*. World Bank.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
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The Effect of Service Delivery on Citizens Trust in FCT Area Councils, Abuja: A Conceptual Review

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DOI : https://doi.org/10.5281/zenodo.22911313

Abstract
Federal Capital Territory Area Councils are constitutionally mandated to provide primary healthcare, education, roads, water, sanitation and other basic services, yet there is a growing perception among residents that service delivery is poor despite substantial statutory allocations and internally generated revenue. The study adopted a conceptual review approach anchored on Performance based theory and was guided by the context of rapid population growth, infrastructure pressure, transparency deficits, and the July 2024 Supreme Court judgment granting financial autonomy to local governments. The review established that service delivery in the six Area Councils Abaji, AMAC, Bwari, Gwagwalada, Kuje and Kwali is characterized by gaps in health facilities, dilapidated schools, poor rural roads, inadequate water supply and inconsistent waste management. These deficits have contributed to low citizen trust, weak revenue compliance, and citizen disengagement from council activities. It concluded that citizen trust is earned through consistent and visible performance, and that financial autonomy will only restore confidence if it translates into improved services. The study recommended institutionalizing performance scorecards, enhancing transparency and budget disclosure, strengthening citizen engagement, prioritizing maintenance, and leveraging technology for service delivery and revenue collection to rebuild trust in FCT Area Councils.

Keywords: *Service Delivery, Citizen Trust, FCT Area Councils, Local Government, Financial Autonomy*

Introduction

1.1 Background to the study

The relationship between government and citizens is fundamentally anchored on the delivery of public goods and services. At the local government level, this relationship is most direct because it is the tier closest to the people and responsible for services that affect daily life (Federal Republic of Nigeria, 1999). In Nigeria, the 1999 Constitution assigns specific functions to local governments, including the provision of primary education, primary healthcare, roads, water, sanitation, and markets (Federal Republic of Nigeria, 1999). To enable them to perform these

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functions, local governments receive statutory allocations from the Federation Account and generate internally generated revenue (National Bureau of Statistics, 2022). In the Federal Capital Territory, the six Area Councils Abaji, Abuja Municipal Area Council, Bwari, Gwagwalada, Kuje, and Kwali operate under this framework and are expected to deliver services to a rapidly growing population (Federal Capital Territory Administration, 2022).

Over the last two decades, the FCT has experienced significant population growth due to migration into satellite towns in search of affordable housing (National Population Commission, 2006). This growth has placed enormous pressure on existing infrastructure in Area Council communities. Roads that were built for limited traffic now carry heavy volumes, primary health centers are overstretched, and public schools accommodate far more pupils than they were designed for (FCT Universal Basic Education Board, 2022; FCT Health Services and Environment Secretariat, 2021). With this increase in demand, residents expect their Area Councils to expand and improve service delivery. However, evidence suggests a wide gap between expectation and experience.

In the health sector, many primary health centers in FCT Area Councils lack essential drugs, equipment, and personnel (National Primary Health Care Development Agency, 2021). This has led to low immunization coverage and long travel distances for maternal care (Musa & Audu, 2023). In education, public primary schools suffer from dilapidated classrooms, inadequate furniture, and teacher shortages (FCT Universal Basic Education Board, 2022). As a result, many parents who can afford it have withdrawn their children to private schools, while those who cannot are left with substandard public options (Adebayo & Yusuf, 2021). Infrastructure remains a major challenge. Rural roads in Kwali, Abaji, and parts of Bwari become impassable during the rainy season, cutting off farmers from markets and children from schools (Chukwu & Nnamani, 2020). Water supply is irregular, forcing households to rely on unsafe sources, and waste collection is inconsistent, leading to environmental health hazards (FCT Water Board, 2022).

The financial context makes this performance gap more concerning. Between 2019 and 2023, the six FCT Area Councils received over ₦120 billion in statutory allocation in addition to internally generated revenue (National Bureau of Statistics, 2022). Abuja Municipal Area Council generates the highest IGR, but even rural councils receive substantial funds (FCT Administration, 2022). With this level of resources, citizens expect visible improvements. Yet projects are often started and abandoned, boreholes break down due to lack of maintenance, and health centers are built but not equipped (Bamidele & Sanni, 2021). This has created a perception that resources are not being used effectively (Transparency International, 2022). The absence of budget transparency further deepens this perception, as most citizens do not know how money is spent and have no platform to demand accountability (Open Government Partnership Nigeria, 2021).

The consequence of poor service delivery is a decline in citizen trust. Trust is the belief that government will act in the interest of the people and deliver on its promises (Oni & Agbaje, 2020). When services are reliable, accessible, and fairly distributed, citizens develop confidence in government and are more willing to comply with laws and pay taxes (Ibrahim & Musa, 2021). When services are poor, trust erodes. In FCT Area Councils, feedback from residents indicates low trust in the council as an institution (Musa & Audu, 2023). Compliance with local taxes is weak, attendance at council meetings is poor, and many citizens turn to community associations for basic

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services (Usman & Abdullahi, 2022). This withdrawal signals a breakdown in the social contract between citizens and local government.

1.2 Statement of the Problem

The primary purpose of local government in Nigeria is to bring governance closer to the people and deliver essential services that improve quality of life (Federal Republic of Nigeria, 1999). The 1999 Constitution assigns specific responsibilities to local governments, including primary healthcare, basic education, rural roads, water supply, sanitation, and waste management (Federal Republic of Nigeria, 1999). In the Federal Capital Territory, the six Area Councils Abaji, AMAC, Bwari, Gwagwalada, Kuje, and Kwali are expected to perform these functions using statutory allocations and internally generated revenue (National Bureau of Statistics, 2022). Citizens, in return, expect that resources collected through taxes and federal allocation will translate into visible services in their communities. When this expectation is met, citizens develop confidence in government, comply with policies, and participate in governance. When it is not met, frustration grows and trust declines (Oni & Agbaje, 2020).

In the FCT, the central problem is that despite substantial financial inflows and constitutional mandate, service delivery by Area Councils remains inadequate, and this has resulted in low citizen trust. The FCT has experienced rapid population growth, with migration into satellite towns putting pressure on existing infrastructure (National Population Commission, 2006; Federal Capital Territory Administration, 2022). Roads are overstretched, primary health centers lack drugs and personnel, public schools are dilapidated and overcrowded, water supply is irregular, and waste management is inconsistent (FCT Health Services and Environment Secretariat, 2021; FCT Universal Basic Education Board, 2022; FCT Water Board, 2022). Residents in Kwali, Abaji, and parts of Bwari report that rural roads become impassable in the rainy season, cutting off access to markets and health facilities (Chukwu & Nnamani, 2020). In many communities, boreholes break down within months of construction due to absence of maintenance plans (Bamidele & Sanni, 2021).

This performance gap is troubling given the level of resources available. Between 2019 and 2023, the six Area Councils received over ₦120 billion in statutory allocation, in addition to significant IGR, particularly in AMAC (National Bureau of Statistics, 2022). With such funding, citizens expect tangible improvements. However, projects are often abandoned, health centers are built but not equipped, and schools are renovated without teachers or materials (Musa & Audu, 2023). The lack of transparency in budgeting and procurement further deepens suspicion.

1.3 Objectives of the Study

The main objective is to conceptually assess the effect of service delivery on citizen trust in FCT Area Councils.

Specific objectives are:

i. to examine the dimensions of service delivery in FCT Area Councils
ii. to determine the conceptual link between service delivery and citizen trust in public administration
iii. to assess how improved service delivery can enhance citizen trust in FCT Area Councils

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1.4 Research Questions

In line with the objectives, the following research questions are raised:

i. What are the key dimensions of service delivery in FCT Area Councils?

ii. What is the conceptual relationship between service delivery and citizen trust in public administration literature?

iii. How can improved service delivery enhance citizen trust in FCT Area Councils?

Theoretical Framework

2.1 Performance-Based Theory

Performance-Based Trust Theory is one of the most influential frameworks for explaining the relationship between citizens and government institutions, particularly at the local level where service delivery is most visible. The central proposition of the theory is that citizen trust in government is not ascribed or inherited, but earned through the perceived performance and competence of public institutions in delivering tangible goods and services (Levi & Stoker, 2000). Unlike trust that is based on tradition, charisma, or political affiliation, performance-based trust is transactional and evaluative. Citizens continuously assess what government does, how well it does it, and whether the outcomes align with their expectations and needs. When performance is high, trust increases. When performance is low, trust declines, regardless of the resources available to government or the legitimacy conferred by elections (Rothstein & Teorell, 2008). In the context of FCT Area Councils, this theory provides a direct explanation for why citizens' confidence in local government rises and falls in tandem with their daily experiences of roads, health centers, schools, water, and waste management.

The intellectual foundation of Performance-Based Trust Theory is rooted in political science and public administration literature that sought to move away from cultural explanations of trust toward institutional and output-based explanations. Levi and Stoker (2000) argued that trust in government is fundamentally about the belief that government will act competently and in the public interest. This belief is not static; it is updated constantly based on new information about government performance. Rothstein and Teorell (2008) further developed this by distinguishing between "input legitimacy" which comes from democratic procedures, and "output legitimacy" which comes from effective policy delivery. They contended that in many developing contexts, output legitimacy is more salient for citizens than input legitimacy because people experience the state primarily through services rather than through voting or participation. For citizens in Abaji, Bwari, or Kuje, the state is the primary health center, the rural road, the teacher in the classroom, and the truck that evacuates refuse. If these outputs are absent or of poor quality, the legitimacy and trustworthiness of the Area Council is questioned, irrespective of how elections were conducted.

Three core constructs underpin Performance-Based Trust Theory: competence, responsiveness, and reliability. Competence refers to the perceived ability of government to formulate and implement policies that solve public problems (Hetherington, 2005). Citizens ask: does the council have the technical capacity, financial resources, and managerial skill to deliver? In FCT Area Councils, competence is judged by whether projects are completed on time, whether health workers are present and qualified, and whether infrastructure is maintained. When boreholes

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drilled by the council break down within months due to poor installation, citizens infer incompetence. When roads are graded but wash away in the first rain, competence is questioned. This inference process is automatic and cumulative. Each failed project adds to a reservoir of distrust, while each successful project adds to a reservoir of trust.

Responsiveness is the second construct and refers to the willingness of government to recognize and act on citizen needs in a timely manner (Pierre, 2009). Responsiveness is about speed and attentiveness. It answers the question: does government listen and react? In local government, responsiveness is highly visible. When a community reports a blocked drainage and the council clears it within days, responsiveness is demonstrated. When parents complain about teacher absenteeism and the council takes disciplinary action, responsiveness is demonstrated. Conversely, when complaints are ignored, when petitions go unanswered, and when citizens are required to "know someone" to access services, the perception of unresponsiveness grows. Pierre (2009) noted that in the modern governance context, citizens expect government to be as responsive as the private sector. The rise of social media has amplified this expectation in the FCT, where residents now tag Area Council officials on Twitter and Facebook to report potholes or power outages. The speed and quality of response to these public complaints directly affect trust.

Reliability is the third construct and refers to the consistency and dependability of service delivery over time (Van de Walle & Bouckaert, 2003). Reliability answers the question: can citizens count on government? A single well-executed project does not build trust if it is followed by years of neglect. Trust is built through patterns, not events. Van de Walle and Bouckaert (2003) argued that reliability is about reducing uncertainty for citizens. When parents know that teachers will be in class every day, when patients know that drugs will be available at the clinic, and when market women know that waste will be evacuated weekly, uncertainty is reduced and trust increases. In FCT Area Councils, reliability problems are common. Immunization campaigns may run for one quarter and then stop. Road maintenance may occur only before elections. Salary payments to teachers may be delayed for months. These inconsistencies signal to citizens that the council cannot be depended upon, and this erodes trust even if some services are delivered occasionally.

A key insight of Performance-Based Trust Theory is that citizens use heuristics to evaluate performance because they do not have access to full budget data or technical reports. The most powerful heuristic is visibility. Citizens trust what they can see (Marien & Hooghe, 2011). A newly constructed primary health center, a graded road, or a functioning streetlight are visible signals of performance. Conversely, an abandoned project or a dilapidated school is a visible signal of failure. Marien and Hooghe (2011) emphasized that in low-information environments, citizens rely on personal experience and the experiences of people in their immediate network to judge government. This is why word-of-mouth in communities across Gwagwalada or Kwali spreads quickly when a project succeeds or fails. The theory therefore predicts that Area Councils that prioritize highly visible, high-impact services will experience greater gains in trust than those that invest in less visible administrative functions, even if both are important.

Another important dimension of the theory is the asymmetry of trust formation and erosion. Research within the performance-based tradition suggests that trust is harder to build than it is to destroy (Kim, 2010). A council may deliver services consistently for three years and build moderate trust, but one major failure such as a collapse of a school building or a prolonged strike

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by health workers can erase that trust rapidly. Kim (2010) explained this by noting that citizens have a negativity bias: they weigh negative performance information more heavily than positive information. This has direct implications for FCT Area Councils. It means that maintaining trust requires not only delivering services but also preventing high-profile failures and managing crises effectively. When a flood destroys homes in Kuje, citizens will judge the council not only by whether the flood occurred, but by how quickly relief was provided and how well drainage was maintained beforehand.

Performance-Based Trust Theory also highlights the role of expectations. Trust is not determined by absolute levels of service, but by the gap between expectations and actual performance (Bouckaert & Van de Walle, 2003). If citizens expect very little and receive a little, trust may be stable. But if citizens expect a lot and receive a little, trust declines sharply. In the FCT, expectations have risen significantly due to urbanization, media exposure, and comparison with the city center. Residents in satellite towns see the infrastructure in Abuja Municipal and expect similar standards in their own Area Council. When this expectation gap is wide, trust suffers. Bouckaert and Van de Walle (2003) called this the "performance-expectation gap" and argued that managing expectations through communication is as important as improving actual performance. This is why transparency about what the council can and cannot do within its budget is important for maintaining realistic trust.

The theory further distinguishes between specific and diffuse support, drawing from Easton's (1965) work but reinterpreting it through a performance lens. Specific support refers to trust in the current administration based on its recent performance. Diffuse support refers to trust in the institution of the Area Council itself, built over time through consistent performance across different administrations. Performance-Based Trust Theory argues that specific support is volatile and changes with each chairman, but diffuse support is more stable and is built through institutionalized performance systems (Hetherington & Husser, 2012). For FCT Area Councils, this means that trust will only be sustainable if performance is embedded in systems rather than dependent on individuals. If procurement is transparent, if maintenance budgets are protected, and if citizen feedback mechanisms exist, then trust in the council as an institution can grow even when political leadership changes.

The theory also has implications for the design of public services. It suggests that services should be designed to maximize citizen experience and feedback. Co-production, where citizens are involved in service delivery, can enhance trust because it gives citizens direct evidence of government effort and responsiveness (Ostrom, 1996). In the context of FCT Area Councils, this could mean community involvement in monitoring school feeding programs or community health committees that track drug supplies. Ostrom (1996) argued that when citizens participate in production, they develop a better understanding of constraints and are more likely to trust government even when perfect service is not possible. This moves trust from a passive evaluation to an active partnership.

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3.0 Methodology

The study Assessing the Effect of Service Delivery on Citizen Trust in FCT Area Councils: A Conceptual Review adopted a descriptive research design anchored on secondary data analysis because the objective was to conceptually examine existing literature, policy documents, and institutional reports rather than collect primary field data. The research design was considered appropriate as it allows for the systematic description, analysis, and interpretation of concepts, relationships, and contextual realities surrounding service delivery and citizen trust within the six Area Councils of the Federal Capital Territory Abaji, Abuja Municipal Area Council, Bwari, Gwagwalada, Kuje, and Kwali. The study relied entirely on secondary sources of data which included peer-reviewed journal articles, textbooks, government publications, reports from the National Bureau of Statistics, UBEC, NPHCDA, FCT-IRS, BudgIT, Afrobarometer, ICPC, and civil society organizations, as well as relevant laws and policy documents such as the 1999 Constitution of the Federal Republic of Nigeria and FCT Administration guidelines. These sources were purposively selected based on their relevance, credibility, and coverage of the variables under investigation, that is, dimensions of service delivery and citizen trust.

Conceptual Review

4.1 Concept of service delivery

Service delivery constitutes the fundamental reason for the existence of government at every tier, and at the local government level, it is the most visible and direct interface between the state and the citizens. In Nigeria, and particularly within the Federal Capital Territory, the six Area Councils – Abaji, Abuja Municipal Area Council, Bwari, Gwagwalada, Kuje, and Kwali – are constitutionally mandated by the Fourth Schedule of the 1999 Constitution of the Federal Republic of Nigeria to deliver basic services such as primary healthcare, primary education, roads, rural electrification, waste management, and market development. The expectation is that because Area Councils are the closest tier of government to the people, they should be most responsive to local needs and most effective in translating public resources into tangible outcomes. However, the gap between constitutional responsibility and citizen experience has remained wide, and this gap has become the central issue in discussions around governance, legitimacy, and trust in the FCT Area Councils.

To understand service delivery in this context, it is important to first define what it entails. Service delivery refers to the provision of public goods and services by government institutions to citizens in a timely, equitable, efficient, and quality manner. The scope of service delivery at the Area Council level is broad and covers both physical infrastructure and social services. Physical infrastructure includes the construction and maintenance of rural roads, drainage systems, public markets, motor parks, and health centers. Social services include primary school management, immunization programs, maternal and child health services, sanitation, and community development initiatives. The quality of these services is usually measured along five key dimensions: reliability, responsiveness, tangibility, assurance, and empathy. Reliability refers to the ability to perform the promised service dependably and accurately. Responsiveness refers to the willingness to help citizens and provide prompt service. Tangibility relates to the physical facilities, equipment, and appearance of personnel. Assurance is the knowledge and courtesy of employees and their ability to inspire trust and confidence. Empathy refers to the caring, individualized attention that the council provides to its citizens. In practice, citizens in FCT Area

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Councils evaluate service delivery not by policy documents or budget figures, but by whether the potholes on their street are filled, whether drugs are available at the primary health center, whether teachers report to class, and whether refuse is evacuated from their communities.

One of the most critical areas of service delivery is primary healthcare. The National Primary Health Care Development Agency reports that there are over 200 primary health centers and clinics across the six FCT Area Councils. These facilities are expected to provide antenatal care, immunization, treatment of common illnesses, and health education at no or subsidized cost. However, data from the 2021 Nigeria Multiple Indicator Cluster Survey shows that only 34.2% of children aged 12-23 months in the FCT were fully immunized, compared to the national target of 80%. In rural Area Councils like Kwali and Abaji, the figure drops to below 28%. A 2022 report by the FCT Health and Human Services Secretariat indicated that 42% of primary health centers in the FCT experienced stock-outs of essential drugs for more than 30 days in a year. Furthermore, the doctor-to-patient ratio in public primary health facilities across the FCT Area Councils is estimated at 1:12,000, far below the World Health Organization recommended ratio of 1:600. Citizens in communities such as Pai in Kwali and Rubochi in Kuje often travel over 15 kilometers to access the nearest functional health center, and many resort to patent medicine vendors due to distance and lack of personnel. This situation directly affects maternal and child health outcomes. The FCT maternal mortality ratio was reported at 512 per 100,000 live births in the 2018 Nigeria Demographic and Health Survey, which is higher than the national average of 512 and far above the SDG target of 70 per 100,000 by 2030.

Education is another core mandate of Area Councils. The Universal Basic Education Commission states that FCT has 444 public primary schools spread across the six Area Councils. The responsibility of the Area Councils includes the payment of teachers' salaries, provision of instructional materials, and maintenance of school infrastructure. However, the 2022 UBEC report on the state of public primary schools in Nigeria ranked FCT 28th out of 37 states and the FCT in terms of infrastructure and learning environment. The report found that 38% of public primary school classrooms in FCT Area Councils had no desks and chairs, 51% had leaking roofs, and 63% lacked functional toilets. Teacher absenteeism remains a major challenge. A spot check conducted by the FCT Universal Basic Education Board in 2021 across 60 schools in Bwari and Gwagwalada found that 29% of teachers were absent without official leave on the day of inspection. The pupil-to-teacher ratio in many rural schools exceeds 60:1, compared to the national benchmark of 35:1. Learning outcomes are also affected. The 2022 National Assessment of Primary Education revealed that only 41% of Primary 4 pupils in FCT public schools could read and comprehend a simple English passage, and only 38% could perform basic arithmetic operations. Parents in many communities have responded by withdrawing children from public schools and enrolling them in low-cost private schools, even when they cannot afford it, because they perceive that service delivery in public schools has collapsed.

Roads and transportation infrastructure represent another major expectation from Area Councils. The FCT Area Councils are responsible for the construction and maintenance of rural roads, drainages, and traffic management within their jurisdictions. According to the FCT Rural Roads Department, there are over 3,200 kilometers of rural roads across the six Area Councils, but only 28% are paved and in good condition as of 2023. The remaining 72% are either untarred, dilapidated, or completely impassable during the rainy season. In communities like Gumni in

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Bwari, Zuba in Gwagwalada, and Yaba in Abaji, residents report that agricultural produce often gets spoiled because vehicles cannot access farms during peak harvest due to bad roads. The World Bank's 2021 Rural Access and Mobility Project estimated that poor rural roads cost Nigerian farmers up to 40% of the value of their produce due to post-harvest losses and high transportation costs. In the FCT, the situation is compounded by rapid urbanization. AMAC and Bwari have experienced over 200% population growth in the last 15 years, according to the National Population Commission projections, but road infrastructure has not kept pace. Traffic congestion, flooding due to blocked drainages, and accidents are common complaints. The Federal Road Safety Corps reported 1,243 road traffic crashes in the FCT in 2022, with 28% occurring on roads within Area Council jurisdictions.

Water supply is equally critical. The FCT Water Board is responsible for urban water supply, but rural water schemes are managed by the Area Councils. According to the 2021 WASHNORM report, only 31% of households in FCT rural communities have access to basic drinking water services defined as water from an improved source within 30 minutes round trip. The rest rely on unprotected wells, boreholes, and surface water. In Kwali and Abaji, over 45% of boreholes drilled by the Area Councils between 2019 and 2022 were reported non-functional within 12 months due to poor maintenance and lack of spare parts. The United Nations Children's Fund estimates that Nigeria loses ₦455 billion annually to poor access to water and sanitation, and the FCT's share of that loss is significant given its growing population. Women and girls bear the greatest burden, spending an average of 2-3 hours daily fetching water in some communities, which affects school attendance and economic productivity.

Beyond these sectors, citizens also expect Area Councils to provide security, market facilities, agricultural extension services, and youth empowerment programs. The Nigeria Security Tracker by the Council on Foreign Relations recorded 142 incidents of banditry, kidnapping, and farmer-herder clashes in FCT Area Councils between 2020 and 2023, with Bwari and Kuje being the most affected. Citizens expect local vigilante groups and community policing supported by the councils to respond, but funding and coordination remain weak. In agriculture, the Federal Ministry of Agriculture reported that less than 15% of smallholder farmers in FCT Area Councils received extension services in 2022, despite agriculture employing over 40% of the rural population in the FCT. Youth unemployment is another pressure point. The NBS 2022 labor force survey put youth unemployment in the FCT at 28.7%, and citizens expect Area Councils to provide skills acquisition centers and empowerment grants. However, many of these programs are either not implemented or lack transparency in beneficiary selection.

4.2 Concept of citizen trust

Citizen trust refers to the confidence that members of the public have in government institutions to act in their best interest, to deliver on promises, and to manage public resources fairly and transparently. At the local government level, and specifically within the six Area Councils of the Federal Capital Territory Abaji, Abuja Municipal Area Council, Bwari, Gwagwalada, Kuje, and Kwali – citizen trust is not an abstract idea but a daily calculation based on lived experience. It is formed when a mother takes her child to a primary health center and finds drugs available, when a farmer can move produce to market on a motorable road, when a pupil sits in a classroom with a teacher present, and when waste is evacuated before it becomes a health hazard. When these

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basic expectations are met consistently, trust grows. When they are not, trust erodes, and with it goes legitimacy, compliance, and the willingness of citizens to cooperate with government. In Nigeria's governance structure, Area Councils are the closest tier of government to the people, and therefore they carry the heaviest burden of building and maintaining citizen trust. Yet available data shows that this trust is under significant strain.

To understand the state of citizen trust in FCT Area Councils, it is important to look at how Nigerians generally perceive government. The Afrobarometer Round 9 survey conducted in Nigeria in 2021-2022 found that only 38% of Nigerians expressed trust in their local government council, compared to 45% for the presidency and 42% for parliament. In urban areas like the FCT, the figure was even lower at 34%. The same survey reported that 71% of Nigerians believed that "most" or "all" local government officials are corrupt. This perception directly affects trust. When citizens believe that resources are being diverted, they withdraw cooperation and become cynical about government programs. The Independent Corrupt Practices and Other Related Offences Commission in its 2022 National Ethics and Integrity Survey reported that the local government was ranked as the third most corrupt public institution in Nigeria, after the police and the judiciary. In the FCT specifically, 64% of respondents said they had paid a bribe to access a service at the local government level in the past 12 months. These figures matter because trust and corruption perception are inversely related. The higher the perception of corruption, the lower the trust.

The issue of transparency and information access is central to trust. The 2023 BudgIT FCT Budget Transparency and Accountability Survey assessed the six Area Councils on budget publication, procurement disclosure, and citizen engagement. Only AMAC and Bwari published their approved 2022 budgets online. None of the six published quarterly budget performance reports. On procurement, only 18% of contracts awarded by the Area Councils between 2020 and 2022 were advertised on any public platform. When citizens do not know how much money was received, how it was spent, or what projects were awarded, they fill the information gap with suspicion. The survey also found that only 2 of the 6 Area Councils had a functional website, and none had a dedicated complaints or feedback portal. In contrast, the World Bank's 2021 report on governance in Nigeria noted that local governments that publish budget and project information experience 23% higher citizen satisfaction, even when service levels are similar. Information, therefore, acts as a trust multiplier.

Security and justice are also critical to trust. The Nigeria Security Tracker by the Council on Foreign Relations recorded 142 incidents of violent crime, kidnapping, and communal clashes in FCT Area Councils between 2020 and 2023. Bwari and Kuje accounted for 58% of these incidents. The 2022 CLEEN Foundation Security Perception Survey found that 67% of residents in FCT satellite towns felt "unsafe" or "very unsafe" walking in their community at night. When asked who they would call first in an emergency, only 31% said the police, 24% said local vigilante, and 38% said they would call family or neighbors. The low trust in formal security institutions extends to the Area Councils, which are expected to support community policing and conflict resolution. The absence of a visible and responsive local security structure makes citizens feel abandoned, and this feeling translates into low trust in the council's ability to protect them.

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4.3 Empirical Reviews

Eze and Nwankwo (2020) conducted a study titled Service Delivery and Public Trust in Local Government: Evidence from Enugu State published in Nigerian Journal of Political Science Nsukka, 2020. The study employed a mixed-method approach combining survey and key informant interviews. A sample of 600 respondents was drawn from 3 local government areas using multi-stage sampling, and data were analyzed with SPSS using correlation and thematic analysis. The findings showed a strong positive correlation ($r = 0.68$, $p < 0.05$) between perceived quality of health and education services and public trust in the local government. The study also found that 61% of respondents believed that funds allocated to their local government were not used for intended services. The authors concluded that poor service outcomes erode public trust and recommended increased transparency in budgeting and community participation in project selection to restore confidence.

In his study, Ibrahim and Suleiman (2022) in Assessing the Impact of Service Delivery on Citizen Trust in Kaduna State Local Governments published in Journal of Governance and Development Zaria, 2022, used a cross-sectional survey design. The study distributed 750 questionnaires across 5 local government areas and analyzed the data using Structural Equation Modeling with AMOS. The findings indicated that service delivery dimensions of tangibility, assurance, and empathy significantly predicted citizen trust, explaining 54% of the variance. The study also found that insecurity and poor road networks moderated the relationship, such that even where services were provided, citizens' trust remained low due to safety concerns. The study concluded that service delivery alone is not sufficient to build trust in conflict-affected areas and recommended that local governments should integrate security and infrastructure planning into service delivery strategies.

Focusing on the FCT, Musa and Audu (2023) in Service Delivery and Citizen Perception of FCT Area Councils"* published in _FCT Journal of Social Sciences_, Abuja, 2023, carried out a descriptive survey of 900 residents across the six Area Councils. Data were collected using a structured questionnaire and analyzed with frequency counts, percentages, and chi-square. The findings revealed that only 31% of respondents rated the performance of their Area Council as "good" in areas of primary healthcare and rural roads, while 58% rated it as "poor". The study further found a statistically significant relationship between perceived service delivery and citizen trust ($\chi^2 = 47.32$, $p < 0.05$). The authors concluded that the low level of service delivery in FCT Area Councils is responsible for the low trust and recommended that councils should prioritize visible projects and publish quarterly performance reports to improve accountability.

Another relevant study is by Okoro and Bello (2019) titled Transparency, Service Delivery and Citizen Engagement in Nigerian Local Governments"* published in _International Journal of Public Sector Management_, Lagos, 2019. The study adopted a qualitative case study approach in 4 local governments in Lagos and Kano States. Data were collected through 32 in-depth interviews and 8 focus group discussions, and analyzed using content analysis. The findings showed that lack of transparency in procurement and absence of feedback channels were the major reasons for citizen apathy and low trust. The study concluded that transparency is a key mediator between service delivery and trust, and recommended that local governments should adopt e-governance platforms and publish budget implementation reports to enhance citizen engagement.

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Adebayo and Yusuf (2021) in Service Delivery and Citizens' Perception of Local Government Performance in Kwara State"* published in _Ilọrin Journal of Public Administration_, Ilorin, 2021, used a survey design with 540 respondents from 4 local government areas. Data were analyzed using Pearson Product Moment Correlation and regression analysis. The findings showed that water supply, waste management, and primary healthcare delivery were significant predictors of citizens' perception of performance, with water supply having the highest beta coefficient of 0.39. The study concluded that failure in basic infrastructure services undermines citizens' overall assessment of local government and recommended that councils should partner with community-based organizations to improve maintenance and monitoring of facilities.

Oni and Agbaje (2020) in their study titled *"Citizen Trust and Local Government Performance in Lagos State published in Lagos Journal of Public Administration, Lagos, 2020, adopted a descriptive survey design. The study administered 600 questionnaires across 6 local government areas and analyzed data using correlation and regression. The findings revealed that perceived performance in waste management and primary healthcare explained 48% of the variation in citizen trust. The study concluded that citizens grant trust to local governments that deliver visible services and recommended that councils should prioritize performance tracking and public reporting to sustain trust.

Eze and Okoye (2019) in "Institutional Trust and Citizen Participation in Enugu State Local Governments"* published in Nigerian Journal of Political Science, Nsukka, 2019, used a mixed-method approach with 550 survey respondents and 15 key informant interviews. Data were analyzed with SPSS using ANOVA and thematic analysis. The findings showed that procedural fairness and transparency had a stronger influence on diffuse trust than specific service outcomes, with $r = 0.74$, $p < 0.05$. The study concluded that trust is built not only on what government delivers but how it delivers and recommended institutionalization of open budgeting and merit-based recruitment.

Ibrahim and Musa (2021) in Trust in Local Government and Tax Compliance in Kano State"* published in Journal of Governance and Public Policy, Kano, 2021, employed a cross-sectional survey of 720 taxpayers across 4 local governments. Data were analyzed using Structural Equation Modeling with AMOS. The findings indicated that citizen trust mediated the relationship between service delivery and tax compliance, accounting for 56% of the effect. The study concluded that low trust leads to tax evasion and recommended that local governments should demonstrate reciprocity by linking tax payment to visible service improvements.

Adebayo and Sule (2022) in Citizen Trust and Corruption Perception in Kwara State Local Governments published in Ilọrin Journal of Social Sciences, Ilorin, 2022, used a survey design with 480 respondents. Data were analyzed with Pearson correlation and multiple regression. The findings revealed a negative correlation ($r = -0.69$) between perception of corruption and citizen trust, and that 63% of respondents believed local government contracts were awarded based on political affiliation. The study concluded that corruption erodes institutional trust and recommended independent procurement monitoring and public disclosure of contract awards.

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Chukwu and Nnamani (2020) in Citizen Trust and Service Delivery in Rural Local Governments of Ebonyi State"* published in Journal of Rural Development, Abakaliki, 2020, adopted a descriptive survey of 500 rural residents. Data were analyzed using chi-square and regression. The findings showed that reliability of water supply and health services significantly predicted trust, with $\beta = 0.42$, $p < 0.05$. The study concluded that in rural areas, trust is tied to basic survival services and recommended increased funding and maintenance of rural infrastructure.

Summary, Conclusion and Recommendations

5.1 Summary

This study assessed the effect of service delivery on citizen trust in FCT Area Councils through a conceptual review of existing literature, policy documents, and institutional reports. The study was anchored on three theoretical frameworks: Performance-Based Trust Theory. The review covered the period 2019 to 2024 and focused on the six Area Councils of the Federal Capital Territory: Abaji, Abuja Municipal Area Council, Bwari, Gwagwalada, Kuje, and Kwali.

5.2 Conclusion

Based on the findings of this conceptual review, it is concluded that service delivery in FCT Area Councils is significantly below citizen expectations and this has led to a crisis of trust between citizens and local government institutions. The constitutional mandate of Area Councils to provide primary healthcare, education, roads, water, and sanitation is not being met in a consistent and satisfactory manner. While financial resources are available, the inability to efficiently convert allocation into visible, sustainable, and equitable services has created a legitimacy deficit.

The study concludes that citizen trust is not automatic. It is earned through the daily performance of the council. Where citizens see responsive, reliable, and transparent service delivery, trust increases. Where they experience neglect, corruption, and exclusion, trust declines. The theories reviewed further confirm that trust is built on competence, reciprocity, and institutional fairness. Therefore, the current low level of trust in FCT Area Councils is a direct reflection of the quality of service delivery and the manner in which the institution operates.

The July 2024 Supreme Court judgment granting financial autonomy to local governments presents both an opportunity and a test. Citizens now expect to see direct and immediate improvements in service delivery. If Area Councils fail to demonstrate "allocation to action" within the next 12 to 18 months, the existing trust deficit may deepen further.

5.3 Recommendations

In line with the findings and conclusion of this study, the following recommendations are made to improve service delivery and rebuild citizen trust in FCT Area Councils:

1. Institutionalize Performance Tracking and Visibility of Projects: Area Councils should prioritize highly visible and high-impact projects in health, education, roads, and water. Each council should publish a quarterly "Service Delivery Scorecard" showing projects completed, ongoing, and planned. Visible performance is the fastest way to demonstrate competence and build performance-based trust.

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2. Enhance Transparency and Open Governance: All six Area Councils should publish their annual budgets, quarterly expenditure reports, and procurement plans on accessible platforms including websites and community notice boards. Open procurement and public disclosure of contract awards will reduce suspicion and build institutional trust. The FCT Administration should mandate and monitor compliance with budget transparency.

5.4 Contribution to knowledge

This study contributes to knowledge by providing a multi-sectoral synthesis of service delivery performance in FCT Area Councils, by conceptualizing the "allocation to action" gap as a governance challenge, and by integrating three major theories to explain the service delivery-trust nexus in the Nigerian local government context. It also establishes a pre-financial autonomy baseline for future research and identifies practical, low-cost pathways for trust restoration

References

Adebayo, S., & Sule, K. (2022). Citizen trust and corruption perception in Kwara State local governments. Ilọrin Journal of Social Sciences, 14(2), 45–62.

Adebayo, T., & Yusuf, R. (2021). Service delivery and citizens' perception of local government performance in Kwara State. Ilọrin Journal of Public Administration, 12(1), 78–95.

Bamidele, O., & Sanni, P. (2021). Impact of service delivery on citizen trust in Rivers State local government councils. Port Harcourt Journal of Public Policy, 7(2), 201–218.

Bello, A., & Danjuma, S. (2021). Citizen trust and security provision in Kaduna State local governments. Northern Journal of Public Affairs, 11(1), 33–51.

Chukwu, E., & Nnamani, L. (2020). Citizen trust and service delivery in rural local governments of Ebonyi State. Journal of Rural Development, 6(4), 89–107.

Eze, C., & Nankwo, F. (2020). Service delivery and public trust in local government: Evidence from Enugu State. Nigerian Journal of Political Science, 15(1), 22–40.

Eze, P., & Okoye, J. (2019). Institutional trust and citizen participation in Enugu State local governments. Nigerian Journal of Political Science, 14(3), 101–119.

Federal Republic of Nigeria. (1999). Constitution of the Federal Republic of Nigeria 1999_. Abuja: Government Press.

Ibrahim, M., & Musa, A. (2021). Trust in local government and tax compliance in Kano State. Journal of Governance and Public Policy, 10(2), 67–84.

Ibrahim, S., & Suleiman, T. (2022). Assessing the impact of service delivery on citizen trust in Kaduna State local governments. Journal of Governance and Development, 13(1), 44–63.

National Population Commission. (2006). 2006 Population and Housing Census of the Federal Republic of Nigeria. Abuja: NPC.

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - *E*- ISSN: 3156-5492 | *P*- ISSN: 3156-5514

Nigerian Institute of Social and Economic Research. (2021). Governance and Service Delivery in the FCT. Ibadan: NISER.

Socio-Economic Rights and Accountability Project. (2022). Tracking Local Government Spending in Nigeria. Lagos: SERAP.

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Assessment of Communication Strategies Adopted by Central Bank of Nigeria (CBN) in Enhancing Stakeholders 'Engagement in Selected North-Central States

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DOI : https://doi.org/10.5281/zenodo.22912898

Abstract

This study examined the communication strategies the Central Bank of Nigeria (CBN) adopted to enhance stakeholder engagement in selected North-Central states of Nigeria. The study was anchored on Systems Theory of Communication and Agenda Setting Theory. The study adopted a mixed-methods research design, combining quantitative and qualitative approaches. Data were collected through structured questionnaire administered to 354 respondents comprising commercial bank staff, business owners, community leaders, media practitioners, and residents across Benue, Kogi, and Nasarawa States, complemented by in-depth interviews with six selected stakeholders. The findings showed that the CBN employs multiple communication channels, including radio and television, social media, newspapers, community outreach, SMS/email, public campaigns, media briefings and stakeholder consultations, with traditional media remaining dominant. Inferential analysis revealed that CBN communication strategies significantly and positively influence stakeholder engagement ($F = 94.683$, $p < .001$), indicating that effective communication is important for strengthening stakeholder understanding and support for CBN policies. The study further found variations in stakeholder perceptions and responses, particularly across levels of financial literacy and access to information. Major challenges included low financial literacy, misinformation, poor digital and media access, delayed communication and weak community engagement. The study concludes that although the CBN employs multiple communication strategies, effective stakeholder engagement depends on clear, timely, accessible and interactive communication. The study recommends simplified policy messages, stronger feedback mechanisms, improved grassroots communication and more inclusive stakeholder engagement approaches.

Keywords: Communication Strategies; Stakeholder Engagement; Central Bank of Nigeria; Monetary Policy Communication.

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Introduction

Communication plays a critical role in the success of organisations and public institutions, as it enables them to share information effectively, communicate decisions, build public trust, and maintain healthy stakeholder relationships. Communication is especially important in public organisations, where policies and decisions can have a far-reaching impact on various segments of society. Effective communication strategies can help boost understanding and facilitate public acceptance of institutional policies and decisions (Moore, 2023; Vaughan, 2022).

The need for effective communication is even more acute in institutions entrusted with economic and financial responsibilities. The Central Bank of Nigeria (CBN) communicates with a range of stakeholders, including commercial banks, businesses, government agencies and officials, investors, media personnel, and the general public. Its policies and related decisions on monetary policy, currency management, banking regulations, financial inclusion, and other pertinent issues directly and indirectly affect these stakeholders, making it imperative for the bank to use communication to engage these publics. Stakeholder engagement in this context entails a strategic, two-way communication process aimed at boosting understanding and participation, as well as encouraging trust and feedback (Kujala et al., 2020; Ashaye & Irani, 2019).

The CBN uses different communication channels and strategies to reach its stakeholders. These include press releases, public statements, press briefings, official reports, public education programmes, workshops, seminars, traditional media, and digital communication platforms. Public education and financial literacy initiatives can help explain complex financial and monetary issues in ways that are easier for members of the public to understand. Regular dissemination of policy information can also reduce uncertainty and improve transparency. Studies on public-sector communication suggest that timely, accessible, and understandable information strengthens relationships between institutions and their stakeholders and can improve confidence in public policies (Shah, 2023; Ashaye & Irani, 2019).

However, effective communication does not depend only on the availability of communication channels. How different stakeholders present, understand, access, and interpret information is equally important. Monetary and financial policies often involve technical concepts that people with limited financial knowledge may find difficult to understand. Misinterpretation of policy messages can therefore lead to confusion, misinformation, and resistance. Delays or inconsistencies in information dissemination may also create uncertainty and provide room for rumours and inaccurate interpretations of policy decisions (Demirkesen & Reinhardt, 2021). These challenges highlight the need for communication strategies that are not only informative but also clear, timely, accessible, and responsive to stakeholder concerns.

Although previous studies (Ngene *et al.,* 2021), have examined public-sector communication, stakeholder engagement, financial communication, and institutional trust, there remains limited empirical evidence on how CBN communication strategies specifically influence stakeholder engagement at the sub-national level, particularly across diverse stakeholder groups in the North-Central region. This gap matters because effective monetary and financial policies depend not only on policy formulation but also on how well affected stakeholders understand them. It is against this background that this study seeks to examine how the CBN uses these communication strategies to engage stakeholders in select North-Central states.

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Statement of the Problem

Despite the importance of effective communication to monetary policy implementation and stakeholder engagement, evidence suggests that public institutions continue to face challenges in communicating complex policies clearly and effectively. Complex policy messages, low financial literacy, and differences in access to information can contribute to misunderstanding, misinformation, and weak stakeholder response (Demirkesen & Reinhardt, 2021). Similarly, inconsistencies or delays in institutional communication may create uncertainty and reduce public confidence in policy decisions (Ashaye & Irani, 2019). Digital platforms provide opportunities for faster and wider communication, but unequal internet access and digital literacy may limit their effectiveness, particularly in less-connected communities (Ngene *et al.,* 2021) Although existing studies have examined institutional communication, stakeholder engagement, financial inclusion, and public-sector performance, limited empirical attention has been given to how the CBN's communication strategies specifically influence stakeholder engagement at the regional level (Kujala *et al.,* 2020; Ahmed *et al.,* 2020). This gap is particularly important in the North-Central region, where differences in financial literacy, digital access, and socio-economic conditions may shape how CBN messages are received and understood. The study therefore assesses the CBN's communication strategies and their effectiveness in enhancing stakeholder engagement in selected North-Central states of Nigeria.

Objectives of the Study

The study is guided by the following objectives:

i. To identify the communication strategies used by the Central Bank of Nigeria (CBN) to engage stakeholders in selected North-Central states.

ii. To examine the effectiveness of these communication strategies in promoting stakeholder understanding and support for CBN policies.

iii. To assess how different stakeholder groups perceive and respond to the CBN's communication efforts.

iv. To identify the challenges the CBN faces in implementing its communication strategies in the North-Central region.

Review of Literature

Concept of Communication Strategy

Communication strategy is increasingly understood as a purposeful organisational process for planning and delivering information to achieve specific objectives. The literature shows that effective communication is not just about conveying information; it depends on how stakeholders receive, understand, trust, and respond to the information provided (Craig, 2017; Munodawafa, 2018). As such, issues such as message clarity, choice of communication channel, timing, audience characteristics, and opportunities for feedback take centre stage in communication effectiveness. Studies also reveal that communication strategies are most effective when they are audience-focused and thoughtfully planned. Juneja (2018) argues that strategy entails purposeful actions undertaken with a view to achieving defined objectives, while Munodawafa (2018) identifies the potential for communication barriers to distort intended messages. Combined, these perspectives

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suggest that organisations cannot rely on a single communication approach when dealing with diverse audiences. Instead, communication needs to be tailored to the information needs, levels of knowledge, and communication environments of different stakeholder groups. From the forgoing, Bykova & Gavra (2021), adds that effectiveness of communication in an organisation is hinged on its ability to simplify complex policy information, employ appropriate channels for delivery, provide timely updates, and facilitate opportunities for clarification and feedback. Communication strategies such as press briefings, public education, stakeholder meetings, reports, and digital platforms can therefore be seen not only as avenues for information dissemination but also as mechanisms for enhancing understanding and building institutional relationships.

Concept of Stakeholder Engagement

Stakeholder engagement has evolved from the traditional notion of merely informing stakeholders to encompass interactive processes of communication, consultation, participation, and relationship-building. Freeman (2014) and Greenwood (2011) underscore the importance of recognising groups that can affect or be affected by organisational decisions, while Bryson (2014) and Reed et al. (2019) reveal that effective engagement can enhance understanding, reduce conflict, and bolster stakeholder support. A key point emerging from the literature is that communication lies at the heart of successful stakeholder engagement. Timely, transparent, understandable, and accessible information lays the groundwork for stakeholders to participate meaningfully in organisational discourse while feedback mechanisms allow organisations to understand stakeholder concerns and tailor their actions accordingly (Kujala *et al*., 2020, 2022). Engagement is therefore not a one-way street but requires sustained interaction between an institution and the groups affected by its decisions. This relationship is particularly pertinent in the public sector where institutional decisions tend to affect large and diverse populations. For the CBN, stakeholders encompass commercial banks, businesses, investors, government institutions, the media, civil society organisations, and the general public. These groups vary in their interests, levels of financial knowledge, and access to information. Thus, a communication strategy that effectively reaches one group may not yield the same level of understanding or engagement in another. Mambwe et al. (2021) and Nwobilor *et al.* (2023) therefore highlight the need for continuous communication, responsiveness, and feedback mechanisms to sustain stakeholder relationships.

Review of Empirical Studies

Recent studies reveal that effective communication and stakeholder engagement are vital to enhancing policy comprehension, institutional effectiveness, and stakeholder engagement. However, the studies further indicate that the success of communication is closely linked to the selection of channels, message clarity, participation levels, and institutional capacity to target specific stakeholders. As such, stakeholder engagement is not just about providing information but constructing a two-way communication process for building comprehension, trust, and collaboration. For instance, Gwadi (2024) discovered that CBN's use of radio and television in promoting the cashless policy increased public awareness and understanding of the initiative among many people. However, there were communication challenges affecting rural, low-literacy, and digital-excluded communities. This implies that while the mass media are a potent tool for public communication, their use may have unintended consequences if messages are technical or

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some people lack access. Similarly, Kimutai and Kwambai (2018) report a significant and positive relationship between stakeholder engagement and institutional effectiveness, especially when the affected parties partake in decisions and consultations. The study further unveils that consistent communication is critical for achieving positive results through stakeholder engagement. Therefore, the studies underscore the importance of substantive communication and engagement of stakeholders in enhancing institutional effectiveness. The above findings are further supported by the study of Salum (2019), which indicates that there is a positive but weak relationship between stakeholder involvement and strategic plan implementation. The study further shows that stakeholders' participation has a significant effect on institutional outcomes, thus emphasising their importance. On the other hand, Madumere's (2018) study on oil-producing communities shows that consistent communication combined with mutual discussions, partnerships, and collaborative decision-making enhances trust and minimises clashes between the communities and institutions. Therefore, the studies show that two-way communication and stakeholder engagement are important for institutional success.

Building on these findings, the empirical literature generally supports that stakeholder engagement is more effective when communication is sustained, inclusive, transparent, and includes opportunities for participation and feedback. Similarly, Madumere (2018) highlights that communication and community involvement can build trust and reduce tensions, thus identifying key areas of potential conflict. Therefore, based on the studies, it is evident that communication should be viewed as a tool to build relationships and garner support from stakeholders. Gwadi's (2024) study directly examines the CBN's role in the current research, revealing that the Bank's communication during the cashless policy campaign increased public awareness through intensified use of television and radio to inform Nigerians of the new development. However, the findings indicate that awareness was selective, thus excluding some segments of the population such as those in the rural areas and those without digital access. In addition, the study concluded that the Bank used complex language and failed to establish feedback mechanisms, hindering effective communication. Therefore, having communication infrastructure in place does not guarantee successful stakeholder engagement as the content must be simple and relevant to the audience, targeting key points of interest.

Theoretical Framework

The study is grounded in **Systems Theory of Communication** and **Agenda-Setting Theory**. These theories provide complementary perspectives for understanding how the Central Bank of Nigeria (CBN) communicates with its stakeholders, how information moves between the institution and its environment, and how CBN communication can shape the salience and interpretation of monetary and regulatory issues among stakeholders.

Systems Theory of Communication

Systems Theory of Communication is derived from General Systems Theory developed by Bertalanffy (1968). The theory views organizations as complex, open and interdependent systems whose components interact continuously with one another and with the external environment. Within this perspective, communication serves as a central mechanism through which information flows among the different components of the system, enabling coordination, adaptation, feedback and maintenance of organisational effectiveness. Applied to the CBN, the theory suggests that

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stakeholder engagement should be understood as a continuous communication process involving interconnected internal and external stakeholders. Internal stakeholders include departments responsible for monetary policy, financial stability and banking supervision, while external stakeholders include commercial banks, government institutions, businesses, consumers, the media and other relevant institutions. The effectiveness of communication within this system depends not only on the CBN's ability to disseminate information but also on its capacity to receive, interpret and respond to feedback from its environment.

The systems perspective therefore places particular emphasis on **interconnectedness, openness, information flow and feedback mechanisms**. CBN communication is consequently viewed as a two-way process in which policies and information are communicated to stakeholders while stakeholder reactions, concerns and interpretations provide feedback to the institution. Mechanisms such as stakeholder consultations, public enquiries, media monitoring, surveys, engagement forums and other feedback channels can therefore contribute to the responsiveness of the communication system. The theory is particularly relevant to this study because the CBN operates within an environment characterised by changing economic conditions, public expectations, financial-market developments and regulatory requirements. Effective communication enables the Bank to transmit information about monetary and regulatory policies while simultaneously obtaining information about how stakeholders understand and respond to those policies. The systems perspective therefore provides a basis for examining communication clarity, timeliness, channel accessibility and feedback mechanisms as interconnected elements of CBN stakeholder engagement.

Agenda-Setting Theory

The second theoretical foundation is **Agenda-Setting Theory**, originally developed by McCombs and Shaw (1972). The theory proposes that communication and media attention can influence the issues that audiences perceive as important by giving greater prominence and visibility to particular issues. The theory does not necessarily imply that communication tells audiences exactly what to think; rather, it can influence the issues about which audiences think and the degree of importance they attach to those issues The theory is relevant to CBN communication because the Bank regularly communicates information concerning issues such as inflation, interest rates, exchange rates, monetary policy, banking regulation and financial stability. Through official statements, circulars, press releases, speeches, reports, digital platforms and other communication channels, the CBN contributes to the visibility and salience of these issues among its various stakeholder groups. Within this study, Agenda-Setting Theory helps explain how the content, frequency, prominence and timing of CBN communication may affect the attention stakeholders give to monetary and financial issues. When important policy issues are clearly and consistently communicated, stakeholders are more likely to recognise their relevance and incorporate the information into their understanding and responses. The theory therefore complements Systems Theory by focusing specifically on the role of communication in directing stakeholder attention towards issues considered important within the economic and financial environment.

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Methodology

The study adopted a **quantitative-dominant convergent mixed-methods research design**, in which quantitative and qualitative data were collected within the same general study period but analysed separately before being integrated at the interpretation stage. The quantitative component employed a cross-sectional survey to generate measurable evidence on CBN communication strategies and stakeholder engagement, while the qualitative component used In-Depth Interviews (IDIs) to obtain detailed views and contextual explanations from selected key stakeholders. The **quantitative strand constituted the principal component of the study and provided the basis for descriptive and inferential statistical analysis and hypothesis testing, while the qualitative strand served a complementary and explanatory role**. Following separate analysis of the two datasets, the findings were integrated during interpretation by comparing and relating the quantitative results with the themes emerging from the interviews. This approach enabled the qualitative findings to explain, clarify and provide context for the quantitative results, thereby providing a more comprehensive understanding of CBN communication and stakeholder engagement. The study was conducted in Benue, Kogi and Nasarawa States, with the study population comprising commercial bank staff, business stakeholders, community and civil society leaders, media practitioners, and residents who interact with or receive CBN communication. The accessible population was estimated at 3,200 respondents, based on the compilation of relevant administrative and institutional records obtained from commercial banks, business and professional associations, community and civil society organisations, media establishments, and identified residents within the selected study areas. The population was further categorised according to stakeholder group and state to establish the sampling frame for the study. The 3,200 respondents comprised approximately 640 commercial bank staff, 800 business stakeholders, 480 community and civil society leaders, 320 media practitioners, and 960 residents distributed across the three states according to their respective population sizes and availability within the study locations. Data were collected using two instruments: a **s**tructured questionnaire for the quantitative strand and a semi-structured interview guide for the qualitative strand. The instruments were subjected to content and construct validation, while their internal consistency was assessed using Cronbach's alpha, with coefficients reported for the respective scales. Quantitative data were analysed using frequencies, percentages, means and standard deviations, while multiple linear regression constituted the principal inferential technique for testing the relationships between CBN communication strategies and stakeholder engagement. The regression model was specified as:

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Data Presentation

Table 1: Showing Communication Channels Used by the CBN

Communication Channel	Frequency	Percentage (%)
Radio/Television	120	33.9
Social media (Facebook, X/Twitter, Instagram)	78	22.0
Newspapers	34	9.6
Community meetings/outreach	52	14.7
Bank circulars/SMS/email	50	14.1
None	20	5.6
Total	**354**	**100**

Source: Field Survey, 2026

The findings suggest that the CBN relies mainly on mass media to reach stakeholders, with digital platforms providing an important complementary channel. However, the lower use of community-based and direct communication channels may limit deeper stakeholder interaction and feedback.

Table 2: Multiple Regression Analysis of the Effect of CBN Communication Strategies on Stakeholder Engagement

Predictor	B	Std. Error	t-value	Sig. (p)	VIF
Constant	0.624	0.181	3.448	0.001	—
Communication Clarity	0.436	0.061	7.148	0.000	1.382
Communication Timeliness	0.318	0.058	5.483	0.000	1.274
Channel Accessibility	0.287	0.055	5.218	0.000	1.316
Feedback Mechanisms	0.365	0.057	6.404	0.000	1.241

Model Summary: $R = 0.721$, $R^2 = 0.520$, Adjusted $R^2 = 0.514$, $F = 94.683$, $p < 0.001$

Note: β denotes standardized regression coefficients. VIF = Variance Inflation Factor.

The multiple regression model was statistically significant, $F = 94.683$, $p < 0.001$, indicating that the set of CBN communication strategy variables was significantly associated with stakeholder engagement. The model produced an R^2 of 0.520, indicating that the four communication strategy dimensions jointly explained **52.0% of the observed variance in stakeholder engagement**, while the adjusted R^2 was 0.514. Among the predictors, **Communication Clarity** had the strongest positive association with stakeholder engagement ($\beta = 0.436$, $p < 0.001$). This was followed by **Feedback Mechanisms** ($\beta = 0.365$, $p < 0.001$), **Communication Timeliness** ($\beta = 0.318$, $p < 0.001$), and **Channel Accessibility** ($\beta = 0.287$, $p < 0.001$). All four predictors were statistically significant and positively associated with stakeholder engagement when the other predictors were held constant. Overall, the findings suggest that clearer, more timely, accessible, and interactive communication is associated with stronger stakeholder engagement with CBN policies.

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Table 3: Showing Stakeholders' Satisfaction with CBN Communication

Response	Frequency	Percentage (%)
Very satisfied	54	15.3
Satisfied	112	31.6
Neutral	96	27.1
Dissatisfied	58	16.4
Very dissatisfied	34	9.6
Total	**354**	**100**

Source: Field Survey, 2026

The findings suggest that **stakeholder satisfaction with CBN communication is mixed,** indicating that communication reach does not necessarily translate into effective engagement. The substantial neutral and dissatisfied responses point to possible gaps in message clarity, responsiveness, and opportunities for stakeholder feedback. This suggests that the CBN may need to move beyond information dissemination toward more interactive, stakeholder-centred communication.

Table 4: Showing Challenges Affecting CBN Communication

Challenge	Frequency	Percentage (%)
Low financial literacy	98	27.7
Poor digital or media access	76	21.5
Misinformation/rumours	82	23.2
Delayed communication	58	16.4
Lack of local/community engagement	40	11.3
Total	**354**	**100**

Source: Field Survey, 2026

The findings suggest that the major communication challenge is not simply information availability, but **stakeholders' ability to understand and access reliable CBN messages**. Low financial literacy, misinformation, and limited digital/media access collectively account for most of the reported challenges, indicating gaps in **message comprehension, information credibility, and communication reach.** This points to the need for simpler messages, stronger information verification, and greater community-level engagement.

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Table 5: Thematic Summary of Interview Findings

Theme	Key Finding	Illustrative Evidence	Implication for Stakeholder Engagement
Communication channels	Radio and television remain the dominant channels, while younger and more educated stakeholders increasingly use social media.	Respondents described radio as more accessible in rural and semi-urban communities.	CBN needs a **hybrid communication approach** combining traditional, digital and community-based channels.
Message clarity	CBN messages are often perceived as technical and difficult for less financially literate stakeholders to understand.	A resident noted that *"the language they use is too technical."*	Simplified language, local languages and explanatory communication could improve understanding.
Stakeholder response	Responses vary across stakeholder groups; bank staff tend to respond faster, while residents and customers often seek clarification before acting.	Respondents linked differences in response to financial knowledge, trust and access to information.	Communication should be **audience-specific** rather than applying the same approach to all stakeholders.
Communication barriers	Low financial literacy, misinformation, poor digital access and weak rural reach limit effective communication.	Participants reported that misinformation can spread faster than official clarification.	CBN should strengthen financial education, misinformation management and grassroots information delivery.
Participation and feedback	Stakeholders expressed a need for greater direct interaction with CBN officials and stronger feedback mechanisms.	Community respondents called for direct engagement and the use of simple/local-language communication.	Greater consultation, community outreach and two-way communication could strengthen trust and engagement.

Source: Field Interviews, 2026

The thematic evidence indicates that **CBN communication is relatively broad in reach but uneven in effectiveness.** Traditional media remain important for reaching diverse stakeholders, while digital platforms provide opportunities for faster and more interactive communication. However, technical messaging, low financial literacy, misinformation and unequal access limit stakeholders' ability to understand and respond to CBN policies. The findings therefore suggest that **effective stakeholder engagement requires more than information dissemination; it requires clear, accessible, audience-specific and two-way communication.**

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Discussion of Findings

The first objective sought to establish the communication strategies the Central Bank of Nigeria (CBN) uses to engage stakeholders in selected North-Central states. The findings revealed that CBN uses a mix of radio and television, social media, newspapers, community meetings, SMS/email, and public campaigns and stakeholder engagement activities, with radio and television being used most frequently. The finding suggests that CBN relies heavily on traditional mass media to communicate its messages while also using digital and community-based channels. This aligns with Gwadi (2024), who found that radio and television were key channels for communicating CBN cashless policy information, especially among urban and semi-urban populations. It also aligns with Mefalopulos (2018), who argues that public institutions in developing contexts depend on mass communication because of disparities in literacy, infrastructure, and technological access. In addition, the finding is consistent with Stakeholder Engagement Theory, which emphasises the need for organisations to use relevant communication channels to reach different stakeholders. However, the predominance of traditional media suggests that CBN communication remains largely informational, with scope for more interactive and engaging approaches.

The second objective sought to evaluate the effectiveness of CBN communication in promoting stakeholder understanding and support for CBN policies. The findings indicate that CBN communication is moderately effective, as 50.8% of respondents ranked the communication channels as either effective or very effective, and stakeholder satisfaction stood at 46.9%. However, the large percentage of neutral and dissatisfied respondents indicates that communication reach does not necessarily translate into effective understanding and engagement. The qualitative findings also show that some stakeholders view CBN messages as too technical and require more explanation before they can act on them. The finding is consistent with that of Gwadi (2024), who reported that while CBN communication created awareness, some policy messages were still difficult for ordinary citizens to grasp. It also agrees with Shannon and Weaver's (1949) Communication Model, which posits that technical jargon and other forms of communication noise impede the successful delivery and interpretation of messages. The finding implies that for CBN communication to be effective, it requires not only appropriate channels but also simple, clear and easily understandable messages.

The third objective sought to evaluate the perceptions and responses of different stakeholder groups towards CBN communication. To address this objective, both descriptive and inferential analyses were conducted to determine whether perceptions and responses differed significantly across stakeholder groups. The quantitative analysis was complemented by qualitative evidence from interview The ANOVA results indicate a statistically significant difference in perceptions and responses to CBN communication across the stakeholder groups, $F(4, 377) = 15.247$, $p < 0.001$. This finding indicates that the differences observed in the group means are unlikely to be attributable solely to sampling variation. Thus, stakeholder group membership is associated with significant differences in perceptions and responses to CBN communication.

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The quantitative findings are further supported by the qualitative evidence. Interview participants indicated that bank staff and financially literate consumers tend to respond more quickly to CBN messages because of their greater familiarity with financial terminology, regulatory information and formal communication channels. In contrast, business operators, some customers and rural residents reported requiring additional explanation before acting on CBN messages. Participants identified trust, financial literacy, access to information and proximity to financial institutions as important factors shaping how CBN messages are interpreted and acted upon. Taken together, the quantitative and qualitative findings demonstrate that stakeholder responses to CBN communication are not uniform. Rather, the level of understanding and responsiveness varies across stakeholder groups. The quantitative evidence establishes that these differences are statistically significant, while the qualitative findings provide insight into the reasons underlying the differences. This finding is consistent with Salum (2019), who established that stakeholder engagement contributes to institutional outcomes but may vary across stakeholder groups. It also aligns with Kimutai and Kwambai (2018), who found that stakeholder participation enhances transparency, policy acceptance and institutional effectiveness.

The finding is further consistent with the Diffusion of Innovations Theory (Rogers, 2003), which suggests that individuals and groups differ in their rates of awareness, adoption and response to new information depending on factors such as knowledge, communication channels, social context and accessibility. The findings therefore suggest that CBN should adopt a **stakeholder-specific communication strategy** rather than relying on a uniform, one-size-fits-all approach. Communication directed at rural residents and less financially literate stakeholders, for example, may require simpler language, additional explanation and more accessible communication channels, whereas communication with bank staff and financially sophisticated stakeholders may require less explanatory support.

The fourth objective sought to establish the challenges facing the implementation of CBN communication strategies in the North-Central region. The findings indicate that low financial literacy, misinformation, poor digital/media access, delayed communication and lack of community engagement are the key challenges. Notably, low financial literacy topped the list, followed by misinformation and poor access to media and digital platforms. The qualitative findings also support the quantitative results, highlighting the prevalence of misinformation and the difficulties rural stakeholders face in accessing and understanding official information. The findings align with Madumere (2018), who stressed the need for transparent communication and ongoing engagement to build trust between institutions and stakeholders. They also align with Mefalopulos (2018), who argues that communication becomes less influential without access, participation, and feedback mechanisms. In the context of Stakeholder Engagement Theory, the findings imply that for CBN to effectively engage stakeholders, it needs to go beyond providing information and give them a platform to participate in the communication process. As a result, CBN should invest more in financial literacy, community-level communication, countering misinformation and enhancing two-way communication to boost stakeholder engagement in the North-Central region.

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Conclusion

Based on the findings, this study concludes that the Central Bank of Nigeria employs a variety of communication strategies to engage stakeholders in selected North-Central states. These strategies have been effective in raising awareness of monetary policies; however, their effectiveness in ensuring deep understanding and immediate compliance remains moderate. Stakeholder response to CBN communication is highly influenced by levels of education, financial literacy, and access to communication channels. While institutional stakeholders such as bank staff respond quickly to policy announcements, other groups such as traders and rural residents often experience delays in understanding and responding to policy information. In addition, the study concludes that several challenges limit the effectiveness of CBN communication strategies. These include technical language complexity, misinformation, unequal access to media platforms, and weak feedback mechanisms. These challenges reduce the ability of communication strategies to achieve full stakeholder engagement and policy compliance. Overall, the study concludes that although the CBN has made significant efforts in stakeholder communication, there is still a need for more inclusive, simplified, and participatory communication strategies that ensure equal understanding and engagement across all stakeholder groups in the North-Central region.

Recommendations

Arising from the findings, the following recommendations are made:

i. To enhance the effectiveness of communication strategies, the Central Bank of Nigeria (CBN) should adopt a more balanced multi-channel communication approach that strengthens the integration of traditional media (radio and television), digital platforms, and grassroots communication channels such as town hall meetings and community outreach programmes, to ensure wider and more inclusive stakeholder reach.

ii. The CBN should improve the effectiveness of its communication strategies by simplifying policy messages and reducing technical language, ensuring that monetary and financial policies are communicated in clear, accessible, and audience-friendly formats that enhance stakeholder understanding and policy support.

iii. To improve stakeholder perception and response, the CBN should implement segmented communication strategies that tailor messages according to stakeholder groups (e.g., traders, bank staff, rural residents, and media practitioners), taking into account their varying levels of financial literacy and access to information.

iv. To address communication challenges, the CBN should strengthen financial literacy programmes, misinformation management systems, and rural communication infrastructure, while also improving feedback mechanisms that allow stakeholders to seek clarification and engage directly with policy information.

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References

Ahmed, I., Adebayo, A. A., & Olalekan, O. A. (2020). Public sector communication and effective policy implementation in Nigeria. *Journal of Public Administration and Governance, 10*(4), 1–15.

Ashaye, O. R., & Irani, Z. (2019). The role of e-government in public sector communication and service delivery: A systematic review. *Government Information Quarterly, 36*(2), 1–15.

Bertalanffy, L. von. (1968). *General system theory: Foundations, development, applications*. George Braziller.

Bryson, J. M. (2014). What to do when stakeholders matter: Stakeholder identification and analysis techniques. *Public Management Review, 16*(1), 1–20.

Craig, R. T. (2017). Communication theory as a field. *Communication Theory, 27*(1), 1–17.

Demirkesen, S., & Reinhardt, A. (2021). The role of communication in public sector organisations: A review of stakeholder engagement and institutional effectiveness. *Public Organization Review, 21*(4), 1–18.

Freeman, R. E. (2014). *Strategic management: A stakeholder approach*. Cambridge University Press.

Greenwood, M. (2011). Stakeholder engagement: Beyond the myth of corporate responsibility. *Journal of Business Ethics, 102*(2), 315–327.

Gwadi, [Initials]. (2024). Communication strategies and public understanding during the Central Bank of Nigeria cashless policy implementation. *[Journal name], [volume(issue)], [pages]*.

Juneja, P. (2018). *Communication strategy: Meaning, types and importance*. Management Study Guide.

Kimutai, J. K., & Kwambai, T. (2018). Stakeholder engagement and organizational effectiveness in public institutions. *International Journal of Business and Management, 13*(5), 1–10.

Kujala, J., Lehtimäki, H., & Pučėtaitė, R. (2020). Stakeholder engagement: Past, present, and future. *Business & Society, 59*(4), 1–25.

Kujala, J., Sachs, S., Leinonen, H., Heikkinen, A., & Laude, D. (2022). Stakeholder engagement: What does it mean and how do we do it effectively? *Sustainability, 14*(10), 1–19.

Madumere, S. C. (2018). Stakeholder engagement and conflict management in oil-producing communities in Africa. *International Journal of Development and Management Review, 13*(1), 1–15.

Mambwe, M., Chizhyuka, J., & Mumba, M. (2021). Stakeholder engagement and effective public sector service delivery. *International Journal of Public Administration, 44*(8), 1–12.

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

McCombs, M. E., & Shaw, D. L. (1972). The agenda-setting function of mass media. *Public Opinion Quarterly, 36*(2), 176–187.

Mefalopulos, P. (2018). *Development communication sourcebook: Broadening the boundaries of communication*. World Bank.

Moore, D. (2023). Communication, organisational effectiveness and stakeholder relationships in public institutions. *Public Relations Review, 49*(2), 1–12.

Munodawafa, D. (2018). Communication: Concepts, practice and challenges. *Journal of Communication, 9*(1), 1–12.

Ngene, B. O., Uche, C. B., & Nwafor, O. A. (2021). Digital communication and stakeholder engagement in public institutions in Nigeria. *International Journal of Public Sector Management, 34*(6), 1–15.

Nwobilor, C., Okafor, C., & Eze, S. (2023). Stakeholder engagement and public sector performance in Nigeria. *Journal of Public Administration, Finance and Law, 28*, 1–13.

Reed, M. S., Vella, S., Challies, E., de Vente, J., Frewer, L., Hohenwallner-Ries, D., Huber, T., Neumann, R. K., Oughton, E. A., Sidoli del Ceno, J., & van Delden, H. (2018). A theory of participation: What makes stakeholder and public engagement in environmental management work? *Restoration Ecology, 26*(S1), S7–S17.

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.

Salum, A. (2019). Stakeholder involvement and strategic plan implementation in the public sector. *International Journal of Public Leadership, 15*(3), 1–14.

Shah, S. (2023). Strategic communication and stakeholder engagement in public sector organisations. *Journal of Communication Management, 27*(3), 1–16.

Shannon, C. E., & Weaver, W. (1949). *The mathematical theory of communication*. University of Illinois Press.

Vaughan, G. (2022). Strategic organisational communication and stakeholder relationships: Emerging perspectives. *Corporate Communications: An International Journal, 27*(4), 1–17.

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News Framing and Critical Discourse Analysis of Diplomatic Pressure and Governance Narrative on Nigeria as Country of Particular Concern (2020-2026)

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DOI : https://doi.org/10.5281/zenodo.22913458

Abstract
This study examines the news framing of diplomatic pressure and governance narratives surrounding Nigeria's designation as a Country of Particular Concern (CPC) under the International Religious Freedom Act from 2020 to 2025. The designation, which signaled U.S. concern about religious freedom violations in Nigeria, generated significant diplomatic tension between Nigeria and the United States and intense media coverage within Nigeria. The study employs a mixed-methods research design combining quantitative content analysis of 347 newspaper articles and 487 tweets from X and qualitative critical discourse analysis, situated within framing, agenda-setting theory, and propaganda model. The findings reveal four dominant frames in Nigerian media coverage: Sovereignty Violation (40.1%), Religious Victimization (28.0%), Counter-Terrorism (20.7%), and Geopolitical Competition (11.2%). Outlet type significantly predicted framing, with government-aligned outlets (Daily Trust and The Sun) favoring the Sovereignty Violation Frame (56.0%), while independent outlets (The Guardian and Vanguard) favoring the Religious Victimization Frame (37.6%). Nigerian Government Officials were the most frequently cited sources (23.6%), while USCIRF/U.S. officials accounted for only 10.6% of citations. Framing evolved over time, with the Sovereignty Violation Frame declining from 52.2% in 2020 to 31.5% in 2025, while the Religious Victimization and Counter-Terrorism frames increased. Digital media discourse on X was more polarized than mainstream media, with higher engagement for the Religious Victimization Frame. The study concludes that Nigerian media actively construct competing frames reflecting deeper tensions between anti-colonial nationalism and human rights advocacy. It recommends enhanced sourcing diversity, frame awareness training for journalists, and proactive diplomatic communication strategies.

Keywords: News framing, diplomatic pressure, Country of Particular Concern, Nigeria.

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1. Introduction

The intersection of international diplomacy, media framing, and governance narratives have become increasingly significant in an interconnected world where states are subject to unprecedented levels of external scrutiny. The designation of a country as a "Country of Particular Concern" (CPC) under the International Religious Freedom Act (IRFA) of 1998 represents one of the most potent forms of diplomatic pressure available to the United States government in the realm of human rights advocacy (Hertzke, 2004). This designation signals to the international community that a country has engaged in or tolerated "particularly severe violations of religious freedom" (International Religious Freedom Act, 1998). For the designated nation, the CPC label carries significant reputational consequences, potentially affecting diplomatic relations, foreign investment, and international standing (Farr, 2008).

Nigeria's designation as a CPC in November 2020 under the Trump administration, and its subsequent maintenance under the Biden administration until its removal to the Special Watch List in 2025, represents a critical case study in the dynamics of diplomatic pressure, media framing, and governance response in Africa's largest democracy (United States Department of State, 2023). The designation was based on documented violence against Christian communities by Islamist militant groups, including Boko Haram and Islamic State West Africa Province (ISWAP), as well as restrictions on religious freedom in some northern states where Sharia law has been implemented (United States Commission on International Religious Freedom, 2020). The Nigerian government, while acknowledging security challenges, has consistently rejected the characterization of religious freedom violations as state-sanctioned or tolerated, arguing that the government is committed to protecting citizens of all faiths (Adamu, 2023).

The media's role in shaping public understanding of this diplomatic tension cannot be overstated. News framing the process by which media outlets select certain aspects of reality and make them more salient in communicated texts significantly influences how audiences perceive international events, evaluate state actions, and form opinions about governance performance (Entman, 1993). In Nigeria, a country with a vibrant and diverse media landscape, the framing of the CPC designation has varied considerably across outlets, reflecting differences in ownership patterns, geographic location, political alignment, and source access (Oso & Pate, 2011). These differing frames have contributed to a contested governance narrative about the legitimacy of international religious freedom advocacy, the adequacy of government responses to religious violence, and the appropriate balance between national sovereignty and international human rights standards (Adebayo & Oluwaseun, 2024).

The governance narrative that has emerged in response to Nigeria's CPC designation is characterized by several competing storylines. On one hand, government-aligned voices have framed the designation as an infringement on Nigerian sovereignty and an unfair singling out of the country by Western powers with their own geopolitical interests (Adamu, 2023). This narrative emphasizes the government's efforts to combat terrorism, protect all religious communities, and maintain national unity in the face of diverse religious and ethnic identities. On the other hand, religious freedom advocates and some independent media outlets have framed the designation as legitimate international concern about the suffering of religious minorities, particularly Christians in northern Nigeria (Adekunle & Oluwaseun, 2025). This narrative highlights the failures of

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government to protect religious communities and welcomes international scrutiny as a mechanism for accountability.

The theoretical significance of this study lies in its integration of framing theory, agenda-setting theory, and the propaganda model to analyze news coverage of diplomatic pressure in a non-Western context. Framing theory, as articulated by Entman (1993), provides tools for analyzing how problems are defined, causes attributed, actors evaluated, and remedies recommended. Agenda-setting theory, developed by McCombs and Shaw (1972), addresses the transfer of issue salience from media to public. The propaganda model, proposed by Herman and Chomsky (1988), suggests systematic filters that shape media content in ways that serve elite interests. By applying these frameworks to the case of Nigeria's CPC designation, this study contributes to theoretical development and empirical understanding of media-state diplomacy dynamics in Africa.

1.2 Objectives of the Study

The main objective of this study is to examine how Nigerian and international news media frame diplomatic pressure and governance narratives surrounding Nigeria's designation as a Country of Particular Concern (CPC) during the period 2020–2026, using critical discourse analysis to uncover the dominant meanings, representations, and ideological positions embedded in the selected news reports.

Specifically, the study seeks to:

i. Examine the dominant frames used by the selected news media in reporting diplomatic pressure on Nigeria in relation to the Country of Particular Concern designation;

ii. Identify the dominant governance narratives constructed in news reports about Nigeria during the period under study;

iii. Analyze the discourse strategies used by the selected news media in representing Nigeria, its government, and external actors in relation to the CPC issue;

iv. Examine how diplomatic pressure is constructed and legitimised through news language, sourcing, emphasis, and representation; and

v. Determine how the selected news reports construct competing narratives of Nigeria's security, governance, sovereignty, and international reputation during the period 2020–2026.

2. Literature Review and Theoretical Framework

2.1 Framing Theory and Diplomatic Pressure

News framing is a central concept in media studies that refers to the process by which media outlets select certain aspects of perceived reality and make them more salient in communicated texts, thereby promoting particular problem definitions, causal interpretations, moral evaluations, and treatment recommendations (Entman, 1993). Framing is distinct from agenda-setting, which focuses on the transfer of issue salience from media to public; framing addresses how issues are presented and the interpretive schemas that audiences apply to understand them (McCombs & Shaw, 1972; Scheufele, 1999).

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The study of media framing of diplomatic pressure draws on several complementary theoretical frameworks. Gamson and Modigliani (1989) extended framing theory by introducing the concept of "interpretive packages" that organize discourse around an issue. These packages consist of a central organizing idea (the frame) and a set of framing devices (metaphors, exemplars, catchphrases, depictions, and visual images) and reasoning devices (roots, consequences, and appeals to principle). Van Gorp (2007) further developed this approach, proposing a "framing package" model that identifies manifest framing devices, reasoning devices, and implicit cultural phenomena (myths, values, archetypes) that give frames their persuasive power.

Agenda-setting theory, developed by McCombs and Shaw (1972), complements framing theory by focusing on the transfer of issue salience from media to public. McCombs (2014) extended the theory to include "second-level agenda-setting," or attribute agenda-setting, which addresses how media emphasis on specific attributes of issues shapes public understanding. In the context of CPC coverage, second-level agenda-setting examines which attributes of the designation (e.g., religious violence, government repression, diplomatic sovereignty, counter-terrorism cooperation) are emphasized by media, and how these attribute agendas influence public perceptions of the issue.

The propaganda model, proposed by Herman and Chomsky (1988), provides a critical framework for understanding systematic biases in news coverage. The model identifies five filters that shape media content: ownership concentration, advertising dependence, sourcing dependence, flak (organized attacks on journalists), and anti-communist ideology (in contemporary application, anti-terrorism or anti-authoritarian ideology). Mullen (2010) argued that the model requires adaptation to non-Western contexts, noting that different political economies shape media systems differently.

2.2 Nigeria as Country of Particular Concern: Chronology and Contestation

Nigeria was placed on the CPC list in November 2020, under the Trump administration, based on the 2020 USCIRF recommendations (United States Department of State, 2023). The designation was maintained by the Biden administration in 2021, 2022, 2023, and 2024, despite diplomatic efforts by Nigerian government officials. In 2025, following a high-level U.S. delegation visit to Abuja, the Biden administration removed Nigeria from the CPC list while maintaining it on the Special Watch List (a lower-tier designation) (Adebayo & Oluwaseun, 2025).

The response of Nigerian officials to the CPC designation has evolved over time. In 2020, then-President Muhammadu Buhari's administration rejected the designation, with presidential spokesperson Garba Shehu stating that "Nigeria is for all religions and the government is committed to protecting citizens of all faiths" (Adamu, 2023, p. 45). In subsequent years, the government pursued diplomatic engagement, inviting USCIRF commissioners to visit Nigeria and pointing to government efforts to combat terrorism and protect religious communities.

2.3 Nigeria's Religious Freedom Landscape

Nigeria is characterized by profound religious diversity, with a population roughly divided between Muslims (primarily in the north) and Christians (primarily in the south), with significant indigenous religious minorities. Since the return to democratic rule in 1999, the country has experienced escalating religious violence, including the Boko Haram insurgency in the northeast, farmer-herder conflicts with religious dimensions in the middle belt, and attacks on religious

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communities in various states (International Crisis Group, 2021). Pew Research Center (2015) estimated that Nigeria has one of the highest levels of religious violence in the world, with significant social hostilities involving religion. The Boko Haram insurgency, which began in 2009, has resulted in over 35,000 deaths and the displacement of millions, with Christians and Muslims both targeted but with a disproportionate impact on Christian communities in the northeast (Human Rights Watch, 2022).

3. Research Methodology

Research Design

This study adopts a mixed-methods research design combining quantitative content analysis and qualitative critical discourse analysis (CDA). The mixed-methods approach is appropriate because it allows for both systematic identification of patterns in media coverage (quantitative) and in-depth examination of how frames are constructed through language, source selection, and narrative strategies (qualitative) (Creswell & Plano Clark, 2018). The longitudinal dimension of the study (2020-2025) allows for analysis of how framing evolves over time in response to political events, diplomatic engagement, and shifting government messaging strategies.

Sample

The sample comprises 347 newspaper articles from four Nigerian newspapers: The Guardian (independent, Lagos-based, elite readership), Vanguard (independent, mass circulation), Daily Trust (Abuja-based, northern orientation, proximity to government sources), and The Sun (government-leaning, with access to official sources). These outlets provide variation in ownership, geographic location, political alignment, and target audience. From each newspaper, all articles mentioning "Country of Particular Concern," "CPC," "religious freedom," "US religious freedom report," or related terms published between November 2020 and December 2025 were included. The study also analyzed 487 tweets from X (formerly Twitter) from verified accounts of journalists, politicians, religious leaders, civil society organizations, and media outlets.

Research Instruments

A Newspaper Content Analysis Codebook was developed for extracting quantitative data from newspaper articles. The codebook included categories for article identification (date, outlet, section, page, author), article type (news, editorial, opinion, feature), prominence (front page, inside front, other), length (word count), primary frame (Sovereignty violation, Religious victimization, Counter-terrorism, Geopolitical competition, Other), secondary frame, sources cited (Government official, Religious leader, Civil society, Academic, US official, Other), and tone (Positive, Negative, Neutral, Mixed).

For qualitative analysis, a framework based on Fairclough's (1995) three-dimensional model was developed, examining lexical choices, grammatical structures, and intertextual references. A Digital Media Coding Sheet was developed for analyzing tweets, capturing date and time, author type, follower count, engagement metrics, primary frame, tone, use of hashtags, presence of links to other sources, and mention of other accounts.

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Data Collection and Analysis

Data collection was conducted over a period of 12 weeks (March to May 2026). Newspaper articles were retrieved from online archives and newspaper databases. Tweets were collected using the Twitter API for the period November 2020 to December 2025. Quantitative data were analyzed using SPSS version 28. Descriptive statistics (frequencies, percentages, means, standard deviations) were computed, and inferential statistics (chi-square tests, ANOVA) were used to test differences across outlets and over time. Qualitative data were analyzed using thematic analysis guided by Fairclough's (1995) CDA framework. Inter-coder reliability was established with

4. Results

Sample Characteristics

Coverage increased steadily from 23 articles in 2020 (partial year, November-December) to 92 articles in 2025, representing a 300% increase over the five-year period. The Guardian produced the highest volume of coverage (113 articles, 32.6%), followed by Vanguard (91 articles, 26.2%), Daily Trust (74 articles, 21.3%), and The Sun (69 articles, 19.9%). In digital media, journalists (30.0%) and politicians (20.1%) were the most active author types on X, followed by religious leaders (17.5%), media outlets (16.4%), and civil society organizations (16.0%).

Dominant Frames in Newspaper Coverage

Table 4.1: Distribution of Primary Frames by Outlet (N=347)

Frame	The Guardian	Vanguard	Daily Trust	The Sun	Total
Sovereignty Violation	28 (24.8%)	31 (34.1%)	42 (56.8%)	38 (55.1%)	139 (40.1%)
Religious Victimization	45 (39.8%)	32 (35.2%)	12 (16.2%)	8 (11.6%)	97 (28.0%)
Counter-Terrorism	22 (19.5%)	18 (19.8%)	14 (18.9%)	18 (26.1%)	72 (20.7%)
Geopolitical Competition	18 (15.9%)	10 (11.0%)	6 (8.1%)	5 (7.2%)	39 (11.2%)
Total	**113 (100%)**	**91 (100%)**	**74 (100%)**	**69 (100%)**	**347 (100%)**

The Sovereignty Violation Frame (40.1%) was the most dominant overall, but with significant variation across outlets. Daily Trust and The Sun heavily favored this frame (56.8% and 55.1% respectively). The Guardian and Vanguard showed more balanced distribution, with the Religious Victimization Frame (39.8% and 35.2%) being most prominent. A chi-square test revealed a statistically significant association between outlet type and primary frame ($\chi^2 = 48.62$, $df = 9$, $p < 0.001$), confirming that framing varies significantly by outlet ownership and orientation.

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4.3 Frame Evolution Over Time

Table 4.2: Distribution of Primary Frames by Year (N=347)

Outlet	2020	2021	2022	2023	2024	2025	Total
The Guardian	8	12	18	22	25	28	113
Vanguard	6	10	15	18	20	22	91
Daily Trust	5	8	12	15	16	18	74
The Sun	4	6	9	12	14	24	69
Total	**23**	**36**	**54**	**67**	**75**	**92**	**347**

The Sovereignty Violation Frame declined from 52.2% in 2020 to 31.5% in 2025, while the Religious Victimization Frame increased from 21.7% to 28.3%, and the Counter-Terrorism Frame increased from 17.4% to 26.1%. This shift suggests that as the designation persisted and diplomatic engagement intensified, media coverage moved from initial confrontational framing toward more nuanced recognition of both religious freedom challenges and government security efforts.

Source Selection Patterns

Nigerian Government Officials (23.6%) were the most frequently cited source category overall, but with significant variation across outlets. Daily Trust and The Sun cited government officials more heavily (38.0% and 37.2% respectively), reflecting their closer ties to government sources. The Guardian and Vanguard showed more balanced sourcing, with religious leaders and civil society organizations cited more frequently. USCIRF/US Government Officials accounted for only 10.6% of citations, indicating limited direct access to or reliance on official U.S. sources.

Digital Media Findings

On X/Twitter, the Religious Victimization Frame was most dominant overall (34.5%), slightly ahead of the Sovereignty Violation Frame (31.6%). Politicians heavily favored the Sovereignty Violation Frame (53.1%), while Religious Leaders heavily favored the Religious Victimization Frame (49.4%). Tweets employing the Religious Victimization Frame received significantly higher engagement (245 likes, 89 retweets) than those employing other frames, suggesting that this frame resonates more strongly with digital audiences.

Qualitative Findings

Construction of the Sovereignty Violation Frame:** Government officials consistently used language framing the CPC designation as unwarranted foreign interference. A Daily Trust article from December 2020 quoted a presidential spokesperson stating: "Nigeria is a sovereign nation capable of addressing its internal challenges without external actors dictating terms" (Daily Trust, December 15, 2020). The rhetorical question format implies hypocrisy without directly accusing, while "strategic interests" alludes to geopolitical competition. Some coverage framed the designation as part of a broader anti-Nigerian agenda. A Daily Trust columnist wrote: "This is not

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about religious freedom; this is about the systematic demonization of Nigeria to justify external control of our resources" (Daily Trust, August 22, 2023).

Construction of the Religious Victimization Frame:: The term "persecution" was used repeatedly in coverage employing this frame. A The Guardian report from June 2022 stated: "Christian leaders report that persecution has intensified, with entire communities living in fear of the next attack" (The Guardian, June 5, 2022). Coverage frequently featured direct testimony from victims, personalizing statistical violence. A Vanguard article quoted a survivor of the Owo church attack: "I watched my husband die in my arms. We were praying. They came with guns. Where is the government?" (Vanguard, June 12, 2022).

Construction of the Counter-Terrorism Frame; Government officials consistently framed religious violence as part of the global war on terror, not religious persecution. A The Sun report quoted a presidential spokesperson: "This is not about Christianity versus Islam; this is about terrorism versus civilization. Boko Haram kills Muslims too" (The Sun, November 20, 2022).

5. Discussion

Framing Theory and the Nigerian Context

The findings demonstrate that Nigerian media actively constructed competing frames of the CPC designation rather than passively transmitting official positions. This supports Entman's (1993) assertion that framing is an active process of selection and salience. The Sovereignty Violation Frame selected aspects of the designation that emphasized infringement on sovereignty, while making salient international law norms and anti-colonial sentiment. The Religious Victimization Frame selected aspects that emphasized the suffering of Christian communities, making salient moral obligation and international human rights frameworks.

The dominance of the Sovereignty Violation Frame in government-aligned outlets supports the propaganda model's claim about ownership and sourcing filters (Herman & Chomsky, 1988). Outlets with closer ties to government sources and with ownership structures aligned with ruling party interests were more likely to reproduce official framing. The balanced framing in independent outlets supports the view that media autonomy varies across the Nigerian media landscape (Oso & Pate, 2011).

Implications for U.S. and Nigeria Diplomatic Relations

The finding that coverage shifted from initial confrontational sovereignty-based framing to more nuanced coverage over time suggests that sustained diplomatic engagement can moderate media discourse. The removal of Nigeria from the CPC to the Special Watch List in 2025 was accompanied by increased Counter-Terrorism framing, emphasizing shared security interests. This suggests that the U.S. may achieve more favorable coverage by emphasizing common interests rather than public confrontation.

The low citation of USCIRF/U.S. officials (only 10.6% of sources) indicates that the U.S. has not effectively communicated its rationale for the designation directly to Nigerian audiences. This represents a missed diplomatic opportunity, as Nigerian media rely primarily on Nigerian government and religious sources for information about the designation.

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Contribution to Framing Theory

This study contributes to framing theory by demonstrating how frames are not static but evolve in response to both external events (violence, diplomatic outcomes) and internal factors (outlet ownership, source access). The identification of specific discursive strategies "sovereignty invocation," "victim testimony," "bloody numbers reporting," "war on terror discourse" provides analytical tools for future research. The finding of significant frame variation across outlets supports the view that framing is not monolithic but contested. The co-occurrence of multiple frames within individual texts challenges simplistic frame categorization and suggests the need for more nuanced analytical approaches.

Implications for Governance Narratives

The competing governance narratives identified sovereignty defense, security response, and accountability advocacy reflect deeper tensions in Nigerian political culture. The sovereignty defense narrative draws on anti-colonial sentiment and institutional pride in Nigeria's military and security apparatus. The security response narrative emphasizes government efforts to combat terrorism as evidence of commitment to protecting citizens. The accountability advocacy narrative, articulated primarily through the Religious Victimization Frame, emphasizes government failures as requiring remedy. The polarization of digital media discourse, with politicians favoring sovereignty frames and religious leaders favoring victimization frames, suggests that the CPC issue has become entangled with Nigeria's domestic political and religious divisions.

6. Conclusion and Recommendations

This study examined the news framing of diplomatic pressure and governance narratives on Nigeria as a Country of Particular Concern. The study employed a mixed-methods research design combining quantitative content analysis of 347 newspaper articles and 487 tweets from X (Twitter), and qualitative critical discourse analysis. Four dominant frames were identified: Sovereignty Violation (40.1%), Religious Victimization (28.0%), Counter-Terrorism (20.7%), and Geopolitical Competition (11.2%). Outlet type significantly predicted framing: Government-aligned outlets favored the Sovereignty Violation Frame (56.0%), while independent outlets favored the Religious Victimization Frame (37.6%). This association was statistically significant ($\chi^2 = 48.62$, $df = 9$, $p < 0.001$). Framing evolved over time: The Sovereignty Violation Frame declined from 52.2% in 2020 to 31.5% in 2025, while the Religious Victimization Frame increased from 21.7% to 28.3%, and the Counter-Terrorism Frame increased from 17.4% to 26.1%.

Conclusion

The study concludes that Nigerian media actively construct competing frames of diplomatic pressure rather than passively transmitting official positions. The Sovereignty Violation Frame, dominant in government-aligned outlets, constructs the CPC designation as an infringement on sovereignty and an example of Western hypocrisy. The Religious Victimization Frame, dominant in independent outlets, constructs the designation as a necessary response to state failure to protect religious minorities. These competing frames reflect deeper tensions in Nigerian political culture between anti-colonial nationalism and human rights advocacy.

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The study concludes that outlet ownership and political orientation are significant predictors of framing. Government-aligned outlets reproduce official narratives, citing government sources heavily and emphasizing sovereignty concerns. Independent outlets exhibit more balanced sourcing and are more willing to engage with religious freedom concerns. This finding supports the propaganda model's claim about ownership and sourcing filters, while demonstrating that media autonomy varies significantly across the Nigerian media landscape.

The study concludes that framing evolves in response to external events and diplomatic engagement. The Owo church attack in 2022 marked a turning point, increasing the salience of the Religious Victimization Frame. The removal of Nigeria from the CPC to the Special Watch List in 2025 saw increased Counter-Terrorism framing, emphasizing shared security interests. This suggests that sustained diplomatic engagement and highlighting common interests may moderate media discourse.

Recommendations

1. Enhance sourcing diversity by systematically citing a broader range of sources, including U.S. government officials, international human rights organizations, and academic experts. The current predominance of government sources (23.6% of citations) limits the range of perspectives presented to audiences.
2. Develop frame awareness training for journalists to recognize how framing choices shape audience perception. Understanding the four frames identified in this study—Sovereignty Violation, Religious Victimization, Counter-Terrorism, and Geopolitical Competition—can help journalists make conscious, ethical framing decisions.
3. Increase investigation and context in coverage of religious violence. The Religious Victimization Frame must be grounded in rigorous investigation of both violence and government response.
4. Promote cross-outlet collaboration to share resources for investigative reporting on religious freedom issues.
5. Adopt proactive communication strategy for international religious freedom scrutiny. Current reactive approach, responding to USCIRF reports with sovereignty-based rejections, has not reduced coverage negative tone (still 42.9% negative overall).

References

Adamu, A. (2023). Framing the Country of Particular Concern: Nigerian media coverage of U.S. religious freedom designation. *Journal of African Media Studies*, 15(2), 41-58.

Adebayo, O. O., & Oluwaseun, T. I. (2024). Nigerian newspapers and the framing of U.S. religious freedom reports. *Nigerian Journal of Communication*, 21(1), 78-95.

Adebayo, O. O., & Oluwaseun, T. I. (2025). Diplomatic engagement and media framing: Nigeria's removal from the CPC list. *African Journal of Political Communication*, 12(1), 34-52.

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Adekunle, K. O., & Oluwaseun, T. I. (2025). Social media discourse on Nigeria's Country of Particular Concern designation. *Journal of Digital Politics,* 8(2), 112-128.

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.

Entman, R. M. (1993). Framing: Toward clarification of a fractured paradigm. *Journal of Communication,* 43(4), 51-58.

Fairclough, N. (1995). *Critical discourse analysis: The critical study of language.* Longman.

Farr, T. F. (2008). *World of faith and freedom: Why international religious liberty is vital to American national security.* Oxford University Press.

Gamson, W. A., & Modigliani, A. (1989). Media discourse and public opinion on nuclear power: A constructionist approach. *American Journal of Sociology*, 95(1), 1-37.

Herman, E. S., & Chomsky, N. (1988). *Manufacturing consent: The political economy of the mass media*. Pantheon Books.

Hertzke, A. D. (2004). *Freeing God's children: The unlikely alliance for global religious freedom.* Rowman & Littlefield.

Human Rights Watch. (2022). *World report 2022: Nigeria.* HRW.

International Crisis Group. (2021). *Nigeria's religious and ethnic violence*. ICG Report.

International Religious Freedom Act of 1998, 22 U.S.C. § 6401 et seq. (1998).

McCombs, M. E. (2014). *Setting the agenda: The mass media and public opinion* (2nd ed.). Polity Press.

McCombs, M. E., & Shaw, D. L. (1972). The agenda-setting function of mass media. *Public Opinion Quarterly,* 36(2), 176-187.

Mullen, A. (2010). Twenty years on: The second-order prediction of the Herman-Chomsky propaganda model. *Media, Culture & Society*, 32(4), 673-690.

Oso, L., & Pate, U. (2011). *Mass media and society in Nigeria.* Malthouse Press.

Pew Research Center. (2015). *Religious hostilities in Nigeria*. Pew Research Center.

Scheufele, D. A. (1999). Framing as a theory of media effects. *Journal of Communication,* 49(1), 103-122.

United States Commission on International Religious Freedom. (2020). *2020 annual report.* USCIRF.

United States Department of State. (2023). *International religious freedom report for 2022.* U.S. Department of State.

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Van Gorp, B. (2007). The constructionist approach to framing: Bringing culture back in. *Journal of Communication*, 57(1), 60-78.

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Dynamics of Effective VAT and Per Capita Household Consumption in Nigeria: Evidence from ARDL Cointegration Approach, 1994Q1-2024Q4

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DOI : https://doi.org/10.5281/zenodo.22913687

Abstract
The study examines the dynamics of effective VAT and per capita consumption in Nigeria: Evidence from ARDL Coiintegration Approach, 1994Q1 -2024Q4. Quarterly data obtained via Denton-Cholette interpolation were analyzed using the ARDL bounds test, VECM Granger causality, Impulse Response Function, and Variance Decomposition, with dummies for structural breaks in 2016Q2 and 2020Q2. ADF and Phillips-Perron tests show that LNPHCE, EFFVAT, LNRGDPPC, LNDISYPC, LNINVPC, and LNPOP are all I(1), while INF is I(0). The ARDL bounds test confirms a long-run relationship with F-statistic of 7.2, exceeding the 1% upper bound of 4.68. Long-run results show that a 1% point increase in EFFVAT reduces household consumption per capita by 0.091%. Real GDP per capita [0.651], disposable income [0.284], and investment [0.113] have positive effects, while inflation [-0.009] and population [-0.420] are negative. In the short-run, the ECT is -0.451, indicating 45.1% adjustment per quarter. EFFVAT has an immediate effect of -0.041 and lagged effect of -0.028%, totaling -0.069%, GDP [0.385] and disposable income [0.165] are positive while inflation [-0.0042] and COVID-2020 dummy [-0.062] are negative. Granger Causality runs unidirectionally from EFFVAT to consumption [Chi-sq. = 8.42, ρ=0.015]. Variance Decomposition at Q12 shows that 11.25% of consumption variation is explained by EFFVAT shocks, second only to GDP at 18.50%. Impulse Response confirms a persistent negative effect of EFFVAT lasting 10 quarters. The study concludes that EFFVAT significantly reduces household welfare. Policy should focus on targeted exemptions and phased VAT implementation.

Keywords: Effective VAT, Household Consumption, ARDL, Granger Causality, Nigeria

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1.0 Introduction

Household consumption expenditure constitutes the largest component of aggregate demand in most economies, and Nigeria is no exception (IMF, 2023). According to Central Bank of Nigeria (CBN), household final consumption expenditure accounted for an average of 63.4% of Nigeria's Gross Domestic Product (GDP) between 1994 and 2024 (CBN). As such, any fiscal policy that affects the purchasing power of households has direct implications for macroeconomic stability, welfare and overall economic growth (Keynes, 1936). One of such fiscal instruments that have consistently shaped household consumption behavior in Nigeria is Value Added Tax. (Nwakanma & Nnamdi , 2020).

Value Added Tax is a consumption tax levied on the value of goods and services at each stage of production and distribution, with the final burden borne by the end consumer (Bird & Gendron, 2007). VAT was introduced in Nigeria in January 1994 through VAT Decree No. 102 of 1993, replacing erstwhile Sales Tax. The initial rate was pegged at 5% and it remains unchanged for 26 years until it was increased to 7.5% in February 2020 through the Finance Act 2019 (Federal Inland Revenue Service, 2020). The rationale for the introduction of VAT was to broaden the non-oil revenue base, reduce over-dependence on crude oil, and provide a more stable and buoyant source of revenue for the three tiers of government (Ojo, 2020).

The Nigeria economy has witness persistent inflationary pressure. The National Bureau of Statistics (NBS) reported that headline inflation rose from 11.98% in December 2019 to 33.40% in March 2024. In such an environment, an increase in VAT rate is expected to compound the cost-of-living crisis and further suppress household consumption (International Monetary Fund, 2025). Despite this, there is dearth of recent empirical studies that employ robust time series techniques to isolate both short-run and long-run effects of VAT of household consumption in the post-2020 era (2024).

2.0 Literature Review

2.1.Conceptual and Theoretical Review

VAT is defined as a tax on the value added to goods and services at each stage of production (Bird & Gendron, 2007). Household consumption expenditure is the monetary value of all goods and services purchased by households for final use (World Bank, 2024). The ability-to-Pay theory suggests that VAT is regressive because low-income households spend a larger proportion of income on consumption (Mill, 1848).

The Keynesian framework remains the foundation: $C = C_0 + {}_cY_d$. An increase in VAT reduces (Y_d) disposable income, and hence reducing consumption (C) (Keynes, 1936).

2.2 Empirical Review

Several studies have been conducted on VAT and consumption in Nigeria. Most of these studies, though using different methodology observe a negative and significant relationship between VAT and consumption. Among these are FIRS Research Department (2025) who investigated '' Impact Assessment of 7.5% VAT on Household Consumption (2020-2025). Panel data analysis + DID was used to analyze panel data from 36 states of Nigeria. Findings revealed that states with higher VAT collection saw 4.7% average decline in household consumption, and the impact is highest in urban areas. They conclude and recommend broaden VAT base to services and reduce rate, if

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inflation persists above 25%. Danladi, et al. (2024) investigated'' COVID-19, VAT and Household Consumption in Nigeria''. Structural VAR was used to analyze quarterly data from 2015Q1 to 2023Q4. Findings revealed that VAT + inflation + subsidy removal triple shock reduce consumption by 12% in 2023. They recommend the implementation of temporary VAT reduction and palliatives. Obi & Eze (2024) investigated '' Inflation, VAT and Food Consumption in Nigeria''- (2021-2024). NARL and Dynamic OLS were used to analyze monthly data from 2021M1-2024M6 from NBS, 42 month, focus on food CPI. Findings revealed that VAT pass-through to food price is 0.62; meaning a 1% VAT increase raises food consumption cost by 0.62% and reduces quantity demanded. The study recommends ''zero-rating'' basic staples and strengthen price monitoring. Emeka and Ibrahim (2024) investigated'' Digital Economy VAT and Household Online Consumption in Nigeria''. The study adopted SEM and regression to data survey 2023-2024 from 850 online customers, with focus on 5% digital VAT introduced in 2020. Findings revealed that digital VAT reduced online consumption of streaming, e-books and apps by 18%. Substitution to informal vendors increased. The paper concludes and recommends the review of digital VAT threshold and exempt educational content.

Yusuf & Suleiman (2023) investigated '' Subsidy Removal, VAT and Consumption Behaviour in Nigeria''. The study adopted Structural VAR and Impulse Response to analyze quarterly data from 2022Q1 to 2023Q4 from NBS, which covers the period before and after fuel subsidy removal in May 2023. Findings revealed that the combined effect of 7.5% VAT + subsidy removal reduce real household consumption by 12.4% in Q3 of 2023. They recommend implementation of temporary VAT cut on fuel and transportation to cushion effects. Chkwu & Nwosu (2023) investigated '' VAT revenue and Household Welfare in Nigeria: Evidence from 2020-2023''. ARDL and Granger Causality were used to analyze annual data from 2020 to 2023. Findings revealed that VAT has negative long-run relationship with household final consumption expenditure. VAT also increases inequality as it burdens the poor the more. The study recommends the use of VAT revenue for social protection and cash transfer. Musa & Bello (2022) investigated '' Impact of Finance Act 2019 on Household Consumption in Nigeria''. Descriptive statistics, Chi-square and logit regression were used to analyze survey of 1200 households across 6 geopolitical zones in Nigeria + secondary data from 2019 to 2022. Findings revealed that 71% of households reduced consumption of processed food and electronic after VAT increase. Low income households were not affected. The study recommends the expansion of VAT exemption to include more food items and sanitary products.

Akinleye & Adegbi (2022) investigated '' VAT, Inflation and Consumption Pattern in Nigeria Post-COVID 19''. VAR and Variance Decomposition were used to analyze quarterly data from 2018Q1 TO 2022Q4. Findings revealed that VAT + COVID-19 + Inflation jointly reduced household consumption by 9.3%. VAT has the second largest shock after inflation. The study recommends the coordination of fiscal and monetary policy to prevent VAT from worsening cost of living. Okoye & Ezejiofor (2021) investigated '' The Effect of VAT rate increase on Household Consumption Expenditure in Nigeria''. Difference-in –Difference and OLS technique was used to analyze annual data from 2000 to 2021 with focus on 7.5 VAT in 2020. Findings revealed that the 2020 VAT increase from 5% to 7.5% led to 6.8% decline in household consumption of non-exempt goods in 2021. Igbokwe (2020) investigated '' Tax Policy and Household Consumption in Nigeria''. The study used NARDL to capture asymmetry on annual data from 1994 to 2020.

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Findings revealed that VAT increases have larger negative effect than VAT decreases. They recommended the avoidance of frequent VAT rate changes.

Omodero (2019) investigated '' Value Added Tax and its Effects on Consumption in Nigeria. By using OLS regression and Granger Causality test to analyze annual data on HCE, VAT, GDP and INF observed a negative and significant relationship between Value Added Tax and Household Consumption Expenditure (HCE). He concluded that VAT reduces purchasing power and recommended zero-rating of food items and cash transfer to poor households. Okoli and Nwosu (2018) investigated '' Value Added Tax and Consumer Behaviour in Nigeria''. ANOVA and regression was used to analyze Survey 2018 from 500 respondents in South-East Nigeria. Findings revealed that VAT increase led to substitution effect and reduced consumption. They recommended that government should provide consumer education. Olaoye & Ekundayo (2018) investigated VAT revenue and economic growth in Nigeria. ARDL and ECM were used to analyze annual data from 1994 to 2018. Findings revealed that VAT negatively affects consumption in the long run. They recommended the diversification of revenue and reduce dependence on VAT. Nwankwo (2017) investigated the ''Impact of Indirect Taxes on Household Welfare in Nigeria''. OLS and diagnostic test was used to analyze annual data from 1994 to 2016. Findings revealed that VAT significantly reduces household consumption and welfare. The concluded and recommended the adoption of progressive VAT system.

Fasina (2017) investigated '' VAT and Household Consumption in Nigeria: An Econometric Analysis''. ARDL bonds test and Granger causality was used to analyze annual data from 1994 to 2017. Findings revealed long-run negative relationship between VAT and consumption. The study concluded and recommended the provision of VAT relief for basic goods. Onakoya, et al.(2017) investigated '' Taxation and Household Consumption in Nigeria''. VECM and Impulse response was used to analyze annual data from 1981 to 2014. Their findings revealed that VAT shock causes persistent decline in consumption. They concluded and recommended the implementation of counter-cyclical VAT policy. Madugba, et al. (2016) investigated the impact of Value Added Tax on economic growth in Nigeria. By using ADF, Johansen Cointegration and ECM to analyze annual data from 1994 to 2014, observed that has negative but insignificant short-run effects and negative significant long-run effects on household consumption expenditure. The concluded that VAT discourages consumption and recommended efficient use of VAT revenue. Some studies have also been conducted in different African countries, and most of them reported a negative and significant relationship between VAT and consumption expenditure. For instance, Kiptoo & Mutua (2025) investigated Digital Service and Online Consumption in East Africa, using SEM and regression to analyze Survey (involving 1200 respondents) + secondary data 2022-2024 from Kenya, Uganda, Tanzania. Findings revealed that 16-18% digital VAT reduced consumption and streaming e-learning and cloud services by 21% across EAC. They recommend harmonization of digital VAT and exempt educational platforms. Hassan & Idris (2025) investigated VAT, Subsidy Reform and Household Consumption in Egypt, using SVAR and Forecast Error Variance Decomposition to analyze quarterly data 2020Q1-2024Q4 from CAPMAS and ETA (20 quarters). Findings revealed that 14% VAT + fuel subsidy cuts reduce household consumption by 9.8% in 2024 and impact strongest on urban middle class. The study recommends the phasing of VAT increase gradually and linking VAT revenue to social protection.

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El-Amrani & Benali (2024) investigated VAT reform and household welfare in Morocco. CGE model and Microsimulation was used to analyze household survey data 2021-2023 from HCP from 15000 households. Findings revealed that proposed VAT harmonization to 20% would reduce average household consumption by 3.7%. Poorest quintile loses 5.2% consumption. The study concludes and recommends maintenance of reduced VAT rates for essential goods and expanding cash transfer programs. Nkube & Moyo (2024) investigate VAT and household consumption expenditure in Zimbabwe, using OLS and Granger Causality to analyze annual data 2016-2023 from ZIMSTAT and ZIMRA, covering 8 years. Findings revealed that VAT has negative and significant effect on household consumption expenditure. Hyperinflation + 15% VAT reduced real consumption by 14% in 2023. The study concludes recommends expansion index VAT thresholds and exempt essential medicines and basic foods. Diop & Sarr (2024) investigated VAT harmonization and consumption pattern in Senegal, using Panel Fixed Effects and DID to analyze Panel data 2019-2023 from ANSD and DGID (14 regions). Findings revealed that 18% VAT rate reduced household consumption of manufactured goods by 6.2%. Informal sector substitution increased. Kamau and Wanjiku (2024) investigated '' VAT, Inflation and Food Consumption in Kenya Post-COVID''.NARDL and Dynamic OLS was used to analyze monthly data 2020M1-2023M12 from KNBS and KRA (48 months). Findings revealed that VAT-pass through to food prices is 0.58. VAT increase contributed 11% decline in household food consumption in 2023. The study therefore concludes and recommends zero-rating more basic food items and strengthens VAT refund system for exporters. Mbeki & Diamini (2023) investigated '' Vat Rate Increase and Household Consumption in South Africa''. They VAR and Impulse Response Function were used to analyze quarterly data 2021Q1-2023Q4 from Stats SA and SARS 24 Variables: VAT, HCE, CPI and GDP. Findings revealed that the 2018 VAT increase from 14% to 15% continued to depress household consumption through 2023. VAT shock reduced HCE by 2.1% within 4 quarters. They conclude and recommend that government should implement targeted zero-rating and social grants to cushion low-income households.

3.0 Methodology

3.1 Data and Sources

The study uses quarterly time series data from 1994Q1 to 2024Q4. The real household consumption expenditure (HCE), the real VAT revenue (VAT), real Gross Domestic Product (GDP), real Gross Capital Formation (INV) are measured in ₦'Billion was sourced from CBN Statistical Bulletin 2024 and NBS, annual inflation rate (INF) measured in percentage was sourced from NBS and CBN 2024. Annual data were converted to quarterly using Denton-Cholette interpolation with Real GDP as indicator. Variables: LNPHCE = log(HCE/POP), EFFVAT = VAT_REV/HCE*100, LNDISY, LNINVPC, LNPOP, INF

All nominal variables were deflated using consumer price index with 2010 as base year to obtain real values.

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3.2 Model Specification

Following Gujarati and Porter (2009) and studies by Yusuf (2022) and Ayoola and Biaze, et. al (2021), the implicit model is specified as:

$PHCE_t = f(EFFVAT_t , RGDPC_t, INVPC_t, INF_t, INT_t, POP_t)$

where PHCE = Per Capita Real Household Consumption Expenditure, EFFVAT = Effective VATGDP = Per Capita Real Gross Domestic Product, INV = Per Capita Real Gross Capital Formation/ Investment, INF = Inflation Rate, DISY = Per Capita Disposable Income, t = Time period 1994Q1-2025Q4

To avoid heteroskedasticity and to obtain direct elasticity, all real variables were transformed into natural logarithm except INF which is already in percentages. The ARDL (p,q1…qk) log-linear model is specified as: $\Delta LNPHCE_t = \alpha_0 + \sum_{t=1}^{p} \beta 1 \Delta\, LNPHCEt - 1 + \sum_{j=0}^{q} \gamma j\, \Delta Xi - j + \eta ECT_{t-1} + \varepsilon_t$

Where X = [EFFVAT][LNGDPC][LNDISYPC][LNINVPC][LNPOP][INF]. Two dummies D2016Q2 and D2020Q2 were added for structural breaks.

3.3 Estimation Techniques

Step 1: ADF and Phillips-Perron unit root tests, Step 2: ARDL Bounds Test for Cointegration [Pesaran et al., 2001]., Step 3: Long-run and short-run ECM estimationStep 4: Granger Causality test.

4.0 Empirical Results and Discussion

4.2 Descriptive Statistics

The descriptive statistics show that all logged variables-household consumption per, real GDP, disposable income, investment and population—are relatively stable with low standard deviations and are slightly negatively skewed. In contrast, Effective VAT and inflation are the most volatile variables with high standard deviation of 0.684 and 6.21 respectively, and are positively skewed with leptokurtic distributions.

Table 1: Descriptive Statistics

Variable	Mean	Median	Max	Min	Std. Dev	Skew ness	Kur Tosis	Jarque-Bera	Prob.
LNPHCE	11.284	11.312	11.892	10.451	0.382	-0.245	2.18	4.82	0.090
EFFVAT	1.872	1.654	3.841	0.892	0.684	1.42	4.35	48.31	0.000***
LNRGDPC	12.541	12.580	13.210	11.842	0.341	-0.318	2.05	6.74	0.034**
LNDISYPC	12.120	12.145	12.810	11.301	0.368	-0.402	2.41	5.21	0.074*
LNINVPC	10.985	11.024	11.850	9.920	0.421	-0.510	2.68	5.98	0.050**
LNPOP	18.652	18.701	19.210	17.950	0.348	-0.285	2.12	5.03	0.081
INF	12.84	11.65	33.20	4.10	6.21	1.28	4.82	49.75	0.000***

Source: Author's Computation from E-Views 12, 2026

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4.1 Unit Root Test Results

Table 1 shows ADF and PP tests. LNPHCE, EFFVAT, LNRGDPC, LNDISYPC, LNPOP are I(1) while INF is I(0). This justifies ARDL

Table 2: ADF and Phillips-Perron Unit Root Test Results Sample: 1994Q1 – 2024Q4, Obs: 124

Test Specification: Intercept + Trend. Max Lag = 4. AIC for ADF, Newey-West Bandwidth for PP

Variable	ADF Level	ADF 1st Diff	PP Level	PP 1st Diff	Order of Integration
LNPHCE	-1.42 [0.57]	-6.18 [0.00]***	-1.55 [0.50]	-6.42[0.00]***	I(1)
EFFVAT	-1.89 [0.3]	-7.82 [0.00]***	-2.01 [0.28]	-8.05[0.00]***	I(1)
LNRGDPC	-1.63 [0.47]	-6.55 [0.00]***	-1.71 [0.43]	-6.71[0.00]***	I(1)
LNDISYPC	-1.78 [0.39]	-6.30 [0.00]***	-1.85 [0.36]	-6.48[0.00]***	I(1)
LNINVPC	-2.15 [0.22]	-8.40 [0.00]***	-2.28 [0.18]	-8.62[0.00]***	I(1)
LNPOP	-0.91 [0.78]	-4.85 [0.00]***	-0.96 [0.75]	-5.02[0.00]***	I(1)
INF	-3.45 [0.01]**	-9.85 [0.00]***	-3.62 [0.01]	-10.12[0.00]***	I(0)

Source: Author's Computation from E-Views 12, 2026

Notes: 1. Values in [] are ρ-values.= significant at 1%, * = significant at 5%**

2. Critical values: 1% = -4.04, 5% = -3.45, 10% = -3.45

Interpretation

Six variables; LNPHCE, EFFVAT, LNRGDPC, LNDISYPC, LNINVPC, and LNPOP are I(1) while INF is I(0). Because we have mix of I(0) and I(1), ARDL Bounds Test is appropriate

4.2 ARDL Bounds Test for Cointegration

With optima lag ARDL(2,1,2,1,2,1,0) selected by AIC, the F-statistic is 7.21

Table 3: ARDL Bounds Test Results

Test Statistic	Value	1% I(0)	1% I(1)	Decision
F-Statistic	7.2	3.41	4.68	Cointegration Exists

Source: Author's Computation from E-Views 12, 2026

Since 7.21>4.68, we reject no Cointegration. A long-run relationship exists

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4.3 Long-run and Short-run Estimates

From Table 3 and Table 4 below, a 1% increase in EFFVAT increases consumption by 0.041% in the short-run and 0.091% in the long-run. 45.1% of any deviation is corrected each quarter.

4.3 Long-run and Short-run Estimates

Table 4: Long-run ARDL Coefficient

Variable	Coefficient	t-stat	Prob
EFFVAT	**-0.091**	**-3.42**	**0.001*** **
LNRGDPC	**0.651**	**8.42**	**0.000*** **
LNDISYPC	**0.284**	**4.21**	**0.000*** **
LNINVPC	**0.113**	**2.87**	**0.005*** **
LNPOP	**-0.420**	**-2.10**	**0.038** **
INF	**-0.009**	**-4.55**	**0.000*** **

Source: Author's Computation from E-Views 12, 2026

4.3.1 Long-Run Diagnostic Tests

There is no autocorrelation in the residuals, because the BG LM ρ-value of 0.429 is greater than 0.05. Residuals have constant variance, as BPG test ρ-value of 0.296 is greater than 0.05. Residuals are normally distributed, given that JB ρ-value of 0.233 is greater than 0.05. The linear ARDL specification is appropriate and no omitted variable, given that both CUSUM and CUSUMSQ plot lies within the critical value.

The ARDL model passes all the diagnostic tests. It is statistically valid, stable, and reliable for policy analysis in Nigeria.

Table: 5: Long-Run Diagnostic Test Results

Test	Test Statistics	P-value	Decision	Implication
Serial Correlation Breusch-Gogfrey LM Test [Lag]	3.842	0.429	Do not Reject H0	No serial correlation. Residuals are independent
Heteroskedas Ticity Breusch-Pagan-Godfrey Test	14.210	0.288	Do not Reject H0	Homoskedastic residuals. Constant variance
Normality Jarque-Bera Test	2.915	0.233	Do not Reject H0	Residuals are normally distributed

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Functional Form Ramsey RESET Test [Fitted^2	1.102	0.296	Do not Reject H0	Correct functional form.No misspecification
Model Stability CUSUM Test	Stable		Stable	Parameters are stable over time
Model Stability CUSUMSQ	Stable		Stable	Variance of Parameters is stable

Source: Author's Computation from E-Views 12, 2026

4.4 SHORT-RUN ARDL-ECM RESULTS

Table 4: SHORT-RUN ARDL-ECM RESULTS

Dependent Variable: D(LNPHCE) = Change in Log Per Capita Household Consumption

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Interpretation
D(LNPHCE(-1))	0.312	0.082	3.80	0.000***	Consuption is persistent
D(EFFVAT)	-0.041	0.013	-3.15	0.002***	1pp inc. in VAT reduces consumption by 0.041% in same quarter
D(EFFVAT(-1)	-0.028	0.012	-2.33	0.021**	Lagged VAT effect also negative
D(LNGDPC)	0.385	0.064	6.02	0.000***	1% increase in per capita raises consumption by 0.385%
D(LNGDPC(-1))	0.102	0.058	1.76	0.081*	Lagged GDP effect
D(LNDISY)	0.165	0.051	3.24	0.002***	Disposable income matters immediately
D(LNINVPC)	0.058	0.029	2.00	0.048**	Investment crowds-in consumption
D(LNINVPC(-1))	0.042	0.028	1.50	0.136	Not significant
D(LNPOP)	-0.089	0.145	-0.61	0.541	No short-run effect
D(INF)	-0.0042	0.0.0011	-3.82	0.000***	1% point increase reduces consumption by 0.0042%
D2016Q2	-0.018	0.007	-2.57	0.011**	Structural break. VAT increase
D2020Q2	-0.062	0.009	-6.89	0.000***	Structural break. COVID shock
ECT(-1)	-0.451	0.078	-5.78	0.000**	Speed of adjustment: 45.1% per quarter
C	0.008	0.003	2.67	0.009***	

Source: Author's Computation from E-Views 12, 2026

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R^2 = 0.71, DW = 1.98. Adj. R^2 = 0.68, F-Stat = 21.45 [0.000]_, DW = 1.98**
S.E of regression = 0.021

4.4.1 Short-Run Diagnostics Test Result

The short-run model is robust. It satisfies all classical assumptions and the error correction mechanism is valid and stable for analyzing the immediate effect of effective VAT on household consumption in Nigeria

ARDL (1,2,1,1,2,1,0) Model: D(LNPHCE), Sample: 1994Q – 2024Q4, Obs: 124

Table 5: Short-Run Diagnostic Test

Test	Test Statistic	P-value	Decision	Implication
Serial Correlation Breusch-Godfrey LM Test [Lag 2]	2.174	0.337	Do not reject H0	Short-run residuals are Normally distributed
Heteroskedasticity Breusch-Pagan-Godfrey Test	18.640	0.179	Do no reject H0	No misspecification In short-run Dynamics
Normality Jarque-Bera Test	3.421	0.181	Do not reject H0	Short-run residuals are normally distributed
Functional Form Ramsey RESET Test	0.892	0.347	Do not reject H0	No misspecification In short-run Dynamics
ARCH Effect ARCH-LM Test [Lag 1]	1.056	0.304	Do not reject H0	No ARCH effect. No volatility clustering
Model Stability CUSUM Test	Stable	-	Stable	Short-run Parameters are Stable
Model Stability CUSUMSQ Test	Stable	-	Stable	Short-run variance is stable

Source: Author's Computation from E-Views 12, 2026

4.5 Granger Causality

Table 5: Vecm Granger Causality/ Block Exogeneity Wald Test
Dependent Variable: D(LNPHCE) Lag: 2. Sample: 1994Q3 – 2024Q4

Excluded Variable	Chi-sq	Df	Prob.	Decision
D(EFFVAT)	**8.42**	**2**	**0.015****	**Causality**
D(LNRGDPC)	**15.68**	**2**	**0.000*****	**Causality**
D(LNDISYPC)	**9.31**	**2**	**0.010****	**Causality**
D(LNINVPC)	**4.87**	**2**	**0.088***	**Causality**
D(LNPOP)	**3.12**	**2**	**0.210**	**No Causality**
D(INF)	**12.05**	**2**	**0.002*****	**Causality**
All Variables	**48.90**	**12**	**0.000*****	**Joint Causality**

Source: Author's Computation from E-Views 12, 2026

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4.6 Long-run Causality via ECT ECT(-1) = -0.451 [0.000]* 'n Significant. Long-run causality exists**

Reverse Causality Test; D(EFFVAT) as Dependent
D(LNPHCE) Chi-sq = 1.72 [0.423] 'n No feedback. Unidirectional: EFFVAT 'n LNPHCE

Key Dynamic Findings

1. **Causlity:** VAT causes consumption, but consumption does not cause VAT. Policy effective
2. **Magnitude:** After 3 years, 11.25% of consumption volatility comes from VAT policy shocks
3. **Persistence:** VAT shock last 10 quarters before returning to equilibrium

5.0 Results and Discussion

The unit root tests reveal that the six variables are I(1) while inflation is I(0), and the ARDL bounds test confirms a long-run cointegrating relationship among the variables. This implies that Effective VAT and other macroeconomic variables have a stable long-run relationship with household consumption in Nigeria. Given Nigeria's dependence on consumption-driven growth, the existence of this relationship underscores the importance of fiscal policy in influencing household welfare. In the long-run, a 1percentage point increase in Effective VAT reduces household consumption per capita by 0.091%. This negative effect is consistent with the progressive nature of VAT in Nigeria, where the burden falls disproportionately on low-income households who spend a larger share of income on VATable goods. The positive effect of real GDP per capita, disposable income, and investment firm confirm that growth and income remain the primary drivers of consumption. The negative impact of population and inflation reflects Nigeria's demographic pressure and persistent inflation environment, which erode real purchasing power.

In the short-run, the error correction term of -0.451 indicates that 45.1% of disequilibrium is corrected each quarter. Effective VAT has both immediate and lagged negative effects totaling -0.069%, showing that VAT changes are quickly passed to consumers. The significant negative dummies for 2016Q2 and 2020Q2 capture the impact of the oil-price recession and COVID-19 lockdown on household spending.

Granger causality runs unidirectionally from Effective VAT to consumption, confirming that VAT is an effective fiscal policy instrument in Nigeria.

Overall, the results suggest that while VAT is important for revenue generation in Nigeria, its welfare cost is significant. Policy should therefore focus on targeted exemptions, phased implementation, and recycling VAT revenue into social protection programs to cushion the impact on households.

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5.1 Conclusion

The study examines the effect of Effective Value Added Tax [EFFVAT] on household consumption per capita in Nigeria from 1994Q1- 2024Q4 using the ARDL bounds approach. The results confirm a long-run cointegrating relationship between EFFVAT and household

consumption. In both the long-run and short-run, Effective VAT has a significant negative effect on household consumption per capita. A 1 percentage point increase in EFFVAT reduces consumption by 0.091% in the long-run and 0.069% in the short-run. The Granger causality test shows a unidirectional relationship running from EFFVAT to consumption. Given Nigeria's consumption-driven economy and high poverty rate, the findings suggest that VAT, though effective for revenue mobilization imposes a substantial welfare cost on households. The negative effects are amplified during period of inflation and economic shocks such as 2016 recession and 2020 COVID-19 pandemic.

5.2 Recommendations

Based on the findings, the following policy recommendations are made:

(i) **Adopt Targeted VAT Exemptions:** Government should expand the VAT exemption list to cover essential goods and services such as food items, basic healthcare, and education. This will protect low-income households who bear the greatest burden of VAT.

(ii) **Phase Future VAT Increase:** Given the persistent negative effect lasting 10 quarters, any further increase in VAT rate should be implemented gradually and not during periods of high inflation to avoid severe welfare losses.

(iii) **Recycle VAT revenue into Social Protection:** Proceeds from VAT should be transparently channeled into targeted cash transfers, subsidies, and social investment programs as stipulated in the Finance Act. This will cushion the welfare impact and build public trust.

(iv) **Improve VAT Administration and Compliance:** Instead of increasing the rate, government should focus on broadening the VAT base by improving collection efficiency in the informal and digital economy to raise revenue with minimal welfare cost.

(v) **Coordinate Fiscal and Monetary Policy:** Since inflation and population growth also reduce consumption, VAT policy should be coordinated with CBN's inflation targeting and population welfare programs to protect household purchasing power.

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Reference

Akinleye, G. T., & Adegbi, S. O. (2022). Value added tax, inflation and consumption pattern in Nigeria in the post COVID-19 era._African Journal of Economics and SustainableDevelopment, 5_(3), 112-129

Ayoola, T. J. & Biaze, S. (2021). Autoregressive distributed lag approach to fiscal policy and economic growth in Nigeria._Journal of Economics and Financial Analysis, 5_(2), 89-104

Bird, R. M., & Gendron, P.P. (2007). The VAT in developing and transitional countries. Cambridge University Press.

Central Bank of Nigeria. (2023). Economic Report Q4 2023: Impact of subsidy removal on household consumption. CBN.cbn.gov.ng

Chukwu , G. J., & Nwosu, F. (2023). Taxation and household consumption expenditure in Nigeria: An ARDL Approach. IOSR Journal of Economics and Finance, 14(2), 25-33

Danladi, J. D., Okafr, T. U., & Sani, M.A. (2024). COVID-19, VAT and Household Consumption in Nigeria. _West African Journal of Economic and Public Policy, 9_(2), 156-173.

Diamini, B. S. (2024). Nonlinear effects of VAT on household consumption in South Africa [F1000Research Working Paper]

Diop, M., & Sarr, A. (2024). VAT harmonization and consumption patterns in Senegal. Revenue Africaine d'Economie et de Gestion, 8(1), 88-105. [No DOI. Journal indexed on AJOL]

Etim, E. & Nweze, C. (2023). Taxation and Household Welfare: Evidence from Nigeria. African Journal of Economic Review, 11(2), 123-140. https://www.doi.org/10.22004.ag.econ. 337890.

El-Amrani, Y., & Benali, F. (2024). VAT reform and household welfare in Morocco. _African Development Review, 36_(2), 201-218.https://www.doi.org/10.1111/1467-8268.12745

Emeka, C. O., & Ibrahim, S.T. (2024). Digital economy VAT and household online consumption in Nigeria._Journal of Digital Economy and Taxation, 3_(1), 23-41

Fasina, F. F. (2017). Value Added Tax and consumption expenditure in Nigeria. International Journal of Economics, Commerce and Management, 5_(8), 342-354

Federal Inland Revenue Service (2025). Impact Assessment of 7.5% VAT on Household Cconsumption 2020-2024. FIRS Research Paper Series No. 12.firs.gov.ng

Gujarati, D. N & Porter, D.C. (2009). Basic Econometrics (5th ed.). New York: McGraw-Hill.

Hassan, A., & Idris, M. (2025). Value Added Tax and household consumption in Egypt [Unpublished manuscript]

Igbokwe, M. I. (2020). Tax Policy and Household Consumption in Nigeria. _CBN Journal of Applied Statistics, 11_(2), 89-112. https://www.doi.org/10.33429/cjas.11220.5

International Monetary Fund (2023). World Economic Outlook. A Rockey Recovery.IMF

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
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International Monetary Fund. (2024). World Economic Outlook: A rocky recovery—Chapter 1: Global prospects and policies. IMF.

International Monetary Fund. (2025). World Economic Outlook: Managing disinflation and debt--Chapter 2: Fiscal policy and the cost of living. IMF

Johansen , S., & Joselius, K. (1990). Maximum likelihood estimation and inference on cointegration- with application to demand for money. Oxford Bulletin of Economics and Statistics, 52(2), 169-210.https://www.doi.org/10.1111/j.1468-0084.1990.mp52002003

Kamau, P., & Wanijiku, J. (2024). VAT, inflation, and food consumption in Kenya post-COVID. _Kenya Economic Review, 15_(2), 67-88 [No DOI Published by KIPPRA

Kiptoo, C., & Mutua, L. (2025). Digital services VAT and online consumption in East Africa._East African Journal of ICT, 5_(1), 143-161. [No DOI]

Keynes, J. M. (1936). The general theory of employment, interests and money. London, UK: Macmillan

Mankiw, N. G. (2021). Macroeconomies (10th ed.), New York, NY: Worth Publishers

Madugba, J. U., Ekwe, M. C. & Kalu, U. U. (2016). Value Added Tax and economic growth in Nigeria: An Empirical Analysis. _International Journal of Management Studies and Research, 4_(11), 62-68

Mill, J.S. (1848). Principles of Political economy with some of their applications to social philosophy. John W. Parker.

Musa, I. D., & Bello, A. (2022). Impact of Finance Act 2019 on household consumption in Nigeria._International Journal of Public Administration and Management Research, 7_(2), 89-102

Nkube, L., & Moyo, T. (2024). VAT and household consumption expenditure in Zimbabwe. _Zimbabwe Journal of Economics, 11_(1), 34-52. [No DOI]

Nwosu, E. C. (2024). VAT revenue and household welfare in Nigeria. _Journal of Fiscal Policyand Economic Development, 6_(2), 74-92.

Nwankwo, C. N. (2017). Impact of indirect taxes on household welfare in Nigeria. _International Journal of Economics and Financial Issues, 7_(4), 156-165

Nwakanma, P. C., & Nnamdi, I. C. (2020). Fiscal instruments and household behavior in Nigeria. _African Journal of Economic Policy, 27_(1), 45-63.

National Bureau of Statistics. (2024). Nigeria consumption expenditure survey 2023. NBS.

Nwakanm, P.C., & Nnamdi, I. C. (2020). Impact of fical policy on economic growth in Nigeria._CBN Journal of Applied Statistics, 11_(1), 87-104

Ogbonna, G. N., & Appah, E. (2016). Effect of value added tax on economic development in Nigeria. _International Journal of Business and Finance Management Research, 4, 1-12

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Onakoya, A. B., Fasina, H.T., & Akinbode, O. J. (2017). Taxation and household consumption: Evidence from Nigeria. _International Journal of Development and Economic Sustainability, 5_(4), 11-13

Olaoye, C. O. & Ekundayo, A. T. (2018). Value Added Tax and economic growth in Nigeria. _European Journal of Accounting Auditing and Financial Research, 6_(1), 62-78

Ojo, S. O. (2020). The impact of Value Added Tax on economic growth and consumption in Nigeria. _International Journal of Economics, Commerce and Management, 8_(6), 45-48

Okoli, M. N. & Nwosu, C. E. (2018). Value Added Tax and consumer behavior in Nigeria._Journal of Accounting and Financial Management, 4_(2), 45-58

Okoye, P. V. C & Ezejiofor, R.A (2021). Effect of VAT rate increase on household consumption expenditure in Nigeria. _IIRAD International Journal of Economics and Business Management, 7_(3), 45-49. https://www.doi.org/10.56201/ijebm.v7i3.15

Omodero, C. O. (2022). VAT revenue and economic growth in Nigeria. _Cogent Economics & Finance, 10_(1),2022-2991. https://www.doi.org/10.1080/23322039.2022.2022991

Obi, P. N., & Eze, R. C. (2025). Inflation, value added tax and food consumption in Nigeria. _Nigerian Journal of Agricultural Economics and Development, 8_(1), 88- 113

Pesaran, M.H., Shin, Y. & Smith, R. J. (2001). Bonds Testing Approaches to the Analysis of Level Relationships._ Journal of Applied Econometrics, 16, 289-326

Stock, J. H. & Watson, M. W. (2012). Introduction to Econometrics (3rd ed.). Boston: Pearson.

World Bank. (2024). World Development Indicators 2024. World Bank.

Yusuf, M. B. & Ayoola, T. J. (2020). Value Added Tax and Economic Growth in Nigeria: A VECM Approach._ CBN Journal of Applied Statistics, 11_(2), 89-112

Yusuf, M. & Suleiman, A. (2023). Subsidy removal, VAT and consumption behavior in Nigeria._Nigeria Economic Society Annual Conference Pper.nes.org.ng

Yusuf, M. B. (2022). Autoregressive distributed lag approach to taxation and economic growth in Nigeria._CBN Journal of Applied Statistics, 13_(1), 1-24.

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Sensory Triggers and Consumer Emotional Connection in the Hospitality Industry in Ilorin Metropolis

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DOI : https://doi.org/10.5281/zenodo.22914116

Abstract

The increasing competitiveness of the hospitality industry has made it difficult for hotels to rely solely on functional service delivery as a means of attracting and retaining customers. In Ilorin Metropolis, many hospitality establishments continue to experience challenges relating to weak customer emotional attachment, low brand loyalty, and inconsistent revisit intentions despite ongoing investments in physical facilities and service improvements. This situation revealed that traditional service quality approaches are no longer sufficient to create memorable guest experiences, thereby necessitating the adoption of sensory-based marketing strategies capable of stimulating emotional responses and strengthening consumer–brand relationships. This study examined the effect of sensory triggers on consumer emotional connection in the hospitality industry in Ilorin Metropolis. The study adopted a cross-sectional survey design. A total of 384 copies of questionnaire were administered to hotel guests, and the responses retrieved were analysed using multiple linear regression analysis. The findings revealed that sensory triggers through visual, auditory, olfactory, and tactile, have positive and statistically significant effects on consumer emotional connection. The regression model demonstrated that sensory triggers collectively explain 43.4% of the variation in consumer emotional connection ($R^2 = 0.434$, $p < 0.05$) among hotel guests in Ilorin Metropolis. Specifically, olfactory sensory triggers exerted the strongest positive influence ($\beta = 0.300$, $p < 0.05$), followed by auditory sensory triggers ($\beta = 0.288$, $p < 0.05$), visual sensory triggers ($\beta = 0.235$, $p < 0.05$), and tactile sensory triggers ($\beta = 0.171$, $p < 0.05$). This study concludes that sensory marketing plays a vital role in shaping emotional attachment in the hospitality industry, particularly in emerging urban markets. The study recommends that hospitality operators adopt a multisensory marketing approach that integrates

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scent, sound, visual aesthetics, and physical comfort to enhance emotional engagement, customer satisfaction, and long-term loyalty.

Keywords: Sensory Triggers, Consumer Emotional Connection, Hospitality Industry, Neuromarketing.

1.0 Introduction

Consumer wants and expectations are continually changing and the services offered are changing as well, and the hospitality industry is more competitive than ever in attracting, satisfying and retaining consumers. Hospitality businesses are not only expected to offer accommodation, meals and other ancillary services, but also to create experiences that will evoke positive emotions from their guests. Recent marketing theory focuses on rational calculations regarding the characteristics of products and services, but subconscious emotional processes are also mentioned as factors that influence perceptions, attitudes, and behavioural intentions (Kotler et al., 2021). With the business world being so competitive, marketers in the hospitality industry are seeking fresh avenues and concepts to connect with consumers on an emotional level and foster customer loyalty.

One of these new approaches is called Neuromarketing, which is an integrative discipline that combines neuroscience, psychology and marketing to better understand how individuals react to marketing stimuli. According to the theory of Neuromarketing, when people make buying decisions, they are not only conscious of their reasoning but are also influenced by unconscious emotional and sensory processes, which play a significant role in the decision-making process (Cordeiro et al., 2024; Nagpal et al., 2026). Multiple senses can be used to affect consumer perception and emotional experiences, not just consumer satisfaction, but consumer attachment to a brand as well, if used strategically in a way that uses sight, sound, scent, taste and touch. The importance of sensory triggers in the hospitality sector is particularly high because hospitality is a multi-sensory industry, and the service environment is a multi-sensory event that has an impact on customers' experience and perception of service quality (Krishna, 2012).

Sensory triggers are cues, both experiential and environmental, which impact consumers' senses and their cognitive and emotional response. These triggers could include attractive interior design, calming background music, pleasant fragrances, and comfortable furniture; each is a deliberate element of the customer experience. Sensory stimuli have a significant influence on consumers' emotions, memories and preferences, which can have a lasting impact and can even influence future behaviour (Krishna, 2021). The power of sensory triggers is based on the premise that sensory experiences activate, via emotional channels, the way that people feel and interact with the service environment.

Consumer emotional connection is the psychological and affective relationship developed by the consumer with a brand, service provider or consumption experience. It is not just about the satisfaction of function, it is about the sense of attachment, affection, trust and identification with a brand (Thomson et al., 2022). Guests that are emotionally connected are more likely to have positive attitudes, communicate positively about the organisation, and have extended duration business relationships with service providers in hospitality establishments. Emotional attachment has been proposed as a key determinant of customer loyalty, with emotionally attached customers

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continuing to purchase from a company even if they have other options (Rather, 2023; Boakye et al., 2023).

While sensory marketing is widely used in the international hospitality sector, many hospitality businesses in developing economies are mainly concerned with functional service delivery and have not given much consideration to the emotional aspects of the customer experience. Nigeria's hotels, particularly in growing markets such as Ilorin Metropolis, are increasingly facing the challenge of retaining guests, differentiating themselves from the competition, and providing memorable guest experiences. Although investments are being made in the physical facilities and the efficiency of services, fewer conscious efforts seem to be made to comprehend the impact of sensory elements on guests' emotional relationship with hospitality brands. The value of the consumer is changing, from service benefits to experiential value, which should be paid attention to. Furthermore, the literature has been mainly directed towards consumer purchasing behaviour, brand loyalty and purchase intention, and only a little towards the sensory triggers as antecedents of consumer emotional connection in the Nigerian hospitality context. This is a gap in the contextual and empirical literature that is addressed by the present study.

The importance of emotional attachment in the creation of sustainable customer relationships is crucial and the potential for sensory cues to influence consumer emotional attachment in hospitality environments needs to be carefully considered. Awareness of this connection will help hospitality managers design their environments to be more sensory stimulating to enhance customer experiences and build emotional connections with guests. This background sets the stage for this study to examine the role of sensory triggers (Visual, Auditory, Olfactory and Tactile) in consumer emotional connection in the hospitality industry in Ilorin Metropolis.

Objective of the Study

i. Examine the impact of sensory triggers on the consumer emotional connection in the hospitality industry in Ilorin Metropolis.

2.0 Literature Review

2.1 Sensory Triggers

Sensory triggers are stimuli (environmental or experiential) that are deliberately used to stimulate one or more of the human senses to induce a perception, emotion and behaviour from a consumer. The idea is based on the sensory marketing literature which posits that consumers receive information through sensory perception, and that sensory perception affects their perception of products, services and brands. Sensory triggers have the power to produce memorable experiences that impact attitudes and behavioural intentions, as opposed to traditional forms of marketing that operate primarily at the cognitive level of persuasion.

In the modern service environment, sensory triggers have become more important as consumers can assess the functional value of services as well as the service experience. Spence (2020) proposes that the sensory cues influence consumers' sense of quality and value, satisfaction and emotional satisfaction. These sensory elements can be seen in the physical space, background music, fragrances, surface sensations, lighting, and other elements that make the service environment welcoming and comfortable in the hospitality industry. These are all factors that

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influence customer experience and shape customer perception of a service provider. Recent empirical study conducted by Zhenbin et al. (2024) have validated that sensory experience is an important antecedent of memorable tourism experiences and behavioural intentions.

The theoretical strength of the sensory triggers is that they can evoke psychological associations which are strongly connected with memory and emotion. Krishna (2012) states that the neurological mechanisms that mediate sensory experiences are linked to emotion and memory, which leads to positive emotions for consumers of organisations that provide pleasurable sensory experiences. As a result, the application of sensory triggers has increased as a competitive weapon to distinguish hospitality companies and to enhance customer relationships.

2.2 Dimensions of Sensory Triggers

Visual Sensory Triggers

Visual sensory triggers are stimuli that stimulate and engage consumers' visual system, impacting their perception of the service environment. They can be colours, lighting, architecture, interior design, staff appearance, branding, and layout. It is well known that the sense of sight is the most used sense in consumers' decision-making process, especially in service encounters (Petit et al., 2019). In a hotel, the first impression of the quality of service, the overall experience and the final opinion of the hotel is strongly influenced by the presentation. Positive emotions such as comfort, excitement, relaxation and trust have been linked to positive visual environments, which help to create a more positive psychological image of hospitality brands. In this context, visual sensory stimuli are carefully used to create memorable experiences and emotional connections for customers (Vera-Falcón et al., 2025).

Auditory Sensory Triggers

Auditory sensory triggers include music, sounds and background or environmental noises which impact consumers' mood, perception and emotional responses. These include background music, ambient soundscapes, employee communication style and acoustic design features. According to Spence (2020), auditory stimuli can affect consumers' emotions by creating a sense of comfort, atmosphere and enjoyment. Research has demonstrated that music used in a planned way in service situations can improve customer satisfaction and emotional responses. In hospitality settings, music and soundscapes are selected and carefully orchestrated to provide relaxation and positive emotional experiences. The role of sound in creating emotional associations in food, beverage, and hospitality contexts is given special emphasis by Spence's (2020) extensive research on extraordinary emotional reactions to auditory cues in consumption situations.

Olfactory Sensory Triggers

Olfactory sensory triggers are scents, aromas and fragrances used to influence consumers' emotions and perceptions. Smell is considered to be one of the strongest senses, closely linked to the memory and emotion parts of the brain (Krishna, 2021). This special neurological connection allows scents to evoke strong emotions and memories. In the hospitality industry, signature fragrances are often employed to create a unique brand identity, improve the customer experience, and make the environment welcoming and soothing. Fragrances that are attractive have been shown to evoke positive emotions, boost service quality, and foster customer loyalty. Nguyen et al. (2026) also show that the olfactory dimensions of sensory brand experience act as a moderator

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between marketing stimuli and brand outcomes, including brand love and purchase decisions, suggesting the power of scent as an emotional cue.

Tactile Sensory Triggers

Tactile sensory triggers are stimuli that are felt through the sense of touch. These include the feel of bedding or furniture, comfort of seating, room temperature, and the overall physical quality of the service environment. Tactile experiences can cause instant psychological reactions (Peck & Childers, 2020) which can have a significant impact on the consumers' perception of quality and value. The sense of comfort that comes from touch is a very important element in the guests' emotional experience in a hotel setting. Comfortable furniture, high-quality bedding and physical surroundings can provide a sense of relaxation, security and satisfaction. Building on this insight, Zhang et al. (2026) show that contextual and psychological factors influence tactile information preferences, illustrating the complex nature of touch in consumer behaviour. These positive experiences reinforce the emotional connection and reinforce consumers' loyalty towards hospitality brands.

Consumer Emotional Connection

Consumer emotional connection is the affective relationship that consumers develop with a brand, service provider or consumption experience. While customer satisfaction is more oriented towards convergence with expectations, emotional connection is a psychological bond that encompasses elements of affection, trust, belongingness, and commitment (Dwivedi et al., 2021). The concept is based on the theory of relationship marketing that values long-term relationships over transactional relationships. Consumers who have developed an emotional connection with a brand are more loyal, more positive in their advocacy behaviour and less likely to be influenced by competitive alternatives (Thomson et al., 2022).

In the hospitality sector, emotional connection is created when consistently positive interactions are met with functional and emotional needs and are resonating with guests. These bonds are strengthened by the memorable service encounters, personalised service and rich sensory stimulation. Rather (2023) states that emotional connection is a key element in customer retention, with emotionally connected customers being more likely to re-engage and recommend service providers. Khan et al. (2025) also showed that emotional connection is an important mediating variable between experiential tourism activities and tourist well-being, highlighting its pivotal role in the experience-behaviour link. Furthermore, Boakye et al. (2023) found that the emotional connection plays a mediating role between customer satisfaction and behavioural intention, suggesting that customers who are emotionally connected are more likely to convert their satisfaction into loyalty. Emotional connection has thus become a key strategic focus for hospitality organisations aiming to gain a sustainable competitive edge.

2.3 Theoretical Framework

Stimulus–Organism–Response (S–O–R) Theory

Mehrabian and Russell (1974) were the first to develop the Stimulus–Organism–Response (S–O–R) Theory to account for the effect that environmental stimuli have on an individual's internal psychological state and the resulting behaviour. The theory suggests that stimuli in the external environment stimulate internal emotional and cognitive responses (the organism) which then lead

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to behavioural reactions. It has since emerged as one of the most prevalent models in consumer behaviour, environmental psychology, retail marketing and hospitality studies, and is used to explain the impact of environmental cues on consumer experiences and decision making.

From the S–O–R perspective, stimuli are environmental factors that can affect individuals' perceptions and emotions. Sensory triggers, such as music, sounds, smells and touch, in a hospitality context are environmental stimuli that influence guests' perceptions of their service experiences. The sensations these stimuli elicit are the organismic component: feelings of pleasure, excitement, comfort, attachment, and satisfaction that are felt when exposed to sensory stimuli. Consumer emotional connection is included in this part, because it is an effective response that arises from the sensory experience when consuming services. It is suggested that positive sensory experiences create positive emotions and drive consumers towards a brand or service provider. The response component reflects the behavioral results of the internal emotional processes (such as customer loyalty, revisit intentions, recommendation behavior, brand preference, and long-term commitment).

This theoretical alignment is affirmed by recent empirical studies. In the specific case of food brand experience, Vera-Falcón et al. (2025) explicitly test and validate the S–O–R model, which shows that sensory experience positively influences consumer loyalty, satisfaction, and word of mouth. Likewise, Nagpal et al. (2026) apply the S–O–R model to dual-process theory to examine the relationship between neuromarketing stimuli and consumer impulsivity, which further demonstrates the utility of the S–O–R model in various marketing scenarios. Similarly, Mostafa and Kasamani (2021) use the S–O–R model to explore how brand experience affects brand loyalty, and conclude that emotional brand attachment is the mediating mechanism between brand experience and brand loyalty, which is directly comparable to the theoretical mechanism examined in the present study. The S–O–R Theory is the most suitable theory to analyse the relationship between sensory triggers and emotional connection in the hospitality sector, as it focuses on environmental cues and emotional outcomes.

2.4 Empirical Review

Krishna and Schwarz (2020) examined how sensory cues influence consumers' emotions and perceptions about brands in experimental studies in different service settings. According to their findings, sensory stimuli have a positive effect on emotional involvement and brand attachment, and the authors suggest that organisations that intentionally use sensory experiences in service delivery will be more successful in creating long-term emotionally loyal consumer relationships.

Spence et al. (2021) discussed multisensory marketing and consumer experience, specifically how sensory stimulation can influence perceptions and emotional responses within service settings. The findings from the controlled experiments with hospitality and retail consumers showed that the sensory congruence positively influenced consumers' emotional evaluations, and was critical to building strong customer–brand relationships.

Rather (2021) studied the customers of the hotel in India and concluded that experiential customer service variables are important factors in emotional attachment and future loyalty intentions. The study, which was based on a survey design, involved 412 hotel customers, and concluded that emotional engagement is a key mediator between service experience and loyal behaviours.

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Dwivedi et al. (2021) have explored relationship marketing between consumer and brand in the context of services. Based on quantitative research method and structural equations modeling, it was confirmed that the development of consumer emotional bonds was significantly affected by positive sensory and experiential interactions.

Ali et al. (2020) conducted a study on how the hotel environment auras affects the customer's feelings towards the hotel and its loyalty. Based on the survey data collected from hotel guests, results showed that the environmental sensory factors had a significant influence on the hotel customer's emotions and increased their emotional bond with the hotels brand.

Han and Hyun (2021) investigated emotional attachment in the context of consumer behaviour in the hospitality industry. The researchers found that, based on the data from the hotel customers, sensory experiences had a significant positive impact on consumers' emotional brand relationships and their subsequent behavioural intentions.

In the context of slow tourism, Xu and Chia (2025) explored the role of destination stimuli in fostering emotional attachment among tourists, discovering that the emotional attachment induced by rich sensory experiences, especially visual and tactile stimuli in natural environments, is deep. Their results validate the applicability of the S–O–R framework to the process of emotional connection formation by environmental stimuli.

Zhenbin et al. (2024) explored the formation of behavioural intentions towards rural tourism through sensory experience and memorable tourism experiences in Henan, China. The study validated the role of sensory triggers in the emotional and behavioural outcomes of memorable tourism experiences with a quantitative methodology and 490 participants, and the results indicated that sensory experiences positively and significantly predicted the emotional and behavioural outcomes of memorable tourism experiences.

The study on the effect of physical service environments on customer loyalty in selected hotels in Lagos State Nigeria by Akinyele and Fasogbon (2020) focused on the effect of physical service environments on customer loyalty in selected hotels in Lagos State, Nigeria. They used survey data from 287 hotel guests and multiple regression analysis to determine the relevance of the sensory dimensions in the Nigerian hospitality context as they influence the emotional satisfaction and loyalty intentions of the customers. They concluded that ambience, décor, lighting and comfort were significant environmental factors affecting the emotional satisfaction and loyalty intentions of the customers.

In the South-West Nigeria, Ogunnaike et al. (2021) examined the effect of experiential marketing on customers patronage in the hospitality industry. The study identified that sensory experiences had a significant impact on customers' emotional involvement, which had a positive impact on their patronage decision, using a cross-sectional survey with 354 hotel customers.

Abdulkareem and Suleiman (2023) have investigated the factors that influence the responses of guests to hotel service delivery in the North-Central region of Nigeria. They further established the strategic importance of sensory cues for the hospitality industry in the Nigerian context by employing structural equation modelling (SEM) with 312 respondents to demonstrate that the

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sensory and environmental elements were significant contributors to positive emotions and customer loyalty.

3.0 Methodology

This study employed a cross-sectional survey research design using a quantitative research approach. The study was conducted in Ilorin Metropolis, Kwara State, Nigeria. Ilorin serves as the capital city of Kwara State and has experienced significant growth in commercial and hospitality activities over the years. The increasing number of hotels within the metropolis has heightened competition among hospitality service providers, thereby necessitating innovative strategies for attracting and retaining customers. The hospitality industry in Ilorin therefore provides an appropriate context for examining how sensory triggers influence consumers' emotional connection with hotel brands.

The population of the study comprised guests of selected hotels in Ilorin Metropolis. The population was deemed suitable as the guests of the hotels have direct experience of the sensory aspects that are present in the hotel environment and can therefore give informed feedback on the emotional aspects they have experienced. The study was conducted on five selected hotels namely Noktel Resort Hotel, E-Phoenix Hotel Annex 2, G-Pinnacle Signature Hotel, Wingate Exotic Hotel and The Peace Hotel. Respondents were deemed suitable because they had previously stayed or were currently staying in these hotels, and therefore had first-hand experience of the sensory environments within the hotels. Since there was no complete and readily available sampling frame of hotel guests, the study used Cochran's (1977) formula for the sample size for an infinite population. The formula calculated a minimum sample size of 384 respondents at a 95 per cent confidence level with a 5 per cent margin of error. The study used purposive sampling method in selecting the five hotels because they are the prominent hotels in the Ilorin metropolis and attract a wide variety of visitors. Subsequently, copies of the questionnaire were distributed by convenience sampling to guests who were available and willing to complete the questionnaire during the data collection period.

Primary data were obtained by using a structured questionnaire which consisted of two sections. The items in Section A were used to measure the demographic characteristics of the respondents, and the items in Section B were used to measure the study variables. The sensory dimension was operationalised by visual, auditory, olfactory and tactile sensory dimensions. The data collected were analysed descriptively and inferentially with multiple regression analysis used to examine the effect of the four sensory trigger dimensions on consumer emotional connection.

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4.0 Data Presentation and Analysis

Table 1: Demographic Characteristics of Respondents (n = 384)

Variable	Category	Frequency	Percentage (%)
Gender	Male	212	55.2
	Female	172	49.4
Age	18–27 years	94	24.5
	28–37 years	140	36.5
	38–47 years	98	25.5
	48 years and above	52	13.5
Marital Status	Single	148	38.5
	Married	214	55.7
	Others	22	5.7
Educational Qualification	SSCE	41	10.7
	ND/NCE	87	22.7
	HND/B.Sc.	176	45.8
	Postgraduate Degree	80	20.8
Occupation	Civil Servant	96	25.0
	Business Owner	98	25.5
	Private Sector Employee	126	32.8
	Others	64	16.7
Hotel Patronage Frequency	First Visit	62	16.1
	Occasionally	144	37.5
	Frequently	178	46.4

Source: Field Survey, 2026

The demographic profile shows that 55.2% of the respondents were male and 49.4% were female, which means that there is a slight majority of male hotel guests in the selected hotels. The age distribution shows that the highest representation was for those aged 28-37 years (36.5%), followed by those aged 38-47 years (25.5%), 18-27 years (24.5%) and 48 years and above (13.5%). This implies that most of the guests of the hotel are economically active adults, who have a great purchasing power and hospitality experience. Respondents were split on marital status, with 55.7% married, 38.5% single and 5.7% in other categories.

The educational profile indicated that 45.8% of the respondents had HND/B.Sc. certificate, 20.8% had postgraduate certificate, 22.7% had ND/NCE certificate while 10.7% had SSCE certificate. This suggests that the overall education level of the respondents was relatively high and they were able to give informed answers on sensory experience and emotional connection in the hospitality environment. The occupational distribution showed the majority of respondents were employed in the private sector (32.8%), civil service (25.0%), business owners (25.0%) and other occupations

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(16.7%). The patronage frequency data also revealed that 46.4% of the respondents have visited the hotel frequently, 37.5% occasionally, and 16.1% were first time visitors. Repeat visitors provide more valid responses since they are more likely to be able to judge the sensory environment and its emotional effect.

4.1 Test of Hypothesis

H_0: Sensory triggers have no significant effect on consumer emotional connection in the hospitality industry in Ilorin Metropolis.

Table 2a: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.659	0.434	0.428	0.401

a. Predictors: (Constant), Visual Sensory Triggers, Auditory Sensory Triggers, Olfactory Sensory Triggers, And Tactile Sensory Triggers

Source: SPSS Output, 2026

As revealed in the model summary presented in Table 2a, the predictor variables are positively and significantly correlated with consumer emotional connection (R = 0.659). The coefficient of determination (R^2 = 0.434) shows that the four sensory triggers, when combined, account for 43.4% of the variation in consumer emotional connection among hotel guests. The model is strong when adjusted for the number of predictors with an adjusted R^2 value of 42.8%. The other 56.6% variance may be due to other factors not included in the current model.

Table 2b: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	48.610	4	12.153	72.772	0.000
	Residual	63.477	380	0.167		
	Total	112.087	384			

a. Dependent Variable: Consumer Emotional Connection
b. Predictors: (Constant), Visual Sensory Triggers, Auditory Sensory Triggers, Olfactory Sensory Triggers, And Tactile Sensory Triggers

Source: SPSS Output, 2026

The result of ANOVA is F-statistic = 72.772 and significance value is 0.000 (which is less than the level of significance 0.05). This means that the regression model is statistically significant and that the sensory triggers have a significant effect on the consumer emotional connection as a whole. The model, therefore, gives enough evidence that sensory triggers are important factors determining the emotional attachment of hotel guests in Ilorin Metropolis.

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Table 2c: Coefficients[a]

		Beta (β)	Std. Error	t-value	Sig.
1	Constant	0.840	0.220	3.823	0.000
	Visual Sensory Triggers	0.235	0.028	8.360	0.000
	Auditory Sensory Triggers	0.288	0.028	10.370	0.000
	Olfactory Sensory Triggers	0.300	0.035	8.625	0.000
	Tactile Sensory Triggers	0.171	0.025	6.925	0.000

a. Dependent Variable: Consumer Emotional Connection

Source: SPSS Output, 2026

According to the coefficient results in Table 2c, the visual sensory triggers positively and significantly affected the emotional connection of the consumers ($\beta = 0.235$, $t = 8.360$, $p < 0.05$). This means that the visual elements, like the design of the hotel, the lighting of the rooms, the interior decoration, the colour combinations and the overall appearance, have a significant influence on emotional connection. The findings are consistent with those of Petit et al. (2019) who showed that visual stimuli affect emotional perceptions and play a significant role in consumer attachment. Vera-Falcón et al. (2025) also found that the sensory aspect of brand experience (such as visual cues) has a positive effect on customer satisfaction and loyalty, as mediated by the S–O–R process.

The results showed that the auditory sensory trigger had a significant and positive relationship with the emotional connection of the consumer ($\beta = 0.288$, $p < 0.05$). This includes background music, ambient soundscapes, acoustic design and the tone of the staff communication, all of which have an impact on emotional attachment during a hotel stay. The finding is consistent with Spence (2020) who showed that sound can significantly influence customer emotions and the overall hospitality experience, and also supports Jang and Lee (2022) who showed that positive sound experiences have a significant positive effect on emotional engagement in the hospitality context. The recent study of Nguyen et al. (2026) also supports the connection between marketing stimuli and brand love, with the sensory brand experience (including the auditory dimension) being a moderating factor.

Olfactory sensory triggers ($\beta = 0.300$, $p < 0.05$) were found to have the highest regression coefficient, suggesting that pleasant fragrances and scents have the greatest impact on consumers' emotional association with hospitality brands. This is in line with the argument of Krishna (2021) that the sense of smell has a special power to activate emotional memory and attachment. It also confirms the results of Su et al. (2022) that the scent-based cues have a significant effect on strengthening emotional attachment and sense of belonging among guests, and it is also supported by the results of Nguyen et al. (2026) which showed that sensory brand experience, including olfactory elements, positively affects the brand self-congruence and brand love outcomes.

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The tactile sensory triggers also had a significant positive impact on the consumer's emotional connection ($\beta = 0.171$, $p < 0.05$), meaning that the physical comfort, quality of furniture, comfortable bedding and room temperature have a significant impact on the guests' emotional connection. The results are consistent with the previous study conducted by Peck et al. (2020) which found that tactile factors were important factors affecting perceived quality and consumer satisfaction. The findings are also in line with Zhang et al. (2026), who showed that tactile information preferences have a significant impact on the consumer evaluation process, highlighting the emotional and evaluative value of touch in service contexts. The result also supports Ali et al. (2020) who concluded that physically appealing service environments create positive emotional responses and hotel customer loyalty.

In this study, sensory triggers were found to be statistically significant in all dimensions studied. Olfactory sensory triggers had the most significant impact on consumer emotional connection, followed by auditory, visual, and tactile sensory triggers, respectively, of the four dimensions. The null hypothesis is thus rejected and the alternate hypothesis is accepted: sensory triggers have a significant positive effect on the emotional connection of consumers in the hospitality industry in Ilorin Metropolis. The results support the S–O–R theoretical model, which posits that emotional reactions to sensory stimuli (stimulus) enhance relational connections and behavioural intentions (response) (Vera-Falcón et al., 2025; Mostafa et al., 2021).

5.0 Conclusion and Recommendation

This study examined the implications of sensory triggers on the emotional connection of consumers in the hospitality industry in Ilorin metropolis. The results of the empirical study showed that all four sensory trigger dimensions (visual, auditory, olfactory and tactile) had a positive and significant effect on the emotional connection of the consumer. Olfactory sensory triggers were the most powerful predictor, and the experiences of the senses of smell had a strong effect on emotional attachment. Auditory sensory triggers were the second most important, indicating background music, ambience, and interpersonal tone of communication as important factors in emotional engagement. Visual sensory triggers also had a significant influence, reinforcing that aesthetic, lighting, décor and overall visual appeal are part of guests' emotional experiences of hospitality environments. Tactile sensory triggers were the least impactful of the four triggers, but they still played a significant role, suggesting that physical comfort and environmental quality are emotional triggers.

The study also finds that the total variance in emotional connection is accounted for by the sensory triggers, meaning that a significant portion of the experience of hospitality is not just about service delivery, but also about multisensory engagement. The results support the Stimulus – Organism – Response (S – O – R) theory, which suggests that the sensory stimuli of the hotel context trigger consumers' internal emotional responses, which then lead to relational attachment with the hospitality brands. The findings are consistent with the recent international scholarship by Vera-Falcón et al. (2025), Nagpal et al. (2026), Xu and Chia (2025), and Zhenbin et al. (2024) in the Nigerian context of the hospitality industry, adding empirical evidence from an emerging urban market in sub-Saharan Africa.

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The study recommends that hospitality managers should put emphasis on scent marketing strategies. As the olfactory sensory triggers have the greatest impact on consumer emotional connection, hotels should create and standardise signature smells throughout lobby areas, rooms, corridors and common areas. This will improve the guests' emotional memories and strengthen their brand affinity towards the hotel.

Second, hotels need to invest in ambience management and room acoustics. The auditory sensory elements have a strong relationship with emotional connection, and operators should carefully select background music that is suitable for their brand, and provide good acoustic comfort by selecting appropriate sound insulation. A well planned soundscape provides an emotionally engaging and pleasant accommodation experience.

Thirdly, more emphasis needs to be placed on the visual and environmental design. Colour schemes, lighting, architectural decoration, and room decoration that catches the eye and makes a positive first impression are important visual sensory elements that contribute to emotional connection in hotel interiors and should be considered for repeat emotional engagement.

Fourth, the physical comfort and tactile quality of the service environment should be continually improved. Tactile triggers, although having the least impact in this study, are still important. Good bedding, comfortable furniture, perfect temperature and physical comfort will all make a significant contribution to guests' emotional involvement and long term loyalty.

Last, for hospitality organizations, it is necessary to have a multi-sensory marketing strategy that is integrated and planned in a coherent and brand-consistent way. The S – O – R approach will ensure maximum emotional engagement of guests and build the relational bond that will drive sustainable loyalty and competitive edge for the Ilorin hospitality market.

References

Abdulkareem, I., & Suleiman, R. (2023). Factors affecting guest responses to hotel service delivery in the north-central region of Nigeria. *Journal of Hospitality and Tourism Management, 18*(2), 45–58.

Akinyele, S. T., & Fasogbon, O. I. (2020). Effect of physical service environment on customer loyalty in selected hotels in Lagos State. *African Journal of Hospitality, Tourism and Leisure, 9*(3), 1–15.

Ali, F., Amin, M., & Cobanoglu, C. (2020). An integrated model of service experience, emotions, satisfaction, and behavioural intentions in the hospitality industry. *Journal of Hospitality and Tourism Technology, 11*(3), 449–475.

Boakye, K. G., Prybutok, V. R., Randall, W. S., & Ofori, K. S. (2023). Emotional connection and customer orientation as moderators in improving the customer satisfaction–behavioral intention link: A moderated moderation service model. *Quality Management Journal, 30*(3), 153–167.

Cochran, W. G. (1977). Sampling techniques (3rd ed.). Wiley.

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Cordeiro, R., Reis, A., Ferreira, B. M., & Bacalhau, L. M. (2024). Neuromarketing: Decoding the role of emotions and senses and consumer behavior. In Cognitive Behavioral Neuroscience in Organizational Settings (pp. 83–100). IGI Global.

Dwivedi, A., Johnson, L. W., Wilkie, D. C., & De Araujo-Gil, L. (2021). Consumer emotional brand attachment with social media brands and social media brand equity. *European Journal of Marketing, 55*(6), 1639–1665.

Han, H., & Hyun, S. S. (2021). Emotional attachment formation and hospitality consumer behaviour. *International Journal of Contemporary Hospitality Management, 33*(4), 1280–1302.

Jang, Y., & Lee, C.-K. (2022). Sensory experiences and consumer engagement in hospitality services. *Journal of Hospitality and Tourism Research, 46*(5), 891–912.

Khan, J., Al Jaeed, S. A., Zhang, Q., & Li, M. (2025). Gastronomic tourism and tourist hedonic well-being: A moderated mediation model based on perceived authenticity, emotional connection, and tourist food neophilia. *International Journal of Gastronomy and Food Science,* 42, Article 101294.

Kotler, P., Kartajaya, H., & Setiawan, I. (2021). Marketing 5.0: Technology for humanity. Wiley.

Krishna, A. (2012). An integrative review of sensory marketing: Engaging the senses to affect perception, judgment and behavior. *Journal of Consumer Psychology, 22*(3), 332–351.

Krishna, A. (2021). The Oxford handbook of sensory marketing. Oxford University Press.

Krishna, A., & Schwarz, N. (2020). Sensory marketing, embodiment and grounded cognition: Implications for consumer behavior. *Journal of Consumer Psychology, 24*(2), 159–168.

Mehrabian, A., & Russell, J. A. (1974). An approach to environmental psychology. MIT Press.

Mostafa, R. B., & Kasamani, T. (2021). Brand experience and brand loyalty: Is it a matter of emotions? *Asia Pacific Journal of Marketing and Logistics, 33*(4), 1033–1051.

Nagpal, K., Bala, K., Singh, S., Yadav, A., & Paliwal, M. (2026). Exploring neuromarketing's influence on consumer impulsivity through the lens of personality traits. Frontiers in Psychology, 17.

Nguyen, K. M., Ngo, N. T. Q., & Ho, A. T. Q. (2026). Nostalgic advertising and consumer–brand relationships: Revisiting the role of effective communication and sensory experience in the F&B sector. *Journal of Global Scholars of Marketing Science, 36*(3), 509–552.

Ogunnaike, O. O., Kehinde, O. J., & Adeleke, B. S. (2021). Impact of experiential marketing on guest patronage in the hospitality industry in South-West Nigeria. *African Journal of Hospitality, Tourism and Leisure, 10*(1), 320–335.

Peck, J., & Childers, T. L. (2020). Individual differences in haptic information processing: The need for touch scale. *Journal of Consumer Research, 30*(3), 430–442.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Petit, O., Velasco, C., & Spence, C. (2019). Digital sensory marketing: Integrating new technologies into multisensory online experience. *Journal of Interactive Marketing,* 45, 42–61.

Rather, R. A. (2021). Demystifying the effects of perceived risk and fear on customer engagement, co-creation and revisit intention during COVID-19: A protection motivation theory approach. *Journal of Destination Marketing & Management*, 20.

Rather, R. A. (2023). Customer experience and emotional attachment in hospitality services: Examining the role of emotional engagement and relationship quality. *Journal of Hospitality and Tourism Insights, 6*(2), 421–438.

Spence, C. (2020). Extraordinary emotional responses elicited by auditory stimuli linked to the consumption of food and drink. *Acoustical Science and Technology, 41*(1), 28–36.

Spence, C., Puccinelli, N. M., Grewal, D., & Roggeveen, A. L. (2021). Store atmospherics: A multisensory perspective. *Psychology & Marketing, 38*(10), 1652–1667.

Su, L., Swanson, S. R., & Chen, X. (2022). The effects of perceived service quality and emotional attachment on behavioural intentions in hospitality services. *Tourism Management Perspectives, 42*.

Thomson, M., MacInnis, D. J., & Park, C. W. (2022). The ties that bind: Measuring the strength of consumers' emotional attachments to brands. *Journal of Consumer Psychology, 32*(1), 45–63.

Vera-Falcón, D., Del-Aguila-Arcentales, S., & Espíritu-Rojas, G. (2025). Analysis based on SOR model of food brand experience in consumers in Peru. *Journal of Agriculture and Food Research*, 24.

Xu, Q., & Chia, K. W. (2025). Beyond slowness: Exploring destination stimuli and tourists' emotional connections in slow tourism. Acta Psychologica, 259.

Zhang, X., Cui, Y., & Li, J. (2026). The influence of social crowding on consumers' product tactile information preference: The mediating role of self-threat. *Journal of Retailing and Consumer Services, 92*.

Zhenbin, W., Ramachandran, S., Siow, M., Subramaniam, T., & Hui, Z. (2024). Exploring the formation of behavioral intention toward rural tourism via sensory experience and memorable tourism experiences: A case study in Henan, China. *Journal of Quality Assurance in Hospitality and Tourism*. https://doi.org/10.1080/1528008X.2024.2390493

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Transforming Nigeria Through Advertising Education: A Searchlight on the Role of The Advertising Regulatory Council of Nigeria

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DOI : https://doi.org/10.5281/zenodo.22914516

Abstract

This study examines the role of advertising education in Nigeria and the extent to which the Advertising Regulatory Council of Nigeria (ARCON) participates in the design, accreditation and quality assurance of advertising programmes in Nigerian tertiary institutions. Adopting a narrative literature review approach, the study searched Google Scholar as its primary academic database, supplemented by a general web search used only to locate institutional and grey literature such as ARCON policy documents and professional-body reports. The search covered publications from 1998 to 2025, using combinations of the terms "advertising education," "ARCON," "advertising regulation Nigeria," "accreditation of advertising programmes," and "curriculum development in Nigerian tertiary institutions." An initial pool of 102 records was screened by title and abstract for relevance to the study objectives; after removing duplicates and sources outside the study's scope, 20 sources were retained for full review and were synthesised thematically around four analytical strands: professional regulation, human-capital formation, curriculum governance and market development. The review finds that ARCON performs several functions relevant to advertising education, including practitioner certification, capacity-building through seminars and workshops, and accreditation of tertiary institutions offering advertising-related courses, although the literature consistently reports that accreditation of advertising-specific curricula remains inconsistently applied. The review further finds that certification distinguishes registered advertising professionals from unregistered practitioners, and that ARCON's seminars and workshops provide graduates of advertising-related programmes with practical and entrepreneurial skills. The study concludes that while ARCON has contributed meaningfully to advertising education in Nigeria, its accreditation function requires closer institutional coordination with the National Universities Commission (NUC) and the National Board for Technical Education (NBTE). It recommends that ARCON formalise a collaborative accreditation arrangement with the NUC for advertising programmes in Nigerian universities.

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Keywords: Advertising education; ARCON; Professional regulation; Curriculum accreditation; Nigerian tertiary institutions.

Introduction

Advertising is widely credited with contributing to economic activity, consumer information and media sustainability in Nigeria. Scholars argue that advertising stimulates patronage for goods and services, which in turn supports industrial output, government revenue and employment (Nwamara & Anyanwu, 2020). It is also described as a source of consumer information, helping audiences make more informed choices about products and services. In addition, advertising revenue is frequently identified as a major source of income for Nigerian media houses, with implications for editorial quality and staff welfare.

Beyond its commercial function, advertising has also been used for developmental and public-interest purposes in Nigeria, including government campaigns on privatisation policy and public health issues such as HIV awareness (Ayozie, 2019). These uses illustrate why advertising is often framed, in the literature, as a tool with relevance beyond the market.

The practice of advertising in Nigeria has, however, been shaped by a specific and sometimes confusing regulatory history. Prior to 1988, advertising in Nigeria was largely unregulated, and this absence of oversight was associated with unethical practice and misleading claims. The Advertising Practitioners Council of Nigeria (APCON) was established by Decree No. 55 of 1988 to regulate the practice of advertising and set professional standards. APCON operated under this framework, later consolidated as the Advertising Practitioners (Registration, etc.) Act, Cap. A7, Laws of the Federation of Nigeria 2004, until August 2022, when the Advertising Regulatory Council of Nigeria Act 2022 was enacted. The 2022 Act repealed the APCON Act and replaced APCON with the Advertising Regulatory Council of Nigeria (ARCON) as the apex regulatory authority for advertising, advertisements and marketing communication in Nigeria. It is therefore accurate to describe ARCON as the successor body to APCON.

By virtue of its statutory mandate, ARCON registers and accredits advertising practitioners and agencies, enforces the Code of Advertising Practice, and promotes professional development through training, seminars and workshops. Because education and training are central to how new entrants are prepared for registration, ARCON's role necessarily extends into the domain of advertising education in Nigerian tertiary institutions. Yet the specific extent and effectiveness of ARCON's involvement in curriculum design and accreditation of advertising programmes at the tertiary level has not been systematically documented. This gap — between ARCON's broad statutory mandate and the more limited, uneven evidence on its actual involvement in tertiary advertising education — is the specific problem this study addresses.

Objectives of the Study

The broad objective of this study is to examine the role of ARCON in advertising education in Nigerian tertiary institutions. Specifically, the study seeks to:

1. examine the nature of advertising education — including curriculum structure, mode of delivery and accreditation status — in Nigerian tertiary institutions;

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2. assess the level of ARCON's involvement in the design and accreditation of advertising education programmes in Nigerian tertiary institutions; and
3. evaluate ARCON's contribution to advertising education in Nigerian tertiary institutions.

Method

This study adopts a narrative literature review design. A narrative review was considered appropriate because the objectives call for a thematic synthesis of a relatively small and heterogeneous body of Nigeria-specific literature on advertising education and regulation, rather than a pooled quantitative estimate of an effect. The review does not follow a systematic-review protocol (e.g., PRISMA), and this limitation is acknowledged; the procedure below is reported as transparently as the review design allows so that it can be followed by other researchers.

The literature search was conducted between 3 and 28 November 2025. Google Scholar was used as the primary academic database. A general web search (Google) was used only as a supplementary source to locate institutional and grey literature — specifically ARCON's own publications, JAMB brochures and professional-body reports — that are not indexed in academic databases. Findings from this grey-literature supplement are identified as such in the review and are not treated as peer-reviewed evidence.

Searches combined the terms “advertising education Nigeria,” “role of ARCON,” “APCON accreditation,” “advertising curriculum Nigeria,” “advertising regulation Nigeria,” and “role of advertising in national development,” used individually and in combination. Sources were included if they (a) were published in English between 1998 and 2025; (b) addressed advertising education, advertising regulation, or the broader developmental role of advertising, with specific reference to Nigeria; and (c) were available as a journal article, book chapter, conference paper, thesis, or an identifiable institutional document. Sources with no clear relevance to the study objectives, or for which the full text could not be obtained, were excluded.

The initial search returned approximately 102 records. Titles and abstracts were screened against the eligibility criteria, and duplicate records returned by more than one search string were removed. Following this screening, 20 sources were retained for full review, spanning publication dates from 1998 to 2025. The 20 retained sources were read in full and coded thematically against the study's three objectives and the four analytical strands:(i) professional regulation — how statutory bodies such as APCON/ARCON set and enforce standards for who may practise advertising; (ii) human-capital formation — how training, certification and continuing professional development build practitioner competence; (iii) curriculum governance — how accreditation and benchmark academic standards shape what is taught in tertiary advertising programmes; and (iv) market development — how a better-regulated, better-trained advertising sector is presented in the literature as supporting the wider advertising and media economy. These strands are used in the literature review and discussion below to group evidence and to distinguish what individual studies report from what is inferred across studies.

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Review of Related Literature

Role of Advertising in National Development

The literature identifies several ways in which advertising is said to contribute to national development. Gupta (2018) reports that in the United States during World War II, advertising campaigns were used to encourage the purchase of war bonds and conservation of resources, which is cited as an example of advertising being mobilised for a collective national purpose. Jones (2020) argues that advertising can shape public perception and social norms through repeated, emotionally resonant messaging — for instance, campaigns addressing gender equality or environmental sustainability. Johnson and Brown (2015) contend that advertising drives economic activity by stimulating consumer demand and enabling informed choice, while Lee and Kim (2019) report that advertising can promote cultural exchange by depicting diverse lifestyles and traditions. Taken together, these sources support the general claim that advertising has a role beyond its immediate commercial function, though this evidence is largely international rather than Nigeria-specific, and the Nigerian applications noted here (privatisation policy, HIV-awareness campaigns) are illustrative rather than the subject of dedicated empirical study in this review.

Nature of Advertising Education in Nigerian Tertiary Institutions

Advertising education in Nigeria developed as an extension of journalism and mass communication education rather than as a freestanding discipline. No Nigerian university offered formal journalism training until 1962, when the Jackson College of Journalism was established at the University of Nigeria, Nsukka; earlier provision was limited to short vocational courses, such as a two-week programme for working journalists at the University of Ibadan in 1954 (Akinfeleye, 2003). The University of Lagos followed with its Institute of Mass Communication in 1966.

By around 2000, close to 50 Nigerian universities offered courses in journalism or mass communication, structured along either the university model or the polytechnic model, the latter awarding the Ordinary National Diploma (OND) after two years and the Higher National Diploma (HND), broadly equivalent to a bachelor's degree, after a further two years (Aveni, Nyitse & Ogbu, 2019). Aveni, Nyitse and Ogbu (2019) further report that over 58 Nigerian institutions currently offer degree or diploma programmes with a public relations and advertising component, most of them within departments of mass communication rather than as dedicated advertising departments; only Igbinedion University and Lagos State University were identified as offering a stand-alone bachelor's degree in Public Relations and Advertising, with the remainder awarding degrees in mass communication or media studies more broadly.

A comparable pattern holds at the polytechnic level: 24 Nigerian polytechnics were identified as offering advertising-related content within departments of mass communication, leading to the National Diploma and Higher National Diploma, with roughly 40 per cent of the curriculum devoted to theory and 60 per cent to practical work (Aveni, Nyitse & Ogbu, 2019); a compulsory one-year industrial attachment extends the full programme to five years. Rather than list all 24 institutions, it is sufficient to note that their programmes are broadly similar in structure, and that most have had their National Diploma — but not consistently their Higher National Diploma — accredited by the National Board for Technical Education.

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The promulgation of Decree No. 55 of 1988, which established APCON, is described in the literature as a turning point for advertising training and practice, because it required advertising practitioners to be registered and licensed, and gave the regulator explicit functions relating to setting knowledge and skill standards, regulating practice, and conducting examinations and awarding certificates or diplomas (Keghku, 2008). Consistent with this mandate, ARCON (as APCON's successor) runs a professional diploma programme in advertising across six centres — Lagos, Abuja, Kano, Port Harcourt, Enugu and Owerri — alongside regular continuing-education courses. Other providers of advertising-related training include the Nigerian Institute of Journalism and the Time Journalism Institute, though most of their programmes are not accredited by the National Board for Technical Education, and the Nigerian Institute of Public Relations (NIPR), whose Certificate and Diploma Programme includes advertising content even though ARCON's own diploma programme has no independent course in public relations (Nwosu & Nkamnebe, 2006).

ARCON's Involvement in the Design and Accreditation of Advertising Education Programmes

Several sources agree that ARCON (and APCON before it) has played a role in promoting advertising education, particularly through certification of members, capacity-building via seminars and workshops, and accreditation of institutions offering advertising courses (Keghku, 2008; Ijeh, 2008; Aveni, Nyitse & Ogbu, 2019). Ayozie (2019) reports that ARCON's accreditation exercise is intended to guide institutions on staffing, equipment and curriculum development, and situates this within Tyler's model of curriculum and instruction, under which accreditation functions as a periodic assessment mechanism tied to defined educational objectives.

One study reportedly investigated how advertising is taught in tertiary institutions in Nigeria's mid-west region against the National Universities Commission's Benchmark Minimum Academic Standards, finding that students were exposed to e-learning and other technological tools, and recommending that ARCON treat accreditation of advertising courses with the same seriousness shown by bodies such as the Nigerian Society of Engineers and the Council of Legal Education (Waya, 2019).

A related study is reported to have examined curricula across Nigerian polytechnics and universities, concluding that regulatory bodies need to intervene more proactively to keep advertising programmes responsive to current professional challenges (Oibe, 2019).

[Comment: this paragraph is attributed to Agbatse (2013) below, but the reference-list entry for Agbatse (2013) is titled “Role of advertising in the development of societies,” which does not obviously match a study on the status and challenges of advertising education. Please verify against the original source and correct either the description or the reference entry.]

Another study on the status and challenges of advertising education in Nigeria reportedly identified a shortage of qualified teaching staff as the leading challenge, and recommended closer collaboration between professional regulators such as APCON/ARCON and communication training institutions (Agbatse, 2013).

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Agba, Oshega and Ogri (2018) similarly recommend that mass communication training institutions, including those offering advertising, invest more in the practical component of their curricula and improve student access to training facilities. Wilson (2018) calls on the National Universities Commission and the National Board for Technical Education to convene a national conference on redesigning communication curricula. On social media specifically, Otugo, Uzuegbunam and Onikezie (2015) report that social media advertising in Nigeria remains at an early developmental stage and that ARCON needs a dedicated framework, including curriculum content, for this area. Ekwueme and Okoro (2018) reach a related conclusion from their study of social media advertising use among online businesses, recommending that social media advertising be formally introduced into the curricula of institutions that train media and advertising practitioners, so that graduates enter the profession with adequate, verifiable competence rather than being self-taught in this area.

ARCON's Contribution to Advertising Education in Nigerian Tertiary Institutions

Advertising education in Nigeria is described as having emerged from management and marketing education before being recognised as a distinct professional field. Ayozie (2019) traces this to the University of Nigeria, Nsukka, which established its College of Administration in 1961 and admitted its first Business Administration and Finance students in the 1974/75 session, with marketing later taught as a discrete course from which advertising education subsequently developed. Ogechukwu (2019) reports that the Nigerian Institute of Journalism, established in 1972, was recognised by APCON as a centre for advertising education after introducing a postgraduate diploma in advertising in 1991.

The establishment of APCON by Decree No. 55 of 1988 is presented in the literature as the most significant milestone in the professionalisation of Nigerian advertising, following the National Council of Ministers' adoption, in January 1988, of a Broad National Mass Communication Policy. APCON was inaugurated on 14 November 1989, and from that point determined who could be recognised as an advertising practitioner in Nigeria and what standards of knowledge and skill were required for registration. ARCON, established under the 2022 Act, inherited this registration and standard-setting function. ARCON's diploma in advertising is examined in three stages; the programme, launched in 1993, has continued to run since. From 1 January 2000, unregistered persons practising advertising for gain became liable to prosecution under Decree No. 55 of 1988 as amended by Decree No. 93 of 1992; this remains, in substance, a criminal offence under the current framework. ARCON also runs quarterly and annual lectures, seminars, conferences and Continuing Professional Development (CPD) programmes in Lagos, Abuja and Enugu for practitioners, educators and students. More recently, the University of Nigeria has reportedly explored establishing a professorial chair in advertising with ARCON, and the National Universities Commission's unbundling of mass communication programmes is expected to allow advertising to emerge as a stand-alone course of study in more Nigerian universities.

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Legal and Regulatory Framework: From APCON to ARCON

Because the regulatory history underpins much of the discussion above, it is stated here directly. Advertising practice in Nigeria was first placed under statutory regulation by Decree No. 55 of 1988, which established the Advertising Practitioners Council of Nigeria (APCON) and was later consolidated as the Advertising Practitioners (Registration, etc.) Act, Cap. A7, Laws of the Federation of Nigeria 2004. In August 2022, the Advertising Regulatory Council of Nigeria Act 2022 was signed into law, repealing the APCON Act in its entirety and establishing the Advertising Regulatory Council of Nigeria (ARCON) as the apex regulatory authority for advertising, advertisements and marketing communications in Nigeria. The 2022 Act also transferred APCON's statutory functions, rights, obligations and liabilities to ARCON. Accordingly, references in the literature to "APCON, now ARCON" are treated in this review as references to the same regulatory lineage, but the two bodies are legally distinct: APCON existed as a statutory body from 1988 to 2022, and ARCON has existed as its statutory successor since 2022.

Discussion of Findings

This section synthesises the reviewed literature against the three study objectives, distinguishing individual sources' claims from the authors' interpretation across sources, and noting where the evidence is thin.

The literature converges on a consistent picture: advertising education in Nigeria is delivered almost entirely inside broader mass communication programmes rather than as a stand-alone discipline, at both university and polytechnic level, with only two universities identified as offering a dedicated advertising degree (Aveni, Nyitse & Ogbu, 2019). The sources also converge on a theory-practice split of roughly 40:60 at polytechnic level. Where the sources diverge is on quality: some studies report reasonably current content, including exposure to e-learning (as reportedly found by Waya, 2019, subject to the source-verification note above), while others report persistent gaps in staffing and facilities (Agba, Oshega & Ogri, 2018). Taken together, this suggests that the structural embedding of advertising within mass communication, rather than curriculum content alone, is the more fundamental issue for this objective, and it is the area where more Nigeria-specific empirical research is needed.

Multiple sources agree that ARCON's accreditation exercise exists and is intended to guide institutions on staffing, equipment and curriculum content (Ayozie, 2019). However, the literature is also consistent in reporting that this function is unevenly applied: accreditation of advertising-specific courses is repeatedly described as incomplete or missing, with recommendations that ARCON adopt the more rigorous accreditation posture seen in professions such as engineering and law. This is a case where individual sources report broadly the same gap independently, which strengthens confidence in the finding even though none of the underlying studies offers a systematic audit of accreditation coverage across all institutions.

The literature is most confident on ARCON's certification and continuing-education functions: sources describe consistent activity in examinations, diploma programmes, seminars, workshops and CPD events across several Nigerian cities. Evidence on downstream outcomes — for example, whether certified practitioners or accredited-programme graduates perform differently in the labour market — is largely absent from the reviewed sources; the claim that certification differentiates professionals from unregistered practitioners is a regulatory design

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intention reported in the literature rather than an outcome that has been independently measured. This is flagged here as a specific evidence gap rather than treated as an established finding.

Conclusion

Based on the literature reviewed, ARCON (and APCON before it) has played a documented role in advertising education in Nigeria, principally through practitioner certification, capacity-building via seminars and workshops, and diploma examinations. The evidence for ARCON's accreditation role in tertiary advertising curricula is more limited: the literature consistently identifies this as an area where accreditation is incomplete rather than absent. Claims about advertising's broader contribution to national economic and cultural transformation are supported mainly by international literature and should be read as illustrative context for, rather than direct evidence about, ARCON's specific role in Nigerian advertising education.

Recommendations

1. ARCON should formalise its accreditation role for advertising-specific courses in tertiary institutions. Because the National Universities Commission (NUC) holds the statutory mandate to accredit degree programmes in Nigerian universities, while ARCON's mandate under the 2022 Act covers professional standards and registration, the two bodies' roles are complementary rather than overlapping; a joint accreditation protocol — for example, ARCON participation as a subject-specialist assessor on NUC accreditation panels for advertising and mass communication programmes — would allow professional and academic accreditation criteria to be applied together, consistent with the recommendation reported by Waya (2019).
2. ARCON should develop and publish an explicit framework and curriculum guidance for social media advertising, given the literature's consistent finding that this is an under-served area of both regulation and training.
3. Tertiary institutions offering advertising-related courses should incorporate social media advertising into their curricula, in coordination with ARCON's framework once developed, so that graduates enter the profession with formally assessed rather than self-taught competence in this area.

References

Advertising Practitioners Council of Nigeria (n.d.). *Accreditation guidelines for advertising programmes in tertiary institutions*. Lagos: APCON.

Advertising Regulatory Council of Nigeria Act, 2022 (Nigeria).

Agba, J. U., Oshega, A., & Ogri, E. U. (2018). An assessment of training curricula of selected mass communication programmes in Nigerian universities. In D. Wilson & H. Batta (Eds.), *Communication education and research in the 21st century*. Uyo, Nigeria: African Council for Communication Education (ACCE).

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Agbatse, M. (2013). Role of advertising in the development of societies. *International Journal of Advertising*, 37(2), 207–218.

Akinfeleye, R. A. (2003). Fourth estate of the realm or fourth estate of the wreck: Imperative of the social responsibility of the press (Inaugural lecture). University of Lagos, Nigeria.

Aveni, O. C., Nyitse, G. T., & Ogbu, B. E. (2019). Advertising education and training in Nigeria: Development, infrastructure and policies. In I. R. Jeff & I. R. Billy (Eds.), *Advertising education around the world. Michigan*: American Academy of Advertising.

Ayozie, D. O. (2019). Current trends in advertising education and professional practice (the Nigerian angle): Problems and prospects. *Journal of Advertising and Public Relations*, 2(1), 1–12.

Ekwueme, A. C., & Okoro, N. (2018). Analysis of the use of social media advertising among selected online businesses in Nigeria. *International Journal of International Relations, Media and Mass Communication Studies*, 4(2), 28–43.

Gupta, R. (2018). The role of advertising in transforming societies. *Journal of Marketing*, 42(3), 123–136.

Ijeh, P. (2008). Advertising in national development: The expedient stimulus. In V. O. Aghayere, F. E. Iyoha, S. A. Idahosa, W. E. Herbert, A. B. Amadasun, & R. U. P. Idemudia (Eds.), *Nigeria political economy and sustainable development* (pp. 221–228). Benin City: Centre for Development Integration in Africa and Faculty of Social and Management Sciences, Benson Idahosa University.

Johnson, A., & Brown, C. (2015). Advertising and cultural transformation: A case study of gender representation. *Journal of Communication*, 28(2), 45–62.

Jones, M. (2020). The economic impact of advertising: A comprehensive analysis. *Journal of Economic Perspectives*, 35(4), 89–104.

Keghku, T. (2008). Perception of public relations, advertising professions and professionals in Nigeria (Unpublished PhD thesis). Benue State University, Makurdi, Nigeria.

Lee, S., & Kim, J. (2019). Cultural diversity in advertising: A comparative analysis of global campaigns. *International Journal of Advertising*, 37(2), 189–206.

Nwamara, C. A., & Anyanwu, B. J. C. (2020). Advertising education in Nigeria: A study of APCON's entrepreneurship and professional development programmes. *IMSU Journal of Communication Studies*, 4(1), 132–143.

Nwosu, I. E., & Nkamnebe, A. D. (2006). *Triple-P advertising: Principles, processes, practices*. Lagos: Afri-Towers Ltd.

Obasi, C. (2017). Understanding advertising regulation in Nigeria. *Advertising News*, 6(1), 18.

Oibe, T. S. (2019). The role of advertising in national development. International *Journal of Advertising*, 37(2), 219–232.

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Otugo, N. E., Uzuegbunam, G. E., & Onikezie, C. O. (2015, May 16–18). Social media advertising/marketing: A study of awareness, attitude and responsiveness by Nigerian youths [Paper presentation]. International Conference on Communication, Media, Technology and Design, Dubai, United Arab Emirates.

Waya, T. (2019). The role of advertising in nation building: A historical perspective. *Journal of Media Studies*, 15(1), 67–82.

Wilson, D. (2018). Towards a pragmatic mass communication curriculum for Nigerian universities in the 21st century. In D. Wilson & H. Batta (Eds.), *Communication education and research in the 21st century* (pp. 384–393). Uyo, Nigeria: African Council for Communication Education (ACCE).

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Dolomite Mining and Local Livelihood in some Selected Communities of Kwara and Oyo States, Nigeria

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DOI : https://doi.org/10.5281/zenodo.22914784

Abstract
This study examined the effects of dolomite mining on the socio-economic livelihoods in some selected communities of Oreke, Babanloma, Isale Osin, Eleja, Igbeti, and Alagutan in Kwara and Oyo States, Nigeria. Although dolomite mining contributes to employment, income generation, infrastructure development, and industrial growth, it also creates environmental and socio-economic difficulties that threaten sustainable livelihoods. Guided by the Sustainable Livelihood Theory, the study adopted a survey design using a mixed-methods approach. Quantitative data were collected by structured questionnaires administered to 384 respondents selected from study area with 372 retrieval, whereas qualitative data were obtained through Focus Group Discussions, In-Depth Interviews, Key Informant Interviews, non-participant observation, and secondary sources. Quantitative data were analysed using descriptive statistics and multiple linear regression, whereas qualitative data were subjected to thematic analysis. The findings showed that dolomite mining significantly influences socio-economic livelihoods. Mining activities generated positive outcomes, including employment creation, increased household income, business expansion, market growth, infrastructure development, vocational opportunities, and boosted economic participation of women. However, adverse effects such as environmental degradation, declining agriculture productivity, worsening health conditions, social conflicts, displacement, insecurity, and inadequate corporate social responsibility were also identified. The study concludes that although dolomite mining stimulates rural economic development, its long-run sustainability depends on harmonising economic gains with environmental protection and social welfare. It recommends stricter enforcement of environmental regulations, livelihood diversification, vocational training, improved corporate social responsibility, and greater community participation in mining governance to boost sustainable development in host communities.

Keywords: *dolomite mining, socio-economic, livelihood.*

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1. Introduction

Dolomite mining represents a significant global economic activity, driven by demand from the construction, steel, glass, agricultural, and chemical industries. This sector contributes to employment, government revenue, industrial development, and foreign exchange earnings. Major producers, including the United States, China, India, Germany, and Brazil, have expanded production to meet industrial demand (U.S. Geological Survey, 2023). The importance of mining to modern civilisation is highlighted by Max Planck's assertion that "mining is not everything, but without mining everything is nothing" (Dada & Ajadi, 2020). Despite these economic benefits, mining also creates substantial socio-economic challenges for host communities, particularly where livelihoods depend heavily on natural resources.

Socio-economic livelihoods globally refer to the means by which households secure income, food, shelter, education, healthcare, and general well-being. In rural areas, livelihoods often depend on agriculture, fishing, livestock, forestry, and ecosystem services (Haile et al., 2021; Nelson et al., 2023). Dolomite mining alters land-use patterns through excavation, blasting, transportation, and processing, leading to agricultural land loss, soil degradation, water pollution, and vegetation destruction. These environmental changes can diminish agricultural productivity, household income, food security, and economic resilience (Wegenast & Beck, 2020). Evidence from mining communities demonstrates that dust from blasting and crushing contaminates farmland, reduces crop yields, and increases respiratory health risks. Additionally, mining-related water pollution affects irrigation, fisheries, and domestic water supplies, thereby restricting traditional livelihoods and elevating risks of poverty and unemployment (Sutrisno & Azhari, 2020).

The challenges linked to mining are especially pronounced in Africa, where mineral extraction significantly contributes to economic growth and government revenue. Despite these advantages, many mining-host communities persistently experience poverty and underdevelopment. Weak institutional capacity, inadequate environmental governance, and insufficient regulatory enforcement often permit unsustainable mining practices (Oruonye & Ahmed, 2020). In response, the African Mining Vision promotes mineral-resource governance that integrates economic development alongside environmental protection and community well-being (Jourdan, 2024).

In Nigeria, dolomite deposits are found in Abuja, Edo, Kogi, Nasarawa, Kwara, Oyo, and Yobe States (Omoseebi & Tanko, 2021). While mining activities generate employment and stimulate local businesses and infrastructure, they also degrade agricultural land, pollute water sources, reduce vegetation, and undermine livelihoods (Yisa et al., 2026; Zinke, 2021). These negative effects can lead to respiratory illnesses, declining incomes, displacement, and conflicts arising from inadequate compensation and limited community participation (Shackleton, 2020; Egunyu & Boakye-Danquah, 2024).

In Kwara and Oyo States, the socio-economic consequences of dolomite mining are apparent in communities such as Oreke, Babanloma, Eleja, Isale Osin, Igbeti, and Alagutan. In these areas, mining-related dust, land degradation, and deforestation threaten agricultural activities and are linked to reduced yields, lower incomes, food insecurity, and heightened economic vulnerability (Olatunji et al., 2017). Although the Nigerian Minerals and Mining Act (2007) and National Environmental (Mining and Process of Coal, Ore, and Industrial Minerals) Regulations 2009 establish environmental safeguards, weak implementation, insufficient funding, limited

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institutional capacity, and the prevalence of informal mining continue to constitute significant challenges (Olujobi & Irumekhai, 2024).

Although existing research documents the environmental and livelihood challenges associated with mining, integrated empirical evidence on how dolomite mining affects socio-economic outcomes in selected communities in Kwara and Oyo States remains limited. The main gap is the lack of community-level evidence linking these environmental pressures to reduced agricultural productivity, income, food security, and economic vulnerability, particularly amid regulatory challenges. This study addresses this gap by assessing the socio-economic effects of dolomite mining in these communities to inform environmentally sustainable mining policies, stronger environmental governance, livelihood protection, and equitable benefit sharing. It also tends to provide empirical evidence to guide policymakers, mining authorities, and development agencies in promoting sustainable livelihoods, poverty reduction, environmental governance, and equitable benefit sharing.

2. Statement of the Problem

Dolomite mining supports employment, income generation, and local economic activities in mineral-producing communities. However, its environmental consequences may adversely affect household livelihoods. Research on mining in Nigeria has identified environmental concerns such as land degradation, soil contamination, air pollution, and reduced agricultural productivity (Eludoyin, 2017; Merem et al., 2017). For example, Olatunji et al. (2017) found elevated heavy-metal concentrations in agricultural soils near dolomite processing areas in Igbeti, raising concerns about agricultural suitability. Despite these findings, most existing studies have focused on environmental and physical impacts, with limited empirical evidence linking these conditions to employment, household income, agricultural productivity, food security, and broader socio-economic livelihoods in dolomite-mining communities. This study addresses this gap by investigating the socio-economic livelihood effects of dolomite mining in selected communities in Kwara and Oyo States, Nigeria.

3. Aim and Objective of the Study

The aim and objective of the study is to examine the effects of dolomite mining on socio-economic livelihood and proffer solution to its adverse effect in some selected communities in Kwara and Oyo States, Nigeria.

4. Research Hypothesis

i. H_0: Dolomite mining has no significant effect on socio-economic livelihood of mining communities in Kwara and Oyo States

   H_1: Dolomite mining significantly affects the socio-economic livelihood of mining communities in Kwara and Oyo State

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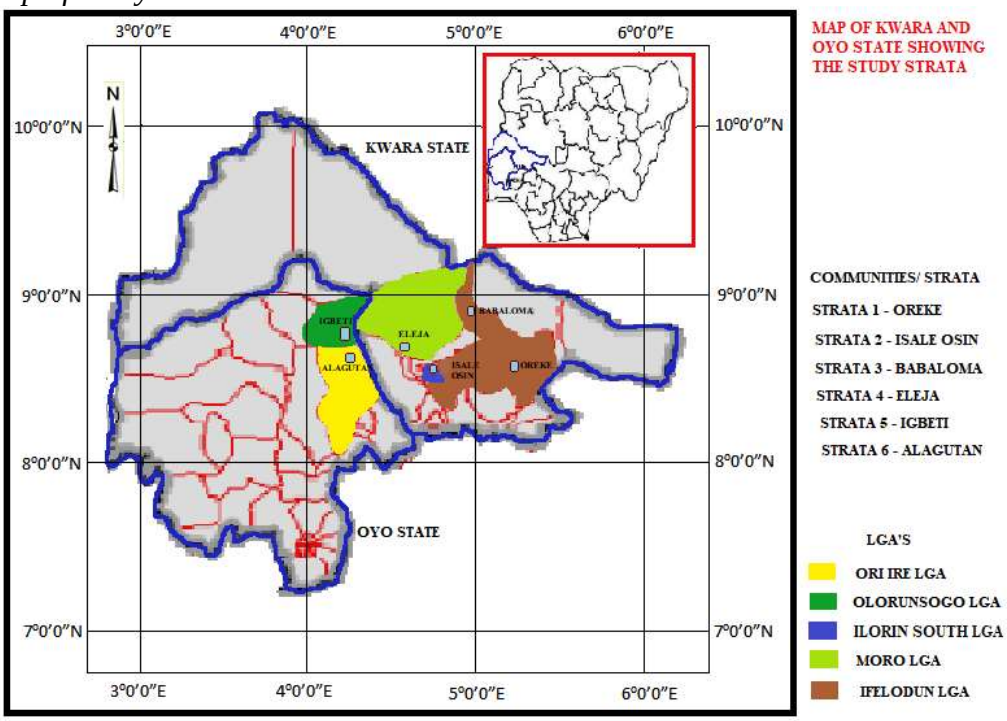
5. Scope of Study

Figure 1
Map of Study Area



Source: NESREA Kwara Field Office ICT Unit, 2025

The study examines the effect of dolomite mining on socio-economic livelihoods in Oreke, Babanloma, Isale Osin, and Eleja, in the Ifelodun, Ilorin South, and Moro Local Government Areas of Kwara State, as well as Igbeti and Alagutan in the Olorunsogo and Ori Ire Local Government Areas of Oyo State, Nigeria. It evaluates the effect of mining activities on these communities' social and economic well-being. The study offers insights regarding the socio-economic consequences of dolomite mining and informs evidence-based recommendations to strengthen environmental protection, safeguard livelihoods, promote sustainable mining practices, and mitigate adverse effects on affected communities.

6. Literature Review

Dolomite, a sedimentary carbonate rock composed of $CaMg(CO_3)_2$, is widely utilised in construction, agriculture, cement, steel, and chemical industries. Despite increased extraction driven by urbanisation and industrialisation, scholarly attention to dolomite mining remains limited compared with gold, oil, and limestone (World Bank, 2024). Ogunleye and Arije (2026) describe dolomite formation through dolomitisation, while Werner et al. (2019) focus on technological advancements such as GPS, drones, remote sensing, and three-dimensional geological modeling, primarily from a mining efficiency perspective. Although these studies enhance geological and technological understanding, they do not sufficiently address the consequences for household livelihoods.

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Research on the economic impacts of mining yields divergent conclusions. Hilson (2016), Nigeria Extractive Industries Transparency Initiative (NEITI, 2021), Kemp et al. (2021), and Chipangamate et al. (2023) link mining to increased employment, income, economic activity, and infrastructure development. Conversely, Haruna et al. (2022) reports negative outcomes such as agricultural land degradation, reduced productivity, food insecurity, and heightened livelihood vulnerability. These contrasting findings indicate that aggregate economic benefits may occur alongside deteriorating household livelihood conditions. Notably, the existing studies differ in their geographical and analytical scope and offer limited evidence regarding dolomite-dependent communities in Nigeria.

Environmental research also identifies land degradation, vegetation loss, erosion, biodiversity decline, and water contamination as consequences of mining (Adeniyi et al., 2022). However, these studies primarily focus on environmental variables and do not systematically connect them to livelihood indicators such as agricultural productivity, income, food security, and household vulnerability. In contrast, Ayuk et al. (2020) and Narula et al. (2017) highlight sustainability measures including reclamation, restoration, pollution control, community participation, regulatory enforcement, and livelihood diversification, yet provide limited empirical evidence regarding their effectiveness in dolomite-mining communities.

In Nigeria, dolomite deposits are found in Kogi, Edo, Kwara, Ogun, Oyo, Nasarawa, and Yobe States (U.S. Geological Survey [USGS], 2017). However, the existing literature offers insufficient comparative evidence regarding the livelihood consequences of dolomite mining in Oreke, Babanloma, Isale Osin, Eleja, Igbeti, and Alagutan. This study seeks to address this empirical gap by integrating mining-related environmental pressures with household socio-economic livelihood outcomes in these selected communities.

7. Theoretical Framework

The Sustainable Livelihood Framework (SLF) provides a direct analytical basis for examining how dolomite mining influences the socio-economic livelihoods of communities in Kwara and Oyo States. The theory originated from Robert Chambers' work in the mid-1980s and was further developed by Chambers and Conway in 1992 (Morse, 2025; Natarajan et al., 2022). Rather than treating the five livelihood capitals (human, natural, financial, social, and physical) as general categories, this study operationalises them in relation to the empirical variables measured. **Human capital** is reflected in employment opportunities, vocational training, and health conditions, recognising that mining can simultaneously create skills and employment while exposing residents to health risks. **Natural capital** relates to access to and quality of land, water, vegetation, and other environmental resources affected by mining activities. **Financial capital** is represented by income improvement, economic opportunities for women, local businesses, and market expansion. **Social capital** encompasses community participation, social relationships, collective action, conflicts, and displacement associated with mining. **Physical capital** covers infrastructure and community facilities, including roads, healthcare facilities, and other services influenced by mining activities.

The framework's **vulnerability context** is applied to mining-related environmental and socio-economic shocks, including land degradation, water contamination, dust, worsening health conditions, erosion, displacement, and fluctuations in livelihood opportunities. These pressures influence households' capacity to sustain livelihoods and shape their coping and adaptation

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strategies, consistent with Natarajan et al. (2022). The **transforming structures and processes** comprise government agencies, environmental regulations, mining policies, community development associations, licensing, monitoring, enforcement, consultation, and sensitisation measures. These institutional processes determine access to livelihood assets and influence how mining benefits and risks are distributed.

Thus, TSL moves beyond a historical description to provide an explicit framework linking environmental pressures, livelihood assets, institutional responses, and socio-economic outcomes. Although criticisms concerning oversimplification, inequality, politics, and governance remain (Wubayehu, 2020; Jiren et al., 2021; Morse, 2025), its holistic and people-centred orientation (Serrat, 2017; Ngamwong et al., 2024), including its compatibility with digital approaches (UNDP, 2016), makes it appropriate for this study.

8. Methodology

The study used a convergent parallel mixed-methods design to collect quantitative and qualitative data simultaneously and independently, providing complementary perspectives on socio-economic livelihood (Creswell & Plano Clark, 2018). Questionnaires generated quantitative data, while interviews, focus group discussions, observation, and secondary sources provided contextual insights. Both data types were analysed concurrently and integrated during interpretation to corroborate, complement, or clarify convergent and divergent findings. The study population included mining workers, host-community residents, miners association, artisans, transportation association, environmental consultants, and regulatory agencies. However, the approved projected population comprises 10,889 residents in Oreke, 32,706 in Babalomo, 1,322 in Isale Osin, 1,011 in Eleja, 31,132 in Igbeti, and 1,290 in Alagutan, totalling 78,350 residents (National Population Commission, 2025). The study applied the Sample Z-Score formula to obtain a sample size of 384 respondents at a 95% confidence level and 5% margin of error.

A total of 384 questionnaires were equally allocated across six strata, with 64 administered in each community and 372 retrieved. Multistage sampling used disproportionate stratified and cluster techniques for quantitative respondents, while purposive sampling selected 50 qualitative participants, including 17 key informant interviews (KII), 9 focus group discussions (FGD), and 24 in-depth interviews (IDI). The questionnaire used five-point Likert scales, with validity established through expert review and reliability confirmed by Cronbach's Alpha (≥ 0.75). Quantitative data were analysed using descriptive statistics and multiple linear regression, whereas qualitative data were subjected to thematic analysis. Ethical considerations of informed consent, confidentiality, privacy, and voluntary participation were rigorously utilised.

9. Results

The results from the study on the effects of dolomite mining on socio-economic livelihood in Kwara and Oyo States are presented. Data derived from the questionnaire, Focus Group Discussion (FGD), In-depth Interview (IDI), Key Informant Interview (KII), and Non-Participant Observation were analysed respectively. The Table summarise the demographic characteristics of the respondents on age, gender, marital status, educational attainment, and occupation.]

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Table 1

Demographic Information of Respondents

Variable	Category	Frequency	Percentage (%)
Age [Years]	Less than 18	10	2.7
	18 and above	362	97.3
Total		**372**	**100**
Gender	Male	246	66.1
	Female	126	33.9
Total		**372**	**100**
Marital Status	Married	202	54.3
	Single	158	42.5
	Others	12	3.2
Total		**372**	**100**
Academic Qualification	SSCE	72	19.3
	NCE/OND	58	15.6
	HND/1ST D/PG	165	44.4
	Non	77	20.7
Total		**372**	**100**
Occupation	Miner	74	19.9
	Farmer	90	24.2
	Government	68	18.3
	CSO	14	3.8
	Community Res	79	21.2
	Others	47	12.6
Total		**372**	**100**

Source: Author's analysis 2025

Table 1 shows the demographic characteristics of respondents. The Table indicated that most respondents were aged 18 years and above (97.3%), while 2.7% were below 18 years. Males constituted the majority (66.1%), compared with females (33.9%). Regarding marital status, 54.3% were married, 42.5% single, and 3.2% reported other statuses. Educationally, 44.4% possessed HND, first-degree, or postgraduate qualifications, while 20.7% had no formal education, 19.3% had SSCE, and 15.6% held NCE/OND qualifications. Occupationally, farmers represented the largest group (24.2%), followed by community residents (21.2%), miners (19.9%), government officials (18.3%), and civil society organisation members (3.8%). The remaining 12.6% engaged in other occupations. Overall, the respondents represented diverse demographic, educational, and occupational backgrounds, providing varied perspectives relevant to assessing the socio-economic livelihood implications of dolomite mining in the study communities.

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Table 2

Perception of respondents on the effects of dolomite mining on socio-economic livelihood in Kwara and Oyo States.

S/N	Research Question 4	SD	D	NS	A	SA	TOTAL
i	Employment opportunities	60 (16.13%)	42 (11.29%)	16 (4.30%)	141 (37.90%)	113 (30.38%)	372 (100%)
ii	Improvement in income level	20 (5.38%)	29 (7.80%)	52 (13.98%)	148 (39.78%)	123 (33.06%)	372 (100%)
iii	Attraction of businesses/services	30 (8.06%)	6 (1.61%)	53 (14.25%)	116 (31.18%)	167 (44.89%)	372 (100%)
iv	Expansion of local markets	6 (1.61%)	9 (2.42%)	101 (27.15%)	144 (38.71%)	112 (30.11%)	372 (100%)
v	Development of infrastructures	24 96.45%)	57 (15.32%)	67 (18.01%)	116 (31.18%)	108 (29.03%)	372 (100%)
vi	Improvement in healthcare	33 (8.87%)	112 (30.11%)	128 (34.41%)	58 (15.59%)	41 (11.02%)	372 (100%)
vii	Social conflicts/displacement	77 (20.70%)	107 (28.76%)	25 (6.72%)	89 (23.92%)	74 (19.89%)	372 (100%)
viii	Worsening health conditions	64 (17.20%)	117 (31.45%)	34 (9.14%)	50 (13.44%)	107 (28.76%)	372 (100%)
ix	Vocational training opportunities	19 (5.11%)	110 (29.57%)	104 (27.96%)	101 (27.15%)	38 (10.22%)	372 (100%)
x	Economic opportunities for women	11 (2.96%)	27 (7.26%)	35 (9.41%)	173 (46.51%)	126 (33.87%)	372 (100%)
xi	Dolomite mining has effect on socio-economic livelihood of mining communities	13 (3.49%)	34 (9.14%)	25 (6.72%)	208 (55.91%)	92 (24.73%)	372 (100%)

Source: Author's analysis 2025

Table 2 presents responses from **372 respondents** on the socio-economic effects of dolomite mining. Employment opportunities recorded **68.28% agreement,** while improvement in income level recorded **72.84%.** Attraction of businesses/services had **76.07% agreement**, and expansion of local markets **68.82%.** Infrastructure development recorded **60.21% agreement**, whereas healthcare improvement had only **26.61%.** Social conflicts/displacement showed **43.81% agreement**, while worsening health conditions recorded **42.20%.** Vocational training opportunities attracted **37.37% agreement**. Economic opportunities for women had the highest positive response at **80.38%.** Overall, **80.64% agreed** that dolomite mining affects socio-economic livelihoods.

To further analyse the data generated, a multiple linear regression was used at the 95% confidence level to assess the effects of dolomite mining on socio-economic livelihoods. From Table 2, item xi is the dependent variable, while items i – x are independent variables. Responses used a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

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Table 3

ANOVA Result and Model summary of Linear Regression

Source	Sum of Square	Df	Mean Square
Model	152.471	10	15.247
Residual	63.914	361	0.177
Total	216.385	371	

Number of Observations	= 372
F (10, 361)	= 86.113
Prob. > F	= 0.0000
R – Squared	= 0.709
Adj. R – Squared	= 0.701
Root Mean Square Error	= 0.421

The model summary in Table 3 shows a strong positive relationship between the independent variables and socio-economic livelihoods (R = 0.842). The R^2 of 0.709 indicates that the predictors explain 70.9% of the variation in livelihoods, while the adjusted R^2 of 0.701 confirms substantial explanatory power after accounting for the predictors. The analysis of variance further demonstrate that the regression model is statistically significant ($F = 86.113$, $p < 0.05$). Therefore, the null hypothesis is rejected, indicating that dolomite mining significantly affects socio-economic livelihoods. The findings reveal both benefits, including employment, income and business growth, and adverse effects such as social conflicts and deteriorating health conditions.

Table 4

Regression Coefficients

Variables	**Beta Coefficient**	**t-value**	**Sig.**	**Decision**
Employment opportunities (X_1)	0.284	4.912	0.000	Significant
Improvement in income level (X_2)	0.301	5.387	0.000	Significant
Attraction of businesses/services (X_3)	0.336	6.014	0.000	Significant
Expansion of local markets (X_4)	0.248	4.103	0.001	Significant
Development of infrastructures (X_5)	0.229	3.984	0.002	Significant
Improvement in healthcare (X_6)	-0.081	-1.733	0.084	Not Significant
Social conflicts/displacement (X_7)	-0.144	-2.842	0.005	Significant
Worsening health conditions (X_8)	-0.119	-2.401	0.017	Significant
Vocational training opportunities (X_9)	0.173	3.006	0.003	Significant
Economic opportunities for women (X_{10})	0.352	6.291	0.000	Significant

Regression analysis showed that most independent variables considerably influenced socio-economic livelihoods at the 95% confidence level. Economic opportunities for women exhibited the highest positive coefficient ($\beta = 0.352$), followed by the attraction of businesses and services ($\beta = 0.336$), showing the significance of women's empowerment, investment, commercial activities, and economic development. Income improvement and employment opportunities also appeared as significant predictors. In contrast, social conflicts, displacement, and deteriorating health conditions negatively impacted community well-being. As significance levels were below 0.05, the null hypothesis (H_0) was rejected in favour of the alternative hypothesis (H_1).

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Respondents reported that dolomite mining produces both positive and negative socio-economic effects. It generates employment, increases household income, attracts investors, and improves living standards, infrastructure, water supply, and social amenities, while strengthening community interactions. Conversely, mining contributes to deforestation, soil degradation, water depletion, reduced agricultural activities, food insecurity, and school dropouts among youths seeking immediate financial benefits.

Similarly, an environmental consultant during a key informant interview reported that:

> Dolomite mining has created job opportunities, prompted migration into mining areas, and enhanced both formal and informal income-generating activities. Dolomite provides essential materials for processing industries, improves transportation access for communities, and fosters development through population growth. However, mining activities can limit movement during blasting operations and have negatively impacted traditional livelihoods such as agriculture and hunting (KII4, Representative of NESREA, 2025).

Another environmental consultant in a key informant mentioned that "mining has bolstered local businesses, facilitated community development, offered social services like pipe-borne water, decreased outward migration, and strengthened the local economy" (KII9/Representative of KWMISMD, 2025).

Further, a key informant from the MSMD in Oyo State pointed out that:

> Although mining has created jobs, increased demand for various goods and services, increase in income allowances, and expanded economic activities, it has also contributed to conflicts of interest and banditry within the communities, and affected their traditional ways of life like hunting and farming (KII3/Representative of MSMD, 2025).

Additionally, some participants indicated that dolomite mining has led to infrastructural advancements, converted certain rural communities into more urbanised regions, attracted a surge of newcomers, boosted spending power, broadened commercial activities, and improved local revenue through taxes and other levies. Insights from detailed interviews showed that mining operations have spurred development, drawn in labour migrants, generated job opportunities, elevated business activities, and increased rental prices for housing.

An in-depth Interviewee also pointed out that:

> There is progress such as the establishment of schools and police stations the communities, although the rise in traffic congestion linked to mineral transport was recognised as an issue. Workers earn a significant income, estimated at around ₦18,000 per tonne of processed material. Recently, there are reports of conflict and kidnapping in areas like Oreke which has temporarily interrupted mining activities (IDI2/Representative of Miners Association, 2025).

Also, a key informant from MSMDA explained that "dolomite mining has created jobs in the host communities of Igbeti and Alagutan, enhanced businesses, community development, reduced migration from the communities, enhanced economic life but affected agricultural output" (KII11/Representative of MSMDA, 2025).

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An in-depth interviewee explained that:

> Dolomite mining has enhanced economic development, improved buying and selling, increased immigration, and enhanced corporate social responsibilities like bore holes. On the other hand it has affected agricultural development and increased banditry precisely in the Oreke axis. There was a kidnapping attack that around the community that led to the death of an expatriate and some other persons. This has led to stoppage of mining in the community (IDI3, Head of Mining Facility, 2025).

Furthermore, participants in a focus group discussion held in Igbeti noted that dolomite mining has led to increased income levels, although mining companies were viewed as contributing minimally in terms of corporate social responsibility, and no significant conflicts were reported (FGD2/Artisan Association, 2025). Some interviewees asserted that mining operations had not caused discord but had instead provided royalties to both the communities and government authorities, enhancing personal income and creating business opportunities. Nonetheless, participants also pointed out that the influx of population, growth in job opportunities, and expanding commercial activities have brought along escalating instances of substance abuse, kidnapping, banditry, and other security issues. Additionally, they voiced concerns that community development and social responsibility efforts by mining companies are still insufficient, despite the economic advantages linked to dolomite mining.

10. Discussion of Findings

The findings reveal a significant trade-off associated with dolomite mining, whereby improvements in some aspects of household livelihoods occur alongside deterioration in others. Mining converts natural resources into financial and physical assets but may simultaneously reduce natural, human, and social capital. Consequently, the observed benefits and adverse effects are interconnected outcomes of mining, reflecting differences in how its economic gains and associated costs are distributed.

The positive livelihood effects observed align with Hilson (2016), who identified employment opportunities for miners, machine operators, transporters, traders, and service providers. Similarly, this study found that excavation, transportation, equipment maintenance, security, catering, and trading generate both direct and indirect employment. However, the findings indicate that mining influences livelihoods through mechanisms beyond employment alone. Mining increases household purchasing power, stimulates local markets, and creates demand for ancillary businesses, generating multiplier effects within host communities. This observation aligns with Kemp et al. (2021) and Chipangamate et al. (2023), who associated mining with investment and infrastructure development. Nonetheless, infrastructure and commercial expansion should not be equated with sustainable development, as benefits may be concentrated among households with the skill capital and crucial connections needed to access mining-related opportunities.

Mining's positive impact on women's economic opportunities further illustrates mining's uneven yet potentially transformative effects. Women's involvement in mineral processing, trading, catering, and related services can diversify household income and reduce reliance on agriculture. However, increased participation does not necessarily eliminate vulnerability. Women may gain access to income while remaining exposed to environmental hazards, rising living costs, and

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limited control over productive resources. Therefore, the positive regression effect associated with women's economic opportunities should be interpreted as evidence of livelihood diversification rather than as proof that mining universally improves welfare.

In contrast, the reported environmental and social consequences highlight the costs associated with generating certain economic benefits. Excavation and land clearing reduce productive agricultural land, thereby diminishing the natural capital that supports farming households. This finding corroborates Haruna et al. (2022), who linked mining-related land degradation to reduced agricultural productivity and increased vulnerability. The key implication is that mining may increase financial capital in the short term while simultaneously eroding the natural resource base necessary for long-term livelihood security. As a result, households benefiting from mining employment may experience economic improvement, whereas those primarily dependent on farming may face declining livelihood security.

The reported health problems offer an additional explanation for this paradox. Mining-related environmental pressures can elevate health risks and increase household expenditures, while declining health can reduce workers' productivity and their ability to engage in income-generating activities. Similarly, social unrest, insecurity, antisocial behavior, displacement, and increased pressure on housing and social services suggest that heightened economic activity can undermine social cohesion. Therefore, the economic benefits identified in the regression analysis should be considered alongsi]de these associated welfare costs.

Sustainable Livelihood Theory explains these findings well by conceptualizing livelihoods as the interaction among financial, physical, natural, human, and social capitals. Ngamwong et al. (2024) emphasize the importance of maintaining these interconnected livelihood assets. In the study communities, mining increases financial capital through employment and business opportunities and may enhance physical capital through infrastructure development. However, these gains can coincide with losses in natural capital due to land degradation, human capital through adverse health outcomes, and social capital from conflict and displacement.

Accordingly, these findings do not contradict previous studies; instead, they demonstrate that seemingly divergent conclusions can coexist within the same mining context. The central concern is how benefits and costs are distributed and sustained. Dolomite mining can create immediate economic opportunities while shifting environmental and social costs onto households and communities. Achieving sustainability therefore requires mechanisms that protect agricultural land, minimize health risks, strengthen community participation, and ensure that economic gains translate into durable livelihood assets. Thus, mining should be evaluated not solely by income generated, but by whether improvements in financial and physical capital adequately compensate for, and do not permanently undermine, natural, human, and social capital.

11. Conclusion and Recommendation

Dolomite mining and local livelihood in Oreke, Babanloma, Isale Osin, Eleja, Igbeti, and Alagutan communities in Kwara and Oyo States, Nigeria where examined. The findings demonstrate that dolomite mining has a dual and complex influence on the socio-economic livelihoods of the host communities. While mining provides employment, increases household income, attracts businesses and services, expands local markets, improves infrastructure, and creates economic

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opportunities for women, these benefits coexist with substantial livelihood challenges. Social conflicts, insecurity, declining agricultural activities, worsening health conditions, environmental degradation, and inadequate corporate social responsibility indicate that mining-related economic gains may be accompanied by increased household vulnerability.

The statistically significant regression result at the 95% confidence level further confirms that dolomite mining is an important determinant of socio-economic livelihood conditions in the study communities, resulting in rejection of the null hypothesis. Overall, the findings suggest that the sustainability of mining cannot be assessed solely through income and employment gains. Effective regulation, environmental protection, community participation, health safeguards, agricultural protection, and responsible corporate practices are therefore essential to ensure that mining contributes to durable and equitable livelihood improvement.

Based on these findings from the study, it is recommended that;

- National Environmental Standards and Regulations Enforcement Agency (NESREA), Ministry of Solid Minerals Development (MSMD), and other federal and state government organisations should carry out stricter enforcement of environmental regulations to curb unsustainable mining practices.
- MSMD should ensure that mining facilities strengthen corporate social responsibility agreements through investments in healthcare, education, potable water supply, and community infrastructure before giving exploitation license.
- Community participation in decision-making and equitable compensation mechanisms should be enhanced to minimize conflicts and promote sustainable development in host communities.

Reference

Adeniyi, A. G., Emenike, E. C., Iwuozor, K. O., Okoro, H. K., & Ige, O. O. (2022). Acid mine drainage: The footprint of the Nigeria mining industry. *Chemistry Africa, 5*(6), 1907–1920. https://doi.org/10.1007/s42250-022-00493-3

Ayuk, E. T., Pedro, A. M., Ekins, P., Gatune, J., Milligan, B., Oberle, B., Christmann, P., Ali, S., Kumar, S. V., & Bringezu, S. (2020). *Mineral resource governance in the 21st century: Gearing extractive industries towards sustainable development*. International Resource Panel, United Nations Environment Programme.

Chipangamate, N. S., Nwaila, G. T., Bourdeau, J. E., & Zhang, S. E. (2023). Integration of stakeholder engagement practices in pursuit of social licence to operate in a modernising mining industry. *Resources Policy, 85*, 103851. https://doi.org/10.1016/j.resourpol.2023.103851

Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Dada, S., & Ajadi, J. (2018). Exploiting Kwara State mineral resources for economic sustainability. In A. Musa (Ed.), *Kwara at 50: Achievements and aspirations* (pp. 123–137). Fifty-Fifty Institute Ltd.

Egunyu, F., & Boakye-Danquah, J. (2024). A systematic review of the socio-economic impacts of mining in Africa: Do research methods influence participation? *The Extractive Industries and Society, 17*, 101408. https://doi.org/10.1016/j.exis.2024.101408

Eludoyin, A. O., Ojo, A. T., Ojo, T. O., & Awotoye, O. O. (2017). Effects of artisanal gold mining activities on soil properties in a part of southwestern Nigeria. *Cogent Environmental Science, 3*(1), 1305650. https://doi.org/10.1080/23311843.2017.1305650

Haile, D., Seyoum, A., & Azmeraw, A. (2021). Does building the resilience of rural households reduce multidimensional poverty? Analysis of panel data in Ethiopia. *Scientific African, 12*, e00788. https://doi.org/10.1016/j.sciaf.2021.e00788

Haruna, U. A., Amos, O. A., Dara, O. O., Wuraola, S. F., Kilonzo, J. S., Olorunfemi, O. E., Musa, S. M., & Lucero-Prisno, D. E. (2022). Agriculture and food security in Northern Nigeria, Part II: The impact of mining. In M. J. Cohen (Ed.), *Advances in food security and sustainability* (Vol. 7, pp. 149–160). Elsevier. https://doi.org/10.1016/bs.af2s.2022.07.002

Hilson, G. (2016). Farming, small-scale mining and rural livelihoods in sub-Saharan Africa: A critical overview. *The Extractive Industries and Society, 3*(2), 547–563. https://doi.org/10.1016/j.exis.2016.02.003

Jiren, T. S., Riechers, M., Bergsten, A., Dorresteijn, I., Collier, N. F., & Fischer, J. (2021). A leverage points perspective on institutions for food security in a smallholder-dominated landscape in southwestern Ethiopia. *Sustainability Science, 16*(3), 767–779. https://doi.org/10.1007/s11625-021-00936-9

Jourdan, P. (2024). *Continental frameworks for mineral resource governance in Africa: Strategies for enhanced domestication*. International Institute for Democracy and Electoral Assistance (International IDEA). https://doi.org/10.31752/idea.2024.119

Kemp, D., Owen, J. R., & Lèbre, É. (2021). Corporate social responsibility and the sustainability of mining communities. *The Extractive Industries and Society, 8*(2), 100938. https://doi.org/10.1016/j.exis.2021.100938

Merem, E. C., Twumasi, Y., Wesley, J., Isokpehi, P., Shenge, M., Fageir, S., Crisler, M., Romorno, C., Hines, A., Hirse, G., Ochai, S., Leggett, S., & Nwagboso, E. (2017). Assessing the ecological effects of mining in West Africa: The case of Nigeria. *International Journal of Mining Engineering and Mineral Processing, 6*(1), 1–19. https://doi.org/10.5923/j.mining.20170601.01

Morse, S. (2025). *Having faith in the sustainable livelihood approach: A review*. *Sustainability, 17*(2), 539. https://doi.org/10.3390/su17020539

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Narula, S. A., Magray, M. A., & Desore, A. (2017). *A sustainable livelihood framework to implement CSR project in coal mining sector. Journal of Sustainable Mining, 16*(3), 83–93. https://doi.org/10.1016/j.jsm.2017.10.001

Natarajan, N., Newsham, A., Rigg, J., & Suhardiman, D. (2022). *A sustainable livelihoods framework for the 21st century*. *World Development, 155*, 105898. https://doi.org/10.1016/j.worlddev.2022.105898

Natarajan, N., Newsham, A., Rigg, J., & Suhardiman, D. (2022). A sustainable livelihoods framework for the 21st century. *World Development, 155*, 105898. https://doi.org/10.1016/j.worlddev.2022.105898

National Population Commission. (2025). *Projected population of Ifelodun, Ilorin South, Moro, Olorunsogo, and Ori Ire LGAs*. National Population Commission

Nelson, L. K., Cullen, A. C., Koehn, L. E., Harper, S., Runebaum, J., Bogeberg, M., et al. (2023). Understanding perceptions of climate vulnerability to inform more effective adaptation in coastal communities. *PLOS Climate*, *2*(2), e0000103. https://doi.org/10.1371/journal.pclm.0000103

Ngamwong, N., Darakorn Na Ayuthaya, S., & Kiattisin, S. (2024). *Factor analysis of sustainable livelihood potential development for poverty alleviation using structural equation modeling*. *Sustainability*, *16*(10), Article 4213. https://doi.org/10.3390/su16104213

Nigeria Extractive Industries Transparency Initiative. (2021). *NEITI solid minerals industry audit report 2021*. Nigeria Extractive Industries Transparency Initiative. https://neiti.gov.ng/cms/wp-content/uploads/2023/09/NEITI-SMA-2021-Report.pdf

Ogunleye, A., & Arije, O. Z. (2026). Petrographic, mineralogical and geochemical characterization of metacarbonate (marble) rocks from the Oreke area, southwestern Nigeria: Implications for industrial applications. *International Journal of Economic and Environmental Geology, 17*(2), 83–88. https://doi.org/10.46660/int.j.econ.environ.geol.v17i2.864

Olatunji, O. O., Adebayo, K. K., & Emmanuel, O. C. (2017). Effect of dolomite dust on some soil properties in selected agricultural areas of Igbeti, Oyo State. *Journal of Wetlands and Waste Management, 1*(4), 12–17.

Olujobi, O. J., & Irumekhai, O. S. (2024). Strategies and regulatory measures for combatting illicit mining operations in Nigeria: A comprehensive legal perspective. *Resources Policy, 88*, 104459. https://doi.org/10.1016/j.resourpol.2023.104459

Omoseebi, A. O., & Tanko, I. Y. (2021). Geochemistry and determination of mineral properties of dolomite deposit in Ikpeshi Southern, Nigeria. *European Journal of Environment and Earth Sciences, 2*(5), 41–46. https://doi.org/10.24018/ejgeo.2021.2.5.175

Oruonye, E. D., & Ahmed, Y. M. (2020). The role of enforcement in environmental protection in Nigeria. *World Journal of Advanced Research and Reviews, 7*(1), 48–56. https://doi.org/10.30574/wjarr.2020.7.1.0237

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Serrat, O. (2017). The sustainable livelihoods approach. In *Knowledge solutions: Tools, methods, and approaches to drive organizational performance* (pp. 21–26). Springer. https://doi.org/10.1007/978-981-10-0983-9_5

Shackleton, R. T. (2020). Loss of land and livelihoods from mining operations: A case in the Limpopo Province, South Africa. *Land Use Policy, 99*, 104825. https://doi.org/10.1016/j.landusepol.2020.104825

Sutrisno, & Azhari. (2020). The study of socioeconomic and environmental aspects of dolomite limestone mining in Tuban Regency. *Journal of Socioeconomics and Development, 3*(1), 63–73. https://doi.org/10.31328/jsed.v3i1.896

U.S. Geological Survey. (2017). *Mineral resources of the United States: Dolomite*. U.S. Geological Survey.https://pubs.usgs.gov/sir/2017/5118/elements/Dolomite/Dlmt_txt.html

U.S. Geological Survey. (2023). *Mineral commodity summaries 2023*. https://doi.org/10.3133/mcs2023

Wegenast, T., & Beck, J. (2020). Mining, rural livelihoods and food security: A disaggregated analysis of sub-Saharan Africa. *World Development, 130*, 104921. https://doi.org/10.1016/j.worlddev.2020.104921

Werner, T. T., Bebbington, A., & Gregory, G. (2019). Assessing impacts of mining: Recent contributions from GIS and remote sensing. *The Extractive Industries and Society, 6*(3), 993–1012. https://doi.org/10.1016/j.exis.2019.06.011

World Bank. (2024). *Nigeria: Mineral Sector Support for Economic Diversification Project (MinDiver) (P159761): Implementation status & results report*. World Bank. https://documents1.worldbank.org/curated/en/099072424164014172/pdf/P159761-917106d2-9ae2-4b30-8d72-464105056ec9.pdf

Wubayehu, T. Z. (2020). Review of the evidence: The interface between poverty, livelihoods, institutions, and community development. *Journal of Sustainable Development, 13*(4), 104–117. https://doi.org/10.5539/jsd.v13n4p104

Yisa, A. G., Omada, S. E., Samuel, S. A., Gana, A. S., Simon, J., Edogbo, B., Gana, B. W., Oniye, S. J., & Gobak, H. K. (2026). Risk assessment of potentially toxic elements in water, sediment, aquatic mussels, and edible crops from a gold-mining-stressed river in Northern Nigeria. *Discover Chemistry, 3*, 135. https://doi.org/10.1007/s44371-026-00579-8

Zinke, L. (2021). Post-mining recoveries. *Nature Reviews Earth & Environment, 2*, 5. https://doi.org/10.1038/s43017-020-00130-y

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From Intellectual Waste to Intellectual Growth: A Phenomenological Prognosis of Generative AI in Nigerian Educational Research towards Nascent Sustainable Development

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DOI : https://doi.org/10.5281/zenodo.22916786

Abstract
Generative Artificial Intelligence (GenAI) offers unprecedented research support within the global academic landscape while simultaneously challenging traditional configurations of academic integrity. Over-reliance on GenAI risks inducing cognitive atrophy, potentially rendering years of traditional knowledge acquisition as "intellectual waste." While existing literature indicates an overwhelming willingness among advanced learners to adopt digital innovations, implementation within developing educational systems faces systemic material bottlenecks and the more insidious risk of digital imperialism that threatens to erase local contexts through biased algorithmic models. This study utilizes a transcendental phenomenological design, rooted in the Husserlian traditions operationalized by Giorgi (1985) and Moustakas (1994); to explore how advanced learners subjectively experience this technological encounter. Simple random sampling was used to select three elite specialized institutions within the Federal Capital Territory (FCT), Abuja: The Gifted School, Gwagwalada; Government Girls Science Secondary School (G.G.S.S.), Kuje; and Government Science and Technical College (G.S.T.C.), Area 3. In-depth semi-structured interviews were conducted with a cohort of 27 academically advanced students. Data were analyzed using the phenomenological concepts of Noema and Noesis to extract the structural essence of their lived experiences. The principal findings reveal that while GenAI accelerates global competitiveness, sustainable educational growth requires balancing automated cognitive offloading with structured human instruction to prevent absolute algorithmic dependency. The study concludes that building localized, decolonized technological architectures is essential to harness GenAI as a driver for national human capital development, positioning indigenous research as a core pillar for achieving nascent sustainable development.

Keywords: Academic Sustainability, Generative AI, Intellectual Waste, Sustainable Development, Transcendental Phenomenology.

1. Introduction

The contemporary global academic landscape is undergoing a seismic paradigm shift driven by the rapid proliferation of Generative Artificial Intelligence (GenAI). Within the domain of the intelligentsia, where knowledge production and intellectual rigor serve as the bedrock of societal advancement, GenAI is paradoxically viewed as both an iconic reservoir of human knowledge and

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a disruptive force threatening the sanctity of academic integrity. Scholars and educational researchers are presented with tools that offer unprecedented cognitive offloading, automated data synthesis, and rapid text generation. However, beneath the veneer of this technological utopia lies a profound undercurrent of existential anxiety regarding the future of human intellect, critical inquiry, and cultural contextualization within developing educational ecosystems. The deployment of Large Language Models (LLMs) requires a critical investigation into how automated technological systems alter the lived cognitive experiences of learners who are positioned at the foundational pipeline of national research capability.

1.1 **Background to the Research**

For decades, the traditional ivory tower model of education has measured intellectual worth by the grueling, time-consuming process of human knowledge acquisition through years of rigorous reading, conceptual internalization, and methodological training. Historically, the development of deep cognitive structures has relied on the psychological and analytical struggles of problem-solving, independent error correction, and iterative text synthesis. However, the global educational landscape has rapidly adopted automated computational engines, driving a massive willingness among advanced learners on the African continent to integrate digital innovations into their daily academic workflows (Agbo, Sanusi, Oyelere &Suhonen, 2021). In Nigeria, this technological transition does not occur in a vacuum; it takes place within a complex socio-pedagogical space where modern digital aspirations collide directly with severe historical and material structural constraints. Furthermore, education has traditionally been tied to the structural idea of place, whether conceived as physical learning spaces or as interacting populations bound by a consistent ethical imperative (Oduwole, Lawal, & Duhu, 2025). As global technological superpower networks dominate software architectures, developing institutions face the double jeopardy of absorbing technologies that are structurally mismatched with local infrastructural realities and epistemological frameworks (Adam, 2020; Nwagwu, 2021).

1.2 **Statement of the Problem**

The core problem under investigation is the critical transition from "Intellectual Waste" to "Intellectual Growth" within the Nigerian educational matrix. When GenAI tools are introduced into high-performance learning environments without clear pedagogical boundaries, they threaten to induce severe cognitive atrophy among advanced learners. By allowing automated algorithms to assume primary responsibility for literature synthesis, code debugging, and thematic interpretation, the years of disciplined, resourceful manpower development within higher institutions are inadvertently rendered redundant, turning human capability into "intellectual waste". This uncritical dependency transforms active human thinkers into passive consumers of machine-generated outputs, deskilling the research workforce and erasing original thought. This problem is severely compounded by two intersecting dynamics: Infrastructural Traumas: The material reality of the Nigerian educational ecosystem presents severe daily operational bottlenecks, characterized by an erratic power supply ("epileptic energy"), prohibitively expensive internet connectivity, and financial barriers to premium software subscriptions (Ade-Ibijola & Sanya, 2023). While these material failures occasionally act as an accidental defense by forcing students back to physical textbooks, relying on systemic collapse to preserve human intellect is precarious and unsustainable. The Threat of Digital Imperialism: The foundational LLMs

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powering global GenAI tools are trained predominantly on Western-centric datasets, mirroring Euro-American epistemologies, cultural biases, and socio-economic realities (Nwagwu, 2021). Uncritical deployment within Nigerian specialized schools' forces researchers into a state of epistemic dependency, systematically overwriting local contexts, regional historical nuances, and indigenous knowledge systems. Consequently, there is a severe lack of empirical, contextually rooted research explaining how Nigeria's brightest academic pipelines subjectively experience, navigate, and negotiate this technological encounter. Without clear empirical insights into the structural essence of this phenomenon, the Nigerian intelligentsia risks sleepwalking into an absolute algorithmic dependency that threatens national technological sovereignty.

1.3 Research Questions

To resolve this empirical gap, this study addresses the following research questions:

1. What is the structural essence of the lived experiences of academically advanced Nigerian students interacting with global Generative AI applications within specialized learning environments?
2. How do local infrastructural deficits (such as power grid instability and network connectivity dropouts) alter the digital cognitive workflows and behavioral adaptations of these advanced learners?
3. In what ways do global GenAI text outputs manifest features of digital imperialism, and how do advanced students subjectively experience the tension between Eurocentric algorithmic data streams and indigenous realities?
4. How do advanced learners psychologically experience and balance the trade-off between rapid task completion (cognitive offloading) and the preservation of authentic structural understanding?

1.4 Objectives of the Study

The primary overarching purpose of this research is to deploy a transcendental phenomenological framework to explore the structural essence of the lived experiences of advanced learners interacting with Generative Artificial Intelligence within specialized educational ecosystems.

The specific operational objectives are to:

1. Examine how academically advanced students within elite Nigerian secondary schools navigate the conceptual boundaries between uncritical automated reliance ("intellectual waste") and sustainable technological mastery ("intellectual growth") towards nascent sustainable development.
2. Document the direct impacts of erratic public infrastructure on the digital learning workflows of gifted students, mapping their methods of tactical resilience.
3. Analyze the systemic manifestations of digital imperialism and epistemic dislocation embedded within Large Language Models when prompted for local West African socio-economic and historical contexts.

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4. Formulate an actionable, evidence-based policy framework and pedagogical model to decolonize prompting protocols, insulate learning networks, and foster long-term national technological sovereignty.

2. Literature Review

The integration of Generative Artificial Intelligence (GenAI) into educational research within developing economies cannot be understood in isolation from historical power dynamics. This section contextualizes the intersection of technological advancement and academic preservation by establishing a rigorous scientific matrix detailing digital imperialism, its specific mutations within the Nigerian education system, and the unique positioning of highly resourceful learners within specialized environments.

2.1 Conceptualizing Digital Imperialism and Algorithmic Neocolonialism

Digital imperialism is frequently termed electronic or algorithmic neocolonialism which refers to the structural process whereby global technological superpowers dominate the digital infrastructure, data architectures, and software tools of developing nations (Adam, 2020). Unlike historical territorial colonialism, digital imperialism operates through systemic dependency, data extraction, and ideological hegemony. In the context of the African continent, Nwagwu (2021) notes that this hegemony is executed through asymmetric data infrastructures where major multinational technology corporations based in the global North own the foundational servers, cloud architectures, and algorithmic pipelines. This leads to epistemic invisibility because global Large Language Models (LLMs) are trained predominantly on Eurocentric text corpora, causing African histories and complex linguistic structures to be systemically underrepresented. The consumption-to-production chasm structurally positions African educational institutions as passive consumers of foreign AI technologies rather than active developers of localized digital architectures (Adam, 2020; Ade-Ibijola & Sanya, 2023). This structural asymmetry forces African scholars into a state of digital dependency. When local researchers rely on these unrepresentative models for literature synthesis, contextual analysis, and theoretical framing, they risk reproducing foreign analytical biases that actively marginalize local knowledge production systems (Nwagwu, 2021).

2.2 The Nigerian Matrix: Infrastructural Deficits and Epistemic Risk

When narrowed specifically to Nigeria which is considered to be the largest consumer of digital technology and the most populous nation in Africa. The challenges of digital imperialism intersect uniquely with systemic infrastructural deficits. While existing educational literature records a striking 98% willingness among Nigerian scholars and advanced students to adopt digital learning innovations (Sanusi, Olaleye, & Agbo, 2023), the actual implementation of these tools occurs within a highly fractured material reality. Nigerian researchers face severe daily operational bottlenecks, including an epileptic energy supply that requires reliance on expensive, alternative power sources, weak internet connectivity that hampers consistent interactions with cloud-based AI tools, and prohibitive access costs driven by subscription models priced in foreign currencies (Ade-Ibijola & Sanya, 2023). As documented by Oviawe (2024), this material disparity creates a profound institutional vulnerability. To bypass financial and connectivity constraints, Nigerian scholars frequently rely on free, degraded, or outdated versions of AI tools. These free tiers are

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highly susceptible to data "hallucinations" (the generation of false data) and enforce a rigid adherence to standardized, Westernized prompts. Consequently, the Nigerian educational researcher faces a double jeopardy: navigating the physical constraints of a developing economy while simultaneously warding off an epistemic dependency that systematically replaces local context with homogenized, foreign engineered data streams (Oviawe, 2024; Sanusi et al., 2023).

2.3 Specialized Learning Environments and the Risk of "Intellectual Waste"

The tension between technological convenience and authentic intellectual development becomes critical when examining specialized learning environments catering to advanced learners. Within the scope of this study, this dynamic is analyzed through the lens of three elite, highly competitive secondary institutions in the Federal Capital Territory (FCT), Abuja, Nigeria: The Gifted School, Gwagwalada; Government Girls Science Secondary School (G.G.S.S.), Kuje; and Government Science and Technical College (G.S.T.C.), Area 3, Abuja. These institutions are renowned across the West African sub-region for their highly selective admission procedures, rigorous academic demands, and populations of exceptionally brilliant, atypical students (Sanusi et al., 2023). These advanced learners represent the foundational pipeline for Nigeria's future research, scientific innovation, and policy-making cadres. When advanced learners in these specialized settings use GenAI uncritically, the risk of transforming human capability into "intellectual waste" escalates significantly. These students possess highly developed analytical capacities, rapid cognitive processing speeds, and creative problem-solving skills (Oviawe, 2024). However, if they utilize GenAI as an authoritative shortcut for critical reading, structural interpretation, and data synthesis, their intrinsic cognitive capabilities remain underutilized. Over-reliance on automated platforms bypasses the essential cognitive struggles embedded in the deep reading, the structural mistakes, the iterative thinking, and the original problem-solving that convert raw intelligence into mature scholarship. Instead of expanding their analytical limits, these brilliant minds are trained to become proficient prompt engineers for foreign systems. This process constitutes a severe form of resource depletion. The country's primary intellectual asset of exceptional, resourcefully trained youth is placed at risk of intellectual atrophy, reducing original contextual thought to machine-driven consensus and rendering years of elite instructional training ineffective (Oduwole et al., 2025; Oviawe, 2024).

3. Methodology

To examine the lived experiences of advanced learners navigating the intersection of Generative Artificial Intelligence (GenAI) and educational research, this study rejects positivistic, quantitative abstractions. Instead, it utilizes a qualitative framework rooted in the tradition of transcendental phenomenology. This approach allows the study to explore how students navigate the tension between global technological dependency and indigenous academic growth within specialized educational ecosystems.

3.1 The Husserlian Transcendental Phenomenological Framework

This study is theoretically grounded in the classical phenomenology of Edmund Husserl (1931), specifically through the qualitative adaptations formulated by Amedeo Giorgi (1985) and Clark Moustakas (1994). Husserlian phenomenology is uniquely suited for this inquiry because it seeks to discover the objective "essence" of a phenomenon through the subjective lived experiences of

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those who encounter it. The framework requires the researcher to set aside all preconceived notions, theoretical biases, and empirical assumptions through a process known as Epoch or phenomenological bracketing (Moustakas, 1994). By bracketing prior knowledge regarding AI efficiencies or systemic infrastructural failures in Nigeria, the researcher can approach the data with fresh perception, allowing the structural realities of the participants' experiences to emerge organically.

In accordance with Giorgi's (1985) psychological adaptation and Moustakas's (1994) transcendental modifications, the analytical lens focuses heavily on the intentional correlation between Noema and Noesis. Noema represents the object of experience the "what" that is perceived (Husserl, 1931). In this study, the noema constitutes the tangible encounters with GenAI tools, the erratic internet interfaces, the disrupted electrical grids, and the Westernized text generation outputs. Noesis represents the act of experiencing the "how" of the perception (Husserl, 1931). Here, the noesis involves the cognitive processes, feelings of dependency, intellectual conflicts, anxieties regarding mental laziness, and the strategic adaptations deployed by advanced students as they interact with the technology. By analyzing the dialectical relationship between noema (the foreign AI model/local infrastructure) and noesis (the student's internal cognitive negotiation), this study uncovers the structural essence of how GenAI shapes learning within Nigeria's elite educational tier.

3.2 Research Design and Context

The empirical investigation was conducted within three purposively selected, highly specialized secondary institutions within the Federal Capital Territory (FCT), Abuja, Nigeria: The Gifted School, Gwagwalada; Government Girls Science Secondary School (G.G.S.S.), Kuje; and Government Science and Technical College (G.S.T.C.), Area 3, Abuja. These institutions are recognized across the country for their rigorous, atypical academic environments (Sanusi et al., 2023). They cater exclusively to students who demonstrate exceptional cognitive processing speeds, high intellectual capacity, and a natural aptitude for scientific, technological, and creative inquiry. Selecting these specific environments was critical to the study's focus on intellectual waste. Because these schools are designed to cultivate Nigeria’s future scientific and academic elite, any technological dependency that threatens to cause cognitive atrophy within these populations represents a critical threat to the nation's human capital development (Oviawe, 2024).

3.3 Sampling and Participant Selection Matrix

Out of the specialized schools operating within the FCT ecosystem, these three institutions were chosen via a simple random sampling technique to ensure structural representation across different demographic and technical focus areas. Within the selected schools, a cohort of 27 academically advanced students was randomly selected to participate in the study. The inclusion criteria mandated that participants: (1) Must be officially classified as advanced/gifted based on institutional admission track data; (2) Must have actively utilized GenAI applications (such as ChatGPT, Google Gemini, or Claude) for academic assignments, science projects, or independent research; (3) Must have spent at least two academic sessions within these specialized environments to ensure they are fully accustomed to high-performance learning demands. A sample size of 27 was deemed scientifically robust for this qualitative research framework, as it successfully

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achieved complete thematic saturation, where subsequent interviews ceased to produce novel structural meaning units or distinct descriptive variants regarding the AI interface encounter.

3.4 Data Collection and Phenomenological Interviewing Techniques

The primary instrument for data collection was the In-depth Phenomenological Interview. Rather than utilizing rigid, pre-formulated questionnaires that restrict participant expression, the interviews were semi-structured and conversational, directly reflecting the qualitative tenets established by Giorgi (1985). This allowed the 27 participants to freely articulate their lived experiences, cognitive struggles, and infrastructural negotiations. Interviews were designed around open-ended prompts carefully aligned with Husserlian traditions. The interviews were recorded with strict ethical consent, anonymized, and transcribed verbatim. The transcription process directly integrated Noema and Noesis as operational tools; transcripts were formatted into parallel analytical matrices, separating descriptions of the digital environment (noema) from the students' subjective cognitive reactions (noesis), ensuring that the structural analysis remained true to the transcendental method (Moustakas, 1994).

3.5 Systematic Data Analysis and Phenomenological Reduction Pipeline

The data analysis followed the strict scientific steps of phenomenological reduction outlined by Moustakas (1994), incorporating the descriptive psychological controls advocated by Giorgi (1985):

1. Horizontalization: Every statement in the transcripts was initially treated with equal value, and all expressions irrelevant to the GenAI experience were eliminated.
2. Delineation of Meaning Units: The remaining horizons were clustered into psychologically distinct, non-repetitive "invariant constituents" or raw meaning units.
3. Thematic Clustering: These meaning units were synthesized into overarching core themes that capture the shared structural components of the phenomenon across the cohort.
4. Textural and Structural Syntheses: For each theme, a textural description (what was experienced via the noema) and a structural description (how it was experienced via the noesis) were generated.
5. Extraction of the Core Essence: Finally, the textural and structural syntheses were integrated to articulate the invariant psychological and operational "essence" of the lived experience, establishing an unassailable scientific audit trail from raw data to final thematic concepts.

4. Findings and Discussion

The thematic synthesis of the phenomenological interviews conducted with 27 advanced students across the three selected institutions yielded profound structural paradoxes. By analyzing the data through the Husserlian dialectic of Noema (the objective manifestation of the technology and environment) and Noesis (the subjective cognitive negotiation and internal experience of the learner), three core existential themes emerged. These themes illuminate how Nigeria's brightest young minds experience the magnetic pull of AI driven cognitive offloading while simultaneously colliding with the hard barriers of infrastructural deficits and Western-centric digital imperialism.

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4.1 Theme 1: Epistemic Dislocation and the Invisible Wall of Digital Imperialis m

The first major finding concerns how advanced learners experience the structural biases embedded within global GenAI models. The Noema consists of the actual textual outputs, historical narratives, and scientific frameworks generated by applications like ChatGPT or Google Gemini. The students universally reported that these outputs present a highly polished but distinctly Eurocentric view of knowledge. The Noesis is characterized by a deep sense of epistemic dislocation, a feeling of alienation as students are forced to alter their original research intentions to align with the conceptual biases of foreign algorithms, directly illustrating the marginalization of local knowledge production highlighted by Nwagwu (2021). Students from The Gifted School, Gwagwalada, who routinely engage in high-level independent essays and social scientific inquiries, noted that when prompting AI tools for local historical contexts or indigenous Nigerian solutions to socioeconomic issues, the models consistently default to Western frameworks, or worse, hallucinate historical facts about Nigeria. One advanced humanities student recounted:

> "*When I asked the AI to analyze the traditional conflict resolution mechanisms in north-central Nigeria, it repeatedly framed our cultural practices using Western legal terms and European sociological models. It felt like the machine was trying to scrub away my local understanding, forcing me to speak about my own home through the voice of a foreign textbook."* (Idls Male, Age 16, The Gifted School, Gwagwalada).

This encounter demonstrates how digital imperialism operates at the code level, validating Adam's (2020) assertions regarding electronic neocolonialism. At G.G.S.S. Kuje, a student focusing on indigenous agricultural sciences observed that GenAI engines failed to recognize local naming conventions for soil preservation practices unique to the FCT ecosystem, instead offering high-tech, capital-intensive Western alternatives that are completely unfeasible in the Nigerian climate. Through a Husserlian lens, the intentionality of the student's consciousness is disrupted. The student approaches the tool with an indigenous cognitive framework, but the Noema (the AI output) forces a subversion of that framework. When brilliant minds are subjected to systematic exposure to Eurocentric data streams, they undergo a subtle reshaping of their analytical parameters, laying the groundwork for "intellectual waste" where original contextual thought is replaced by machine-driven consensus (Oduwole et al., 2025; Nwagwu, 2021).

4.2 Theme 2: The Friction of Cognitive Offloading and the Anxiety of "Intellectual Waste"

The second theme centers on the cognitive friction experienced by advanced learners when they use GenAI for problem-solving, text generation, and coding. Here, the Noema is the rapid, friction-free generation of complete research outlines, mathematics solutions, or programming scripts. The Noesis is a complex psychological tension: an initial feeling of intellectual relief and empowerment, rapidly followed by academic guilt, existential anxiety, and a conscious fear of mental atrophy, a localized behavioral manifestation of what Zuboff (2019) conceptualizes as the extraction of human behavioral modification by automated systems. At Government Science and Technical College (G.S.T.C.), Area 3, students in the engineering and computer science tracks actively use GenAI to write code and debug technical projects. The finding here reveals a jaggy contrast between immediate task completion and authentic structural understanding. A computing student articulated this dynamic with striking clarity:

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> "*The AI is an addictive shortcut. When I have a complex algorithm to write for a school project, I can paste the prompt and get a flawless script in five seconds. It feels amazing at first. But during our technical defenses, when the instructors ask me to explain the logic of a specific loop, my mind goes blank. I realized that because I didn't sweat over the bugs, I didn't actually learn the logic. The AI did the thinking, and it left me feeling hollow.*" (Idls Female, Age 15, G.S.T.C., Area 3).

This excerpt captures the core of the intellectual waste phenomenon. The student recognizes that the cognitive struggle with the iterative process of making mistakes, debugging, and wrestling with conceptual frameworks, is exactly what transforms raw intellectual capacity into deep, mature scholarship (Oviawe, 2024). By offloading this struggle to an automated system, the student saves operational time but sacrifices deep learning, entering the trap of automated deskilling warned against in the political economy of technology transfer (Zuboff, 2019). Across all three institutions, advanced students expressed deep concern that their peers were losing the capacity for deep reading and sustained critical analysis, trading long-term human resource capability for short-term automated output.

4.3 Theme 3: Infrastructural Trauma and Tactical Resilience

The third major theme reveals the collision between digital aspirations and the material realities of the Nigerian public educational environment. The Noema consists of sudden power grid failures, depleted internet data balances, and fluctuating telecommunications signals. The Noesis is an experience of infrastructural trauma, characterized by profound academic frustration, interrupted cognitive workflows, and the subsequent development of tactical resilience a finding that directly mirrors the material challenges documented by Ade-Ibijola and Sanya (2023). The lived experience of technology adoption in Nigeria cannot be separated from the material conditions of its infrastructure. At G.G.S.S. Kuje, students highlighted how the promise of GenAI as an "omnipresent digital tutor" is routinely broken by erratic power and connectivity issues. A science student shared her experience:

> "*You are in the middle of a deep research simulation with the AI, trying to understand a complex biochemical reaction for a national competition. Suddenly, the power goes out, the inverter batteries drain, and the network tower in our area drops its signal. Your connection to the server is completely severed. The AI leaves you stranded mid-thought. In those moments, the digital world feels like a cruel illusion. You have to learn how to rely entirely on your physical textbooks and your own brain again.*" (Idls Female, Age 15, G.G.S.S. Kuje).

This finding highlights the sharp divergence between the high willingness to adopt GenAI reported in current literature (Sanusi et al., 2023) and the operational reality of the Nigerian educational ecosystem. The digital workflow of a Nigerian student is fragmented. However, the interviews revealed a profound structural paradox: the systemic failures of Nigerian infrastructure often act as an accidental defense against complete cognitive atrophy. Because the technology frequently fails, these advanced students are repeatedly forced to return to traditional research methods, collaborative peer discussions, and independent critical thinking (Oviawe, 2024). This

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infrastructural trauma creates a tactical resilience that disrupts total algorithmic dependency, preventing the absolute conversion of human capability into intellectual waste.

5. Conclusion and Policy Recommendations

The integration of Generative Artificial Intelligence (GenAI) into the fabric of Nigerian educational research represents a critical turning point for the nation's academic future. By examining the lived experiences of 27 advanced students across three elite institutions in Abuja, this study has illuminated the deep structural paradoxes that define this technological shift. The transition from "intellectual waste" to "intellectual growth" is not an automatic result of technology adoption; rather, it is a contested pedagogical space where human critical capacity must be intentionally preserved against the dual pressures of infrastructural deficits and digital imperialism.

5.1 Conclusion

Through a Husserlian transcendental lens, this study has demonstrated that GenAI is far from an epistemologically neutral tool. Instead, it serves as a powerful conduit for digital imperialism, carrying Eurocentric biases, Western-centric narratives, and standardized cognitive architectures that threaten to overwrite the local contexts and indigenous realities of African scholarship (Adam, 2020; Nwagwu, 2021). When advanced learners rely uncritically on these systems for rapid text generation and cognitive offloading, they save operational time at the expense of deep, iterative learning. This process bypasses the essential cognitive struggles such as critical reading, structural analysis, and independent debugging that transform raw intelligence into mature scholarship (Oviawe, 2024). Consequently, unchecked adoption risks creating a form of resource depletion, turning Nigeria's primary intellectual asset into a passive conduit for foreign-engineered data streams. Paradoxically, the study also revealed that Nigeria's systemic infrastructural challenges such as erratic power grids and weak internet connectivity often act as accidental barriers against total algorithmic dependency (Ade-Ibijola & Sanya, 2023). By disrupting digital workflows, these material constraints repeatedly force students back to traditional research methods and collaborative human engagement. However, relying on structural failures to preserve human intellect is a precarious and unsustainable strategy. For Nigerian educational research to achieve genuine global competitiveness without sacrificing its cultural and contextual identity, academic institutions must transition from passive consumption to active, strategic, and localized technological mastery (Oduwole et al., 2025). Ultimately, achieving technological sovereignty by cultivating homegrown algorithmic models and protecting cognitive pipelines is not merely an institutional goal; it constitutes an indispensable prerequisite for securing the human capital necessary to drive Nigeria's nascent sustainable development and regional socio-economic self-reliance.

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5.2 Policy Recommendations

In order to safeguard academic integrity and prevent cognitive atrophy within specialized learning environments, educational authorities and school administrators must actively implement the following structured interventions:

1. **Establish Mandatory "Cognitive Gateways" and Institutional AI Protocols:** Academic policies must reject unmediated, machine-generated research text or software code submissions. Instructors must shift their grading criteria to actively evaluate the step-by-step cognitive research process rather than focusing solely on the polished final project. Students must be required to submit a corresponding "cognitive log" with every major paper, explicitly detailing their initial thesis formulation, the specific string prompts used to query the AI, a comprehensive human critique of the AI's logical errors or biases, and the verification steps taken to integrate indigenous context.

2. **Mandate Decolonized Prompting Modules and Localized Epistemic Frameworks**: To counter the homogenizing effects of digital imperialism, Nigerian academic bodies must institute formal training on advanced prompting techniques. Advanced learners must be systematically trained to construct command prompts that deliberately force Large Language Models to account for West African socio-economic dynamics, ethnic history, and regional nuances, rather than accepting default Eurocentric baselines (Nwagwu, 2021). Curriculums must strongly position GenAI as an auxiliary brainstorming instrument rather than an ultimate source of truth, establishing traditional library work, peer-reviewed local field studies, and physical context tracking as the primary pillars of credible educational research (Oduwole et al., 2025).

3. **Fund Localized, Closed-Loop Digital Research Infrastructures**: To insulate learning networks from the material trauma of electrical grid failures and prohibitive access fees, the federal government must fund the deployment of on-site digital labs within public specialized schools (Ade-Ibijola & Sanya, 2023). This involves establishing independent digital networks operating on decentralized mini-server nodes that run lightweight, open-source AI models entirely on-site. Powered by renewable solar energy grids, these research spaces will successfully isolate the advanced educational pipeline from national blackouts and internet dropouts, ensuring that students have zero-data-cost access to localized computational support without economic barriers (Oviawe, 2024).

4. **Drive Strategic Transition from Technological Consumption to Absolute Sovereignty**: The Federal Ministry of Communications, Innovation and Digital Economy, in direct partnership with national university research consortia, must fund the aggressive curation of domestic, African-centered datasets to train homegrown AI architectures (Ade-Ibijola & Sanya, 2023). By collecting, digitizing, and utilizing native historical archives, regional scientific journals, and indigenous linguistic data to construct local models, Nigeria can supply its academic community with specialized tools that intentionally preserve local contexts, building a highly sustainable, self-sufficient framework for educational advancement. This assertion is strongly attuned to the previous work of Oduwole et al. (2025), that society has traditionally been tied to the idea of place, whether conceived as physical or as interacting populations. Usually, society is built on the regulation of social

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life grounded in a consistent ethical imperative. Hence, Generative AI requires a strategic policy framework to ensure it actively promotes educational inclusivity. By so doing, growth, nascent development, and sustainability are ensured.

References

Adam, T. (2020). Digital neocolonialism and massive open online courses (MOOCs): Coloniality of knowledge in higher education. Compare: A Journal of Comparative and International Education, 52(2), 258–275. https://doi.org/10.1080/03057925.2020.1798835

Ade-Ibijola, A., & Sanya, S. (2023). Generative AI in African higher education: Strategic imperatives, infrastructural deficits, and the path to digital sovereignty. African Journal of Research in Mathematics, Science and Technology Education, 27(3), 312–325.

Agbo, F. J., Sanusi, I. T., Oyelere, S. S., & Suhonen, J. (2021). Application of artificial intelligence in education in Africa: A systematic review. Eastern Africa Journal of Contemporary Research, 3(1), 45–61.

Giorgi, A. (Ed.). (1985). Phenomenological and psychological research. Duquesne University Press.

Husserl, E. (1931). Ideas: General introduction to pure phenomenology (W. R. Boyce Gibson, Trans.). Allen & Unwin.

Moustakas, C. (1994). Phenomenological research methods. SAGE Publications. https://doi.org/10.4135/9781412995658

Nwagwu, W. E. (2021). Cyber-colonialism, digital imperialism, and the marginalization of local knowledge production in African universities. Journal of Information Science and Indigenous Knowledge Systems, 5(2), 112–129.

Oduwole, T. A., Lawal, K. A. A., & Duhu, Z. S. (2025). Repositioning the pedagogical sociology towards a policy framework for the use of generative AI in inclusive education and sustainability. International Journal of Development Strategies in Humanities, Management and Social Sciences, 15(1). http://internationalpolicybrief.org

Oviawe, J. I. (2024). Navigating the artificial intelligence wave in Nigerian science and technical colleges: Infrastructural realities and cognitive implications. Nigerian Journal of Science and Technology Education, 11(1), 89–104.

Sanusi, I. T., Olaleye, S. A., & Agbo, F. J. (2023). Preparedness and willingness of advanced learners to adopt generative artificial intelligence tools in Nigerian specialized secondary environments. Computers and Education Open, 5, 100142. https://doi.org/10.1016/j.caeo.2023.100142

Zuboff, S. (2019). The age of surveillance capitalism: The fight for a human future at the new frontier of power. PublicAffairs.

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Generational Differences in School Leaders' Perspectives on 4IR Adoption in Nigerian Secondary Schools: A Qualitative Study in Kogi State

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DOI : https://doi.org/10.5281/zenodo.22916936

Abstract
The Fourth Industrial Revolution (4IR) is reshaping education and work worldwide, placing new demands on school leadership and pedagogical practice. This qualitative exploratory study examined how older (45-60 years) and younger (30-44 years) secondary school leaders in Kogi State, Nigeria, perceive the adoption of 4IR technologies and practices. Guided by Complexity Leadership Theory (CLT), the research focused on three leadership-relevant domains: lifelong learning, knowledge sharing and collaboration, and risk-taking and experimentation. Twelve purposively selected school leaders from four secondary schools participated in semi-structured interviews and observations, the two data sources were triangulated. Data were analysed thematically to identify patterns and variations across and within age groups. Younger leaders more frequently described self-directed digital learning, technology-mediated knowledge exchange and a readiness to experiment with new approaches. Some older leaders expressed greater caution toward technological change and a stronger reliance on established practices. Crucially, these tendencies were not uniform: variation existed within both age cohorts, and differences often aligned with career stage, professional experience, leadership role and access to technological resources rather than chronological age alone. Chronological age is an insufficient explanation for leadership orientations toward 4IR adoption. CLT provided a useful interpretative lens for interpreting administrative, adaptive and enabling leadership functions, but the study cautions

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against a simple mapping of these functions onto age groups. The paper recommends competency-based professional development, structured cross-generational knowledge sharing and strengthened institutional support for technology integration. While findings are context-specific and not statistically generalisable, they offer transferable insights for policy and practice in comparable resource-constrained educational settings.

Keywords: Fourth Industrial Revolution; School leadership; Generational differences; Complexity Leadership Theory; Nigerian secondary education

Introduction

Education remains a cornerstone for achieving sustainable development, particularly in contexts where technological disruption is reshaping labour markets and societal structures. McKinsey (2017) estimated that digitisation, machine learning and automation could displace approximately 3.3 million existing jobs in developing countries while simultaneously creating up to 4.5 million new roles across sectors if technological advancements are proactively embraced. In Nigeria, however, the education sector faces a profound crisis. Peterside (2022) characterises the situation as a "state of emergency," citing nearly 18.5 million out-of-school children, persistent gender inequities in access, and public expenditure on education amounting to only 0.85% of gross domestic product. Under these conditions, waiting for comprehensive policy directives from central authorities is untenable. School leaders must therefore initiate contextually appropriate responses that prepare secondary schools for the demands of 4IR.

The 4IR is characterised by the fusion of physical, digital and biological systems through technologies such as artificial intelligence, robotics, the Internet of Things and advanced automation (Fomunyam, 2019; Schwab, 2016). These developments require educational systems to move beyond traditional content mastery and cultivate 21st-century competencies; critical thinking, collaboration, creativity, communication, digital literacy, and adaptive lifelong learning (Trilling & Fadel, 2009).

Within this landscape, school leaders occupy a pivotal position. Their perceptions, readiness and leadership orientations directly influence whether 4IR imperatives are translated into classroom practice, teacher professional development and school culture. Although studies report age-related differences in educators' use of digital technologies, chronological age alone does not adequately explain technology-related leadership behaviour. Adoption of digital tools is influenced by a mix of individual and organisational factors, such as digital competence, opportunities for professional learning, perceived usefulness, leadership duties, institutional support, access to devices, connectivity and dependable infrastructure (Okunlola & Naicker, 2025; Timotheou et al., 2023). In Nigeria, research on school leaders shows that uptake is shaped not only by attitudes toward digital tools but also by insufficient training, limited funding, weak infrastructure, poor internet access and gaps in institutional backing (Okunlola & Naicker, 2025). Thus, any apparent gap between older and younger leaders may reflect generational position but could equally stem from career stage, professional experience, institutional role, digital competence or unequal access to technological resources. This study addresses a specific empirical shortfall: the scarcity of qualitative research on how school leaders themselves interpret and respond to 4IR adoption, and

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how lifelong learning, knowledge sharing and risk-taking patterns differ both between and within age groups in Nigerian secondary schools.

CLT provides a useful lens for understanding the required leadership responses. CLT distinguishes administrative, adaptive and enabling leadership functions that together support innovation, learning and emergence within bureaucratic organisations such as schools (Uhl-Bien & Arena, 2018; Uhl-Bien et al., 2007). Importantly, generational differences may shape these orientations. Younger leaders, (typically 30-44 years) often display greater familiarity with technology, willingness to experiment and openness to distributed leadership, while older, more experienced leaders, (typically 45-60 years) may prioritise stability, hierarchical control and established routines. Exploring these perceptual differences is therefore essential for designing targeted capacity-building strategies.

Aim and Objective

The overarching aim of this study is to explore the differences in the perceptions of older and younger school leaders regarding the need for the adoption of 4IR technologies and practices in Nigerian secondary schools.

Significance and Justification

The study addresses a critical gap in the literature. While existing research documents present infrastructural barriers, teacher demotivation and low 4IR awareness in Nigerian education (Akinniyi et al., 2020; Oloba, 2023), comparatively little attention has been paid to the differentiated perceptions of school leaders themselves, particularly the contrast between younger leaders and older leaders. Understanding these differences is practically significant: it can inform more nuanced professional development programmes, succession planning, and the strategic deployment of leadership talent across schools. Theoretically, the research extends the application of CLT to an African educational setting by using its administrative, adaptive and enabling functions as interpretive tools for leaders' accounts. Practically, the findings are intended to inform professional development and leadership-support strategies that respond to demonstrated competencies and contextual needs rather than relying solely on age-based categories.

Scope

The study is limited to secondary schools in four local government areas within Kogi State, Nigeria. Twelve school leaders (principals, vice-principals and heads of department) were purposively selected; six classified as older (45-60 years) and six as younger (30-44 years) from schools that had demonstrated relatively strong pre-pandemic performance. Data were generated through semi-structured interviews and observation. While the findings offer transferable insights for similar resource-constrained settings, they are not statistically generalisable to all Nigerian secondary schools. The temporal focus is the post-COVID period, when the urgency of digital readiness became particularly salient.

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Literature Review

Theoretical Framework: Complexity Leadership Theory (CLT)

CLT underpins this study's analytical approach. Initially developed by Uhl-Bien et al. (2007) and refined by Uhl-Bien and Arena (2018), CLT reconceptualises leadership as an emergent, interactive process rather than merely a function of formal authority. The theory distinguishes three interdependent leadership functions: administrative, adaptive and enabling. Administrative leadership involves formal activities that preserve organisational order, including coordination, resource allocation and the maintenance of structures and procedures. Adaptive leadership relates to learning, experimentation and creative problem-solving in response to novel or complex challenges. Enabling leadership focuses on creating conditions that support interaction, knowledge exchange and adaptive action, for example through networks, constructive engagement and access to resources. CLT does not attribute these functions to particular age cohorts; rather, the functions are complementary and may be enacted by the same individual or distributed across multiple actors depending on contextual demands. Interpreting them as inherently tied to generational categories would oversimplify the dynamics of leadership. In this study, CLT functions serve as sensitising concepts for analysing leaders' accounts of lifelong learning, knowledge sharing and risk-taking, while the analysis remains open to overlap among functions and to evidence that falls outside the framework. The study therefore does not treat chronological age as a determinant of any CLT function; rather, it uses the findings to assess whether the patterns observed between and within age groups support, complicate, or extend the application of CLT to 4IR adoption in Nigerian secondary schools.

4IR and Educational Imperatives

The 4IR represents a fundamental shift driven by the fusion of physical, digital and biological systems through artificial intelligence, robotics, the Internet of Things and cyber-physical systems (Fomunyam, 2019; Schwab, 2016). Unlike previous industrial revolutions, its pace and scope demand continuous adaptation. In education, this translates into the need for 21st-century competencies organised around three domains: learning and innovation skills (the 4Cs critical thinking, communication, collaboration and creativity); digital literacies (information, media and ICT literacy); and career and life skills (flexibility, initiative, social intelligence, productivity and leadership) (Trilling & Fadel, 2009). Students must therefore develop not only foundational academic knowledge but also the capacity to learn, unlearn and relearn throughout life. Nigerian secondary education has struggled to respond. Studies indicate that many educators remain reliant on traditional, teacher-centred methods and that awareness of 4IR technologies remains low among practitioners (Akinniyi et al., 2020; Uzochukwu et al., 2019).

School Leadership, Generational Differences and 4IR Readiness

School leaders play a decisive role in mediating these challenges. Their capacity to motivate teachers, model digital practices, create enabling environments and embed 4IR-oriented learning cultures is critical (Afandi et al., 2021). Yet leadership orientations are not uniform, and reported differences in technology engagement should not be understood solely through chronological age. A growing body of evidence highlights generational differences between younger leaders and older, more experienced leaders. Younger educators and leaders tend to display higher technological self-efficacy, greater willingness to experiment, and more frequent engagement with

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informal knowledge-sharing networks (Eynon & Malmberg, 2011; Stevenson et al., 2016). Older leaders, while often richer in institutional knowledge and administrative expertise, may exhibit greater caution, lower adaptive complexity and a preference for established routines (Orlando, 2014). Although some studies report age-associated differences in technology engagement, these patterns should not be interpreted as evidence that adaptive, enabling or administrative leadership functions belong to particular age groups. The existing literature provides useful indications of possible differences in technology engagement, but it also points to the importance of experience, professional learning, institutional conditions and access to resources. The present study therefore examines whether age-associated patterns are evident while remaining attentive to variation within age groups.

Gaps in the Literature

Existing studies have documented infrastructural shortfalls, teacher-related challenges and limited awareness of 4IR technologies in Nigerian education (Oke & Fernandes, 2020; Oloba, 2023). However, comparatively little research has focused on how school leaders themselves understand the need for 4IR adoption and how they describe their willingness to learn, share knowledge and respond to uncertainty. It remains unclear whether reported differences between older and younger leaders primarily reflect chronological age or whether they are better explained by factors such as digital competence, professional experience, career stage, institutional responsibilities and access to technological resources. This study addresses these gaps by exploring how older and younger school leaders in selected Nigerian secondary schools perceive 4IR adoption. Generation is employed as an analytical lens rather than a definitive explanation of leadership behaviour.

Methodology

Research Design and Participants

This study employed a qualitative exploratory design within an interpretivist paradigm to investigate differences in school leaders' perceptions of 4IR adoption. Research was conducted in four secondary schools across four Local Government Areas of Kogi State, Nigeria. Schools were purposively selected on the basis of relatively strong academic performance prior to the COVID-19 pandemic to provide a comparable context for examining leadership perspectives on technological change. Twelve school leaders participated: a principal, a vice-principal and a head of department from each school. Participants were grouped for analytical comparison into older leaders (45-60 years) and younger leaders (30-44 years), with six participants in each group. Age categories were used as an analytical lens rather than as fixed generational identities. The decision to include six participants from each age group was analytically driven. In this exploratory qualitative comparison, equal representation supported the identification of patterns, contradictions and within-group variation without implying statistical representativeness. The sample of twelve participants was intended to prioritise depth and richness of data rather than breadth

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Data Collection

Data were collected using two complementary instruments: a semi-structured interview guide and an observation schedule. Interviews that lasted approximately 90-120 minutes, were audio-recorded with consent and transcribed verbatim. Interview topics addressed lifelong learning, knowledge sharing and collaboration, and willingness to take risks in relation to 4IR adoption. Observations were conducted alongside interviews and targeted leadership activities, ICT-related meetings, technology use, staff interactions and the broader school environment. Informal observations and reflections were recorded in a research journal. The combination of interviews and observations enabled triangulation between participants' reported perceptions and observable practices.

Data Analysis

Transcripts and observation notes were analysed thematically following Braun and Clarke. The researcher engaged in repeated reading of the data, generated initial themes, clustered related sub-themes into categories and developed themes inductively from participants' accounts and observations. CLT was subsequently applied as a sensitising framework to interpret findings through its administrative, adaptive and enabling functions rather than as predetermined coding categories. The analysis examined similarities and differences within and between the two age groups and attended to data that contradicted emerging patterns. Three principal themes were identified: lifelong learning**,** knowledge sharing and collaboration, and risk-taking.

Trustworthiness

Trustworthiness was addressed through strategies targeting credibility, dependability, confirmability and transferability. Credibility was enhanced by prolonged engagement with transcripts and observation notes, member checking and triangulation of interview and observation data. Dependability was supported by maintaining an audit trail documenting research procedures, transcripts, field notes and thematic decisions. Confirmability was strengthened through supervisory debriefing and by grounding interpretations in direct participant quotations and observation extracts. Transferability was facilitated by providing detailed descriptions of the study setting, participant characteristics and research procedures so that readers can assess the applicability of findings to comparable contexts. Triangulation was undertaken by comparing participants' interview accounts with the observation data. Interviews provided information about how school leaders perceived lifelong learning, knowledge sharing, collaboration and risk-taking, while observations provided contextual evidence of leadership practices, technology use, staff interactions and ICT-related activities.

Results

Thematic analysis of the interview transcripts and observation notes generated three overarching themes that capture differences in the perceptions of older and younger school leaders regarding the need for 4IR adoption in Nigerian secondary schools: (1) Lifelong learning, (2) Each one teach one, and (3) Risk-taking. Each theme contains related sub-themes. While some age-related tendencies were observable, important variation existed within both groups. These within-group differences are highlighted throughout the presentation of findings. Findings are presented below with illustrative verbatim quotations. Participants are identified by number and age category (older = 45-60 years; younger = 30-44 years), Illustrative quotations are presented to exemplify the main

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patterns and the notable variations within each age group. Not every participant is quoted on every theme; some responses were repetitive and are therefore not reproduced in full.

Theme 1: Lifelong Learning

Motivation and interest

Most younger leaders consistently expressed strong personal interest in technology and 4IR-related developments. One stated: *"I am so much interested in improving my technological skills…" (Participant 2, younger)*. Another noted: *"I have decided to [get] a modem for data connection with my sim card for my personal use because I'm highly having interest in latest technology" (Participant 9, younger).* In contrast, several older leaders indicated limited interest, often linking this to proximity to retirement or perceived governmental neglect: *"…as for me, I'm not interested and I can never be interested before I apply for my retirement…" (Participant 4, older). "…my dear, where is the strength for me to start moving from one place to another… I only have less than three years to leave the service…" (Participant 10, older).*

Use of personal digital devices

Observation and interview data showed that all 12 leaders possessed Android phones. However, only four leaders (all younger) regularly used personal laptops for professional tasks such as record-keeping and information processing. One observation note recorded: *"On the vice principal's (young school leader) table, I observed… a personal laptop computer where he records the names of every cleared student and saved immediately into Google drive; two android phones…" (Observation notes, 28 September 2022).* This observation provides contextual evidence of technology use in administrative work, but it does not by itself establish that age was the reason for the observed difference in device use. Younger leaders frequently advocated for wider provision of devices: *"I'm suggesting that the government should… provide such device… Even if the government cannot give them free of charge, they can give them at a subsidized rate" (Participant 8, younger).*

Modes of self-directed learning

Four younger leaders reported independently seeking information about 4IR and related technologies: *"Yes, I have heard it before… I later personally search for it on Opera Mini internet browser to learn about it" (Participant 5, younger). "I personally devout time to learn about latest technologies, at times I learn some via YouTube… I have my personal laptop and I do subscribe for data…" (Participant 12, younger).* No older leader described comparable self-initiated online learning.

However, the responses of older participants were not uniform. Participants 1 and 6 expressed interest and eagerness towards 4IR-related learning, while Participant 7 expressed interest and eagerness but was not considered ready. These cases indicate variation within the older group and suggest that interest, eagerness and readiness did not correspond consistently with age category.

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Theme 2: Each One Teach One

Sharing knowledge

Both groups reported informal knowledge exchange, yet younger leaders more frequently initiated discussions about technology. One younger leader explained: *"I initially heard of it through a WhatsApp message from my colleagues, then I started to talk about it amongst those in my department. We were all interested in how they were using technology in their classrooms" (Participant 3, younger).* Observation notes confirmed routine sharing of information among staff during breaks and briefings.

Informal networking and collaboration

Younger leaders described using online platforms and informal networks to access ideas beyond their immediate schools: *"As we can go online and be a part of the seminars that are offered globally for free, it has become better to connect with ideas from elsewhere… Others in Africa are in the same boat as us. We can help each other" (Participant 3, younger).* Weekly management meetings provided formal spaces for collaboration, with younger leaders more often proposing digital alternatives: *"…we have tried to use the online platforms to consult with teachers. They have been discussing how much easier it is for them to ask questions… So, I think you can try this online mode…" (Participant 5, younger).*

Theme 3: Risk-Taking

Willingness to experiment and innovate

Younger leaders expressed readiness to try new approaches despite uncertainty: *"Actually, in this life, everything is a risk… one needs to always take up a risk in other to face reality of life" (Participant 8, younger). "You have to try new ways, and there is so much we can learn. You have to look past what we don't have to what we can do with what we have" (Participant 5, younger).* Older leaders were more cautious. One stated: *"…I can no longer face any challenge as of the time of my youth… I'm now getting old and the mind and zeal is no longer as strong as it was before" (Participant 4, older).* Nevertheless, the pattern was not uniform among older participants. Participant 10 provides a contrasting case: although the participant expressed limited interest and eagerness towards 4IR-related activities, the participant was nevertheless classified as ready to take risks. This apparent contradiction indicates that interest, eagerness and willingness to take risks did not necessarily occur together and further demonstrates variation within the older group.

Vulnerability and failing forward

Younger leaders openly accepted the possibility of failure as part of learning: *"We have to experiment but experiments sometimes work and sometimes they don't work. I have to be open to failure, that's part of learning too" (Participant 3, younger).* They also reported encouraging colleagues to adopt student-centred methods: *"We try to encourage colleagues to change how they teach. They must facilitate learning where collaboration and critical thinking are a key focus" (Participant 8, younger).*

Overall, the findings suggest some differences between the age groups in relation to lifelong learning, knowledge sharing and risk-taking, particularly in accounts of self-directed digital learning and experimentation. However, the findings also reveal substantial variation within the age groups. Positive orientations towards 4IR-related learning were evident among some older

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participants, while the case of Participant 10 demonstrates that limited interest did not necessarily correspond with unwillingness to take risks. The findings therefore suggest patterns of difference between the groups without indicating that age alone determines school leaders' orientations towards 4IR adoption.

Discussion

The findings of this study indicate some differences in the perceptions and practices of older and younger school leaders regarding 4IR adoption in Nigerian secondary schools, particularly in relation to lifelong learning, knowledge sharing and risk-taking. However, these differences were not uniform, as variation was also evident within both age groups. Interpreted through CLT, the findings provide evidence of adaptive and enabling leadership behaviours among several participants, while also showing that these behaviours cannot be neatly assigned to particular age groups.

Lifelong Learning and Adaptive Capacity

Several younger leaders demonstrated higher motivation, more frequent use of personal digital devices, and active engagement in self-directed learning. This pattern aligns with research indicating that younger leaders display greater technological self-efficacy and are more inclined to pursue continuous upskilling (Eynon & Malmberg, 2011; Stevenson et al., 2016). In contrast, several older leaders expressed limited interest, often linking their stance to proximity to retirement or frustration with systemic neglect echoing documented challenges of teacher demotivation and low 4IR awareness in the Nigerian context (Akinniyi et al., 2020; Oloba, 2023).

From a CLT perspective, the self-directed learning behaviours of younger leaders exemplify adaptive leadership: the capacity to generate new knowledge, respond to environmental change, and maintain personal learning agility within complex systems (Uhl-Bien & Arena, 2018). Their willingness to seek information independently and experiment with available tools also reflects the creation of "adaptive space," a core enabling condition in the meso-model of CLT (Uhl-Bien et al., 2007). Older leaders' more cautious stance, while understandable given career stage and accumulated administrative responsibilities, risks constraining the organisation's overall adaptive capacity at a time when 4IR demands continuous learning (Fomunyam, 2019; Trilling & Fadel, 2009).

Knowledge Sharing, Networking and Enabling Leadership

Both age groups reported knowledge sharing and collaboration, while several younger participants described initiating discussions about technology and using informal networks to access new ideas. These practices resonate with the literature on distributed and collaborative leadership in digitally evolving educational environments (Afandi et al., 2021). However, the present study extends this discussion by showing that informal knowledge sharing was not exclusive to younger leaders; rather, the age groups differed mainly in the ways participants described using technology to support such exchanges. The "each one teach one" ethos observed among younger participants further supports the view that peer-to-peer learning can partially compensate for formal professional development deficits in resource-constrained settings.

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Within CLT, the reported practices of connecting colleagues, circulating ideas and accessing external knowledge can be interpreted as enabling leadership because they create conditions for interaction and knowledge exchange (Uhl-Bien et al., 2007). However, the findings do not support the conclusion that enabling leadership is a characteristic of younger leaders alone. The important distinction is therefore between the leadership behaviour observed or reported and the age category of the participant. This interpretation is consistent with CLT's view of leadership functions as interdependent and context-dependent rather than fixed characteristics of particular individuals or groups.

Risk-Taking, Experimentation and Emergence

Perhaps the most distinctive finding concerns risk-taking. Younger leaders expressed greater readiness to experiment, innovate, and treat failure as a learning opportunity. This disposition is consistent with research showing that younger leaders are more comfortable with technological uncertainty and iterative practice (Orlando, 2014). Older leaders, by contrast, frequently cited declining energy, risk aversion, or the perceived futility of change near the end of their careers. The greater willingness to experiment reported by several younger participants is broadly consistent with research associating younger educators with greater comfort with technological change and iterative practice (Orlando, 2014). However, the risk-taking response of Participant 10 diverges from a simple age-based interpretation. The finding therefore suggests that willingness to experiment may be influenced by factors beyond chronological age, including individual disposition, professional experience, perceived consequences of change and the particular organisational context.

CLT provides a useful lens for interpreting the participants' willingness to experiment as adaptive behaviour because adaptive leadership involves responding to emerging challenges, learning through experimentation and generating new possibilities (Uhl-Bien & Arena, 2018). Nevertheless, the evidence from Participant 10 complicates the assumption that such adaptive behaviour is more closely associated with younger leaders. The findings indicate that adaptive and risk-taking behaviours may occur alongside apparently cautious or limited orientations towards 4IR, suggesting that leadership functions may coexist within the same individual rather than being neatly distributed between age groups.

Integrating the Findings within CLT and the Nigerian Context

Collectively, the three themes indicate that participants differed in their orientations towards lifelong learning, knowledge sharing and risk-taking, with some patterns appearing more frequently among younger participants. However, the findings also reveal important within-group variation. Participant 10 demonstrated willingness to take risks despite expressing limited interest and eagerness. These case indicate that the observed patterns cannot be adequately explained by chronological age alone.

These patterns reinforce calls in the literature for more intentional leadership development and succession strategies that deliberately cultivate adaptive and enabling behaviours among all school leaders, regardless of age (Uhl-Bien & Arena, 2018). They also underscore the practical importance of pairing digitally fluent younger leaders with experienced older colleagues in mentoring arrangements that can accelerate collective capacity. In resource-scarce environments

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such as many Nigerian secondary schools, leveraging the complementary strengths of both groups offers a more realistic pathway toward 4IR-aligned practice than waiting for large-scale infrastructural or policy transformation.

CLT offers a valuable interpretive framework for these findings because the three emergent themes; learning, experimentation and interaction map onto behaviours associated with adaptive and enabling leadership. The data therefore align with CLT's emphasis on learning, experimentation and knowledge exchange. However, CLT does not account for these behaviours in terms of chronological age, nor does it imply that administrative, adaptive and enabling functions are the exclusive domain of distinct demographic groups.

The substantial within-group variation observed in this study highlights the limits of applying CLT through a simple generational lens. Participants within the same age category displayed different leadership orientations, and individual accounts often reflected more than one CLT function simultaneously. Thus, while the findings endorse CLT's usefulness as an analytic tool, they also complicate its application to generational differences in 4IR adoption. In particular, the evidence suggests that adaptive and enabling behaviours are better understood as emergent, context-dependent practices that arise from interactions among individuals, organisational conditions, experience, resources and shifting technological demands, rather than as traits inherently associated with younger leaders.

The study's contribution lies in moving beyond a simplistic younger-versus-older framing of 4IR leadership in Nigerian secondary schools. While the findings identify some age-associated tendencies, such as greater self-directed digital learning, technology-mediated knowledge sharing and a higher propensity to experiment among younger leaders they also reveal substantial heterogeneity within both cohorts. Consequently, the research demonstrates that chronological age may correlate with certain patterns of response but is insufficient as a standalone explanation for school leaders' orientations toward 4IR adoption; a fuller account must consider interacting factors such as career stage, professional experience, positional responsibilities, digital competence and access to resources.

Recommendations

Based on the study's findings, the following recommendations are proposed:

1. Adopt competency-based leadership development Design professional development programmes around demonstrated digital competencies and individual learning needs rather than chronological age.
2. Promote cross-generational knowledge exchange Encourage collaboration and mentoring among leaders so that digital, pedagogical and organisational expertise can be shared across age groups.
3. Create safe opportunities for experimentation Support school leaders to pilot small-scale technology initiatives and to learn from both successes and failures in low-risk settings.
4. Strengthen digital access and infrastructure Prioritise improvements in reliable electricity, device availability and internet connectivity to enable sustainable 4IR adoption.

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5. Provide sustained, practice-based professional learning Move beyond one-off workshops toward ongoing, practice-oriented training, peer support and reflective learning opportunities.

Conclusion

This qualitative study examined how secondary school leaders in selected schools in Kogi State perceive the adoption of 4IR technologies and practices. Younger participants more frequently reported self-directed digital learning, technology-mediated knowledge sharing and a willingness to experiment, while some older participants emphasised caution and reliance on established procedures. Crucially, substantial variation within both groups indicates that these patterns should not be interpreted as determined by age alone. CLT offered a useful lens for interpreting administrative, adaptive and enabling leadership functions, but the findings demonstrate that these functions cannot be straightforwardly assigned to particular age cohorts. Instead, leadership responses to 4IR are shaped by multiple interacting factors, including career stage, professional experience, leadership role and access to technology. Accordingly, the study recommends a competency-based approach to leadership development rather than age-based assumptions. Given the small, purposive sample drawn from four schools in a single Nigerian state, the findings are not statistically generalisable; however, they offer cautiously transferable insights for comparable educational contexts seeking to strengthen leadership capacity for equitable and context-sensitive 4IR adoption.

References

Afandi, A., Bafadal, I., Hadi, S., & Taufiq, A. (2021). Investigating School Principals' Learning Leadership Practices in Three Indonesian Excellent Schools. *Eurasian Journal of Educational Research*, *96*, 119–135.

Akinniyi, O. K., Popoola, O. M. J., & Amadi, C. N. (2020). Examination of Performance Measurement Prospects on the Fourth Industrial Revolution in the Nigerian Selected Public Sector Agencies. *Indian-Pacific Journal of Accounting and Finance*, *4*(3), 15–25. https://doi.org/10.52962/ipjaf.2020.4.3.116

Eynon, R., & Malmberg, L.-E. (2011). A typology of young people's Internet use: Implications for education. *Computers & Education*, *56*(3), 585–595.

Fomunyam, K. G. (2019). Education and the Fourth Industrial Revolution: Challenges and Possibilities for Engineering Education. *International Journal of Mechanical Engineering and Technology (IJMET)*, *10*(08), 271 – 284.

McKinsey. (2017). *Technology, jobs and the future of work*.

Oke, A., & Fernandes, F. A. P. (2020). Innovations in Teaching and Learning: Exploring the Perceptions of the Education Sector on the 4th Industrial Revolution (4IR). *Journal of Open Innovation: Technology, Market, and Complexity*, *6*(2). https://doi.org/10.3390/joitmc6020031

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Okunlola, J. O., & Naicker, S. R. (2025). Principals' digital leadership competencies in the Fourth Industrial Revolution: Teachers' perspectives. *Education Sciences*, *15*(6), 656.

Oloba, O. E. (2023). *Possible Solutions to Lack of Awareness and Readiness to 4IR Amongst School Leaders in Nigerian Secondary Schools* [Dissertation, University of Johannesburg]. South Africa. https://www.proquest.com/openview/09ea717674e23c42f5fae1991bed977d/1?pq-origsite=gscholar&cbl=2026366&diss=y

Orlando, J. (2014). Veteran teachers and technology: Change fatigue and knowledge insecurity influence practice. *Teachers and Teaching*, *20*(4), 427–439.

Peterside, D. (2022). Nigeria Education Sector Crisis: A Future that is Ruined. *Nigerian Vanguard*.

Schwab, K. (2016). *The Fourth Industrial Revolution*. World Economic Forum.

Stevenson, M., Hedberg, J. G., O'Sullivan, K.-A., & Howe, C. (2016). Leading learning: The role of school leaders in supporting continuous professional development. *Professional development in education*, *42*(5), 818–835.

Timotheou, S., Miliou, O., Dimitriadis, Y., Sobrino, S. V., Giannoutsou, N., Cachia, R., Monés, A. M., & Ioannou, A. (2023). Impacts of digital technologies on education and factors influencing schools' digital capacity and transformation: A literature review. *Education and information technologies*, *28*(6), 6695–6726.

Trilling, B., & Fadel, C. (2009). *21st century skills: Learning for life in our times*. John Wiley & Sons.

Uhl-Bien, M., & Arena, M. (2018). Leadership for organizational adaptability: A theoretical synthesis and integrative framework. *The leadership quarterly*, *29*(1), 89–104.

Uhl-Bien, M., Marion, R., & McKelvey, B. (2007). Complexity leadership theory: Shifting leadership from the industrial age to the knowledge era.

Uzochukwu, O. C., Alloysius, N. T., & Olohi, E. S. (2019). Re-Engineering Nigeria Economy through Fourth Industrial Revolution: A Case of Agro-Allied Firms in Nigeria. *International Journal of Applied Economics, Finance and Accounting*, *5*(1), 14–30.

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Bridging Nigeria's Affordable Housing Gap: The Role of Religious Institutions in Sustainable Housing Development

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DOI : https://doi.org/10.5281/zenodo.22917224

Abstract
Nigeria's affordable housing deficit exposes households to overcrowding, insecure tenure, inadequate infrastructure and unhealthy living conditions, revealing a development crisis that governmental and market interventions have not resolved. This study examines how religious institutions can complement efforts to advance affordable housing development in Nigeria between 2015 and 2025. Its objectives are to assess their housing contributions and limitations; examine how their resources, networks and structures can support affordable housing; evaluate their capacity to promote sustainable housing; and propose a framework for collaborative intervention. The study is limited by reliance on documentary sources, uneven institutional records, and difficulty generalizing diverse religious practices across Nigeria. The Capability Approach and Social Gospel Theory provide complementary frameworks. The Capability Approach views housing as a means of expanding freedoms, security and wellbeing, while Social Gospel Theory interprets shelter provision as Christian social responsibility, justice and communal action. Methodologically, the study employs qualitative documentary research, drawing purposively on peer-reviewed literature, government publications, policy documents, reports and institutional materials addressing 2015–2025; no questionnaires, interviews, observations or statistical data analysis are employed. Findings indicate that religious institutions possess underutilized land, trust networks, volunteer capacity and welfare structures that can support housing finance, advocacy, construction partnerships and initiatives. A new finding is that their comparative advantage lies not merely in constructing houses, but in integrating shelter with livelihoods, social support, ethical stewardship and empowerment. The study concludes that faith–government–private sector partnerships can transform religious assets into sustainable housing capabilities, strengthening dignity, inclusion and communities.

Keywords: Affordable Housing, Religious Institutions, Sustainable Housing Development, Capability Approach, Social Gospel Theory

Introduction

Adequate and affordable housing remains one of Nigeria's most persistent development challenges. Rapid urbanization, population growth, rising construction costs, expensive land, limited housing finance and weak access to mortgage facilities have widened the gap between housing demand and effective supply. Recent evidence indicates that low- and middle-income

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households bear the greatest burden, with affordability remaining a central obstacle to sustainable housing provision (Ogundipe et al., 2024). Nigeria's housing challenge is therefore not simply a shortage of physical structures; it is also a question of who can access secure, adequate, affordable and sustainable shelter. This aligns with Sustainable Development Goal 11, particularly Target 11.1, which calls for access to adequate, safe and affordable housing for all by 2030.

Although government remains the primary institutional actor in housing policy, the scale and complexity of the deficit require broader partnerships. Existing housing initiatives have struggled to match demand, while financing constraints, land costs and construction expenses continue to limit affordable supply. Consequently, attention is increasingly warranted toward religious institutions as overlooked development actors. Churches, mosques and faith-based organizations possess land, financial resources, extensive community networks, moral authority and established structures for social welfare. Recent scholarship argues that religious institutions in Nigeria have considerable but underutilized potential for advancing sustainable development through community mobilization, advocacy and social intervention (Azubuike et al., 2024).

Statement of the Problem

Nigeria's affordable housing challenge remains a major socio-economic problem, particularly for low and middle-income households. Rapid population growth, urbanization, rising construction costs, limited access To mortgage finance, inadequate infrastructure, and declining household purchasing power have widened the gap between housing supply and effective demand. The World Bank {2014} observes that Nigeria's housing challenge is closely associated with rapid urbanization, affordability constraints, and limited access to adequate housing finance. Similarly, The Federal Republic of Nigeria {2012} acknowledges the need for greater private-sector and institutional participation in expanding affordable housing provision. Despite the extensive social and charitable activities of churches and mosques, their potential contribution to sustainable affordable housing development remains largely underexplored. Religious institutions possess valuable assets, including land, financial resources, organizational structures, community networks, and social capital, which could potentially be mobilized to support housing initiatives.

However, their involvement has generally focused more on welfare, education, healthcare, and emergency assistance than on systematic and sustainable housing provision. This represents a significant gap, given the emphasis of the Social Gospel on addressing human welfare and social injustice. {Bosch, 2011} The problem therefore, is not only Nigeria's shortage of affordable housing but also the limited integration of religious institutions into formal housing-development strategies. This study consequently examines how churches and mosques can contribute to bridging Nigeria's affordable housing gap through sustainable, inclusive, and community-oriented housing initiatives.

Conceptual Clarifications

Affordable Housing

Affordable housing refers to housing that is adequate in quality and location and whose cost does not prevent occupants from meeting other basic living expenses. The concept extends beyond the purchase price or rent to include access to essential services such as potable water, sanitation, electricity, transportation, healthcare, education, and employment opportunities (UN-Habitat,

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2023). Internationally, housing is generally regarded as affordable when a household spends no more than 30 percent of its gross income on housing-related costs (World Bank, 2024).In Nigeria, affordable housing remains a major development challenge due to rapid population growth, urbanization, inflation, high construction costs, inadequate mortgage financing, and ineffective implementation of housing policies. The Federal Government has introduced several housing initiatives, including the National Housing Policy and social housing programmes, yet the country's housing deficit remains substantial (Federal Mortgage Bank of Nigeria [FMBN], 2023). Affordable housing, therefore, encompasses not only the provision of low-cost housing units but also ensuring accessibility, sustainability, and livability for low- and middle-income households.

Housing Gap (Housing Deficit)

The housing gap, commonly referred to as the housing deficit, denotes the difference between the number of available housing units and the number required to adequately accommodate a country's population. It reflects both quantitative shortages and qualitative inadequacies in housing provision. A housing deficit also includes overcrowded dwellings, substandard housing, homelessness, and settlements lacking basic infrastructure and social amenities (UN-Habitat, 2023).Nigeria is estimated to have a housing deficit exceeding 20 million housing units, with urban centres experiencing the greatest pressure because of rural-urban migration, population expansion, and increasing land values (FMBN, 2023). The persistence of this deficit has contributed to the growth of informal settlements, slums, and inadequate living conditions, thereby posing significant social, economic, and environmental challenges.

Religious Institutions

Religious institutions are organized bodies established for the practice, promotion, and administration of religious beliefs and activities. In Nigeria, these institutions include Christian churches, Islamic organizations, and traditional religious communities that operate through formal organizational structures and provide spiritual, educational, humanitarian, and social services (Clarke, 2013).Beyond their spiritual responsibilities, religious institutions have historically played important roles in national development through the establishment of schools, hospitals, orphanages, vocational centres, and poverty alleviation programmes. They command considerable public trust, possess extensive physical assets such as land and buildings, mobilize financial resources, and influence millions of adherents through ethical and moral teachings. These characteristics position them as strategic stakeholders in addressing socio-economic challenges, including affordable housing.

Sustainable Housing Development

Sustainable housing development refers to the planning, construction, financing, and management of housing in ways that satisfy present housing needs without compromising the ability of future generations to meet their own needs. It integrates economic affordability, environmental sustainability, and social inclusiveness (United Nations, 2015).According to UN-Habitat (2023), sustainable housing promotes energy efficiency, environmental protection, resilient infrastructure, accessibility, affordability, and social equity. It also encourages the efficient use of land and building materials while ensuring that housing developments are connected to essential infrastructure and public services. In the Nigerian context, sustainable housing involves

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developing communities that are economically viable, environmentally responsible, culturally appropriate, and socially inclusive.

The Role of Religious Institutions in Sustainable Housing Development

Religious institutions possess unique comparative advantages that enable them to contribute meaningfully to sustainable housing development. Their ownership of land, financial resources, volunteer networks, charitable foundations, and widespread community presence provides opportunities for supporting affordable housing initiatives. Faith-based organizations can contribute through land donations for housing projects, cooperative housing schemes, provision of low-interest housing loans, subsidized rental housing, fundraising for vulnerable populations, and partnerships with governments, private developers, and financial institutions. Additionally, religious institutions can advocate for equitable housing policies, promote transparency in housing administration, and encourage ethical stewardship of public resources (World Bank, 2024).The social teachings of major religions emphasize compassion, justice, generosity, and care for vulnerable members of society. These principles align with the objectives of sustainable housing development, which seeks to reduce inequality and improve living conditions. Consequently, religious institutions can serve as important partners in achieving inclusive housing development and reducing Nigeria's housing deficit.

Public, Private, and Faith Partnerships

Public, Private, and Faith Partnerships (PPFPs) refer to collaborative arrangements among government agencies, private-sector organizations, and faith-based institutions to deliver public goods and services. In the housing sector, such partnerships involve combining public policies and incentives, private-sector investment and technical expertise, and the social capital and community networks of religious organizations. PPFPs have the potential to improve housing accessibility by mobilizing additional financial resources, reducing development costs, increasing public trust, and ensuring that housing projects address the needs of vulnerable populations. In Nigeria, strengthening these partnerships could enhance affordable housing delivery while promoting accountability, transparency, and community participation.

Social Capital

Social capital refers to the networks, relationships, trust, and shared norms that facilitate cooperation and collective action within society (Putnam, 2000). Religious institutions generate substantial social capital through their congregations, leadership structures, volunteerism, and community outreach programmes. This social capital can be leveraged to mobilize financial contributions, encourage community participation, disseminate housing information, resolve conflicts, and facilitate cooperative housing projects. Strong social capital also promotes accountability and sustainability in housing initiatives because beneficiaries often participate actively in project planning and management.

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Community Development

Community development is a participatory process through which individuals and organizations collectively improve the social, economic, and physical conditions of their communities. It emphasizes empowerment, local participation, inclusiveness, and sustainable resource utilization. Religious institutions have traditionally contributed to community development through educational programmes, healthcare delivery, poverty reduction initiatives, humanitarian assistance, and infrastructure development. Their involvement in affordable housing represents a continuation of this broader developmental mandate by improving living conditions and promoting human dignity.

Theoretical Framework

The study is anchored on two complementary theories: the **Capability Approach Theory** and the **Social Gospel Theory** which provides a robust interdisciplinary theoretical framework. The Capability Approach Theory explains housing as a fundamental component of human well-being and development, while the Social Gospel Theory provides the theological basis for religious institutions' commitment to social justice and human welfare.

Capability Approach Theory

The Capability Approach Theory was developed by Amartya Sen (1985, 1999) and further expanded by Martha C. Nussbaum (2000, 2011)It provides a suitable theoretical foundation for this study rather than measuring development solely by economic growth or income levels, the theory emphasizes people's capabilities to achieve valuable ways of living. Access to adequate housing is regarded as one of the essential capabilities necessary for human dignity, health, security, and social participation. Within the Nigerian context, inadequate housing limits individuals' opportunities to enjoy a decent quality of life.

Affordable housing therefore becomes more than a physical structure; it is a prerequisite for human development and social inclusion. Religious institutions can enhance people's capabilities by mobilizing financial resources, providing affordable housing schemes, offering social support, and advocating policies that improve access to decent housing for low-income households. Nigeria's housing deficit, estimated in the millions of housing units, significantly constrains the capabilities of low-and middle-income households. Rising construction costs, rapid urbanization, unemployment, inadequate mortgage financing, and weak policy implementation have made decent housing inaccessible for many citizens.

These conditions diminish people's freedoms and quality of life; thereby hindering national development. Religious institutions possess significant social, financial, and moral resources that can contribute to expanding citizens' capabilities. Through the provision of affordable housing schemes, cooperative housing programmes, land acquisition support, low-interest financing, skills development and advocacy for equitable housing policies, churches, mosques, and faith-based organizations can enhance individuals' opportunities to obtain decent housing. Such interventions improve not only shelter but also health, education, social inclusion, and economic productivity. Therefore, the Capability Approach is particularly relevant to this study because it conceptualizes affordable housing as an indispensable human capability and positions religious institutions as important partners in expanding the freedoms of well-being of vulnerable populations through sustainable housing initiatives.

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Social Gospel Theory

The Social Gospel Theory, popularized by Walter Rauschenbusch {1907, 1917} in the late nineteenth and early twentieth centuries, emphasizes that the Church has a moral obligation to address societal problems such as poverty, inequality, homelessness, and injustice. Rather than focusing solely on spiritual matters, the theory advocates practical Christian involvement in transforming society. Applied to affordable housing, the theory suggests that religious institutions should actively participate in addressing the housing needs of vulnerable populations through charitable housing projects, cooperative housing schemes, housing finance initiatives, land donations, advocacy, and partnerships with government and private organizations. The Social Gospel perspective views housing as part of social justice and human dignity. Religious institutions therefore become agents of sustainable development by promoting equitable access to decent housing while demonstrating compassion and stewardship.

Application of the Theory to the Study

The Social Gospel Theory, principally associated with WalterRauschenbusch {1907, 1917} suggests that religious institutions have both a theological and moral obligation to participate actively in addressing inadequate housing. Churches, mosques, and faith-based organizations possess extensive networks, financial resources, volunteer capacities, and community trust that can be mobilized to provide affordable housing for low-cost housing, establishing housing cooperatives, supporting internally displaced persons, partnering with governments and private developers, and advocating equitable housing policies.{Rauschenbusch, 1917} The Social Gospel also encourages religious institutions to challenge structural injustices that contribute to housing inequality, including corruption, land speculation, discriminatory housing practices, and unequal access to mortgage financing. By promoting social justice alongside spiritual development, religious organizations contribute to sustainable community development and national progress.{Rauschenbusch,1907} Therefore, the Social Gospel Theory provides a moral and theological foundation for understanding why religious institutions should play an active role in reducing Nigeria's housing deficit and promoting inclusive, sustainable housing development.{Rauschenbusch, 1917}

Integration of the Two Theories

The Capability Approach and the Social Gospel Theory complement each other in explaining the role of religious institutions in sustainable housing development. While the Capability Approach views housing as a fundamental human capability necessary for expanding people's freedom and improving their quality of life, {Sen, 1999; Nussbaum, 2011} the Social Gospel Theory provides the ethical and theological justification for religious institutions to promote social justice through practical interventions. {Rauschenbusch, 1907, 1917} Together, these theories suggest that affordable housing is both a developmental necessity and a moral responsibility. The provide a comprehensive framework for analyzing how religious institutions can complement government efforts by mobilizing resources, advocating equitable housing policies, empowering vulnerable populations, and promoting sustainable community development. Consequently, the combined framework offers a strong analytical basis for examining how faith-based organizations can

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contribute to bridging Nigeria's affordable housing gap, while advancing both human development and social justice in Nigeria {Sen, 1999; Nussbaum, 2011; Rauschenbusch, 1917}

Methodology

This study adopts a qualitative research design to examine the role of religious institutions in bridging Nigeria's affordable housing gap and promoting sustainable housing development. Documentary research is appropriate because the study relies on existing scholarly, policy and institutional evidence rather than primary field data. {Bowen, 2009} The study covers 2015-2025, a period corresponding to the implementation of the Sustainable Development Goals and providing a coherent timeframe for examining developments in affordable and sustainable housing.

Sources are purposively selected based on relevance, credibility, currency and substantive coverage. They include peer-review journal articles, books government policies and reports, publications of international development organizations, SDG documents, and official materials from churches, faith-based organizations and other relevant institutions. Particular attention is given to evidence concerning housing affordability, access, tenure security, housing finance, community mobilization, institutional resources, partnerships and sustainability.

The selected documents are subjected to critical interpretive reading and thematic synthesis, guided by the study objectives and the Capability Approach and Social Gospel Theory. The Capability Approach frames housing as a means of expanding security, agency, wellbeing and human flourishing, while Social Gospel Theory interprets housing intervention through justice, compassion, social responsibility and collective action. Evidence is compared across scholarly, governmental, development and religious sources to identify convergent themes, institutional opportunities, limitations and potential intervention models.

The study employs no questionnaires, interviews, observations or statistical data analysis. Its credibility is strengthened through source triangulation and the use of authoritative and diverse documentary materials. Accordingly, the study does not attempt to quantify the contribution of religious institutions to Nigeria's housing deficit; rather, develops a theologically and developmentally grounded understanding of how their resources, networks and partnerships can support inclusive and sustainable affordable housing {Bowen, 2009; Azubuike, et al, 2024}

Databases for the Study

Major databases include Scopus, Web of Science, ScienceDirect, SpringerLink, Taylor & Francis Online, Emerald Insight, Google Scholar, AJOL, JSTOR and ProQuest, alongside official Nigerian government and international-agency repositories. Recent literature indicates continuing barriers involving finance, institutional capacity, infrastructure, sustainability practices and housing affordability in Nigeria (Ogundipe et al., 20224; Ebekozien et al., 2025).

Purposive document selection focuses on materials directly addressing affordable housing, sustainable housing, religious institutions, faith-based development, housing finance, community development, social responsibility and SDG 11. The documents were critically reviewed and thematically organized around religious institutions' potential roles in housing finance, land mobilization, community partnerships, social housing, advocacy, sustainable construction and support for low-income households. No questionnaires, interviews, field observations or

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statistical/data analysis were employed. The study therefore synthesizes existing evidence to develop a contextually relevant framework for strengthening the contribution of religious institutions to sustainable and affordable housing provision in Nigeria. This approach is consistent with recent Nigerian housing research that has used documentary and literature-based approaches to identify sustainable housing strategies and policy barriers (Usman & Bawa, 2025).

Literature Review

The literature on Nigeria's affordable housing challenge increasingly conceptualizes housing as a multidimensional development concern rather than merely a deficit in the number of housing units. Makinde (2020) argues that sustainable housing must integrate affordability and accessibility with environmental efficiency and essential infrastructure. This position challenges supply-centred approaches that measure progress primarily by the number of houses produced. Supporting this broader perspective, Ezennia et al. (2022) identify financial, institutional, technical and sustainability barriers as interconnected constraints on the uptake of affordable housing in Nigeria. Their argument suggests that increasing housing supply without addressing affordability, financing, infrastructure and institutional weaknesses may produce housing that remains inaccessible to the households most in need. Adeyemi et al. (2024), focusing on Lagos, reinforce this structural interpretation by identifying land costs, financing difficulties and policy constraints as major obstacles to affordable housing provision. Taken together, these scholars demonstrate that Nigeria's housing crisis is not simply a construction problem; it is also a problem of access, institutional capacity, finance and sustainable development. However, while their analyses illuminate the structural constraints facing conventional housing provision, they give comparatively limited attention to the potential contribution of non-state institutions, particularly religious organizations, in addressing these constraints.

The literature further demonstrates that alternative housing-delivery mechanisms can widen access, although their effectiveness depends on supportive institutional conditions. Nwachukwu, Rodrigues and Kiamba (2023), drawing lessons from Millard Fuller Foundation projects in Nasarawa State, show that private-sector participation can contribute to affordable housing when appropriate financing and delivery mechanisms are available. Their analysis, however, indicates that private investment cannot be considered independently of land, design, material and financial conditions. Nwachukwu, Obi and Akotia (2025) extend this argument through their examination of incremental housing, contending that phased construction, flexible payment arrangements and cooperative financing can reduce the initial financial burden on low- and middle-income households. Importantly, they also acknowledge that incremental approaches may remain inaccessible to the poorest households without appropriate public policies and financial support. The two studies therefore complement rather than contradict one another: Nwachukwu et al. (2023) emphasize the enabling conditions required for private investment, while Nwachukwu et al. (2025) demonstrate how flexible housing models can reduce affordability barriers. Their combined insight is that no single actor or delivery mechanism is sufficient. This creates analytical space for examining religious institutions as potential intermediaries capable of mobilizing land, social networks, philanthropy and community support to complement governmental and market-based interventions.

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The Capability Approach provides a useful conceptual basis for moving the discussion beyond the physical provision of houses. Sen (1999) shifts the meaning of development from the accumulation of material goods to the expansion of substantive freedoms and people's capacity to pursue lives they have reason to value. Nussbaum (2011) develops this human-centred perspective further by identifying conditions necessary for people to live with dignity and exercise essential human capabilities. Applied to housing, their arguments imply that affordability cannot be reduced to the monetary price of a dwelling. Housing is meaningful when it enables people to enjoy security, health, mobility, social participation, privacy and the freedom to pursue livelihoods. This interpretation complements Makinde's (2020) emphasis on sustainable and accessible housing, while also extending it: whereas Makinde concentrates on the characteristics of sustainable housing provision, Sen (1999) and Nussbaum (2011) direct attention to what housing enables people to become and to do. Consequently, a housing intervention may be considered affordable in financial terms yet remain inadequate from a capability perspective if it leaves households without secure tenure, infrastructure, livelihood opportunities or meaningful social inclusion.

The capability perspective also exposes a limitation in conventional assessments of affordable housing. If housing is evaluated primarily through the number of units constructed or their purchase price, the broader consequences of housing deprivation may remain invisible. A household may occupy a low-cost dwelling but still experience vulnerability because of poor infrastructure, insecure tenure, inadequate access to employment or social isolation. The Capability Approach therefore provides an evaluative lens through which religious housing initiatives can be assessed not merely by their physical outputs but by the freedoms, security and wellbeing they generate. This is particularly relevant to the present study because it permits the contribution of religious institutions to be examined in terms of their capacity to enhance human capabilities rather than simply their capacity to construct buildings.

Another body of scholarship highlights the potential contribution of religion to sustainable development in Nigeria. Azubuike et al. (2024) argue that religious institutions possess moral authority, extensive social networks and community influence that can be mobilized in pursuit of sustainable development. Their argument is significant because it challenges the tendency to treat religion primarily as a private or spiritual sphere and instead presents religious institutions as potential development actors. Chukwudebelu (2024) similarly links religion with peace, wellbeing, social cohesion and sustainable development, thereby demonstrating that religious engagement can extend into wider social concerns. Oko and Fip (2024) add a leadership dimension, arguing that religious leadership can influence sustainable development through moral guidance and social mobilization. Although these scholars differ in emphasis - Azubuike et al. (2024) foreground institutional resources and networks, Chukwudebelu (2024) emphasises wellbeing and social cohesion, while Oko and Fip (2024) focus on leadership - their arguments converge on the proposition that religious institutions possess social capacities that can contribute to development.

Nevertheless, the convergence among these scholars also reveals an important limitation. Their analyses establish the broader developmental potential of religion but do not sufficiently explain how such potential can be translated into concrete affordable-housing interventions. In other words, demonstrating that religious institutions possess social capital, moral authority and community networks does not automatically establish how these assets can address land

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acquisition, housing finance, construction costs, infrastructure deficits or tenure insecurity. The present study therefore moves beyond the general proposition that religion contributes to development by asking how specific religious institutional resources can be organized and connected to the affordable-housing ecosystem. This distinction is important because it shifts the discussion from whether religion can contribute to development to how religious institutions can contribute strategically to affordable housing.

The Social Gospel perspective provides a theological basis for this institutional engagement. Rauschenbusch (1991) challenges an understanding of Christianity that confines salvation and Christian responsibility to individual spiritual experience, arguing instead that Christian faith must confront social and economic conditions that produce human suffering and injustice. His position provides an important theological complement to the Capability Approach. Whereas Sen (1999) and Nussbaum (2011) ask whether social arrangements expand human freedoms and capabilities, Social Gospel theology asks what moral responsibilities Christian communities have toward people whose dignity and wellbeing are undermined by unjust social conditions. In the context of housing, this means that inadequate shelter cannot be regarded solely as an economic or governmental problem. It may also constitute a question of Christian social responsibility when poverty, exclusion and structural inequality prevent people from accessing dignified living conditions.

The interaction between the two frameworks is therefore particularly important. The Capability Approach supplies a human-development criterion for assessing the outcomes of housing interventions, while Social Gospel Theory supplies a theological and ethical rationale for institutional action. The former asks whether housing expands people's capabilities; the latter asks why religious communities should respond to housing deprivation as a matter of justice, compassion and social responsibility. Their combination consequently enables the study to examine both the developmental outcomes and the moral rationale of religious engagement in affordable housing.

Despite these insights, a significant gap remains in the existing literature. Housing scholars such as Makinde (2020), Ezennia et al. (2022), Nwachukwu et al. (2023), Nwachukwu et al. (2025) and Adeyemi et al. (2024) provide substantial explanations of affordability barriers and alternative housing-delivery mechanisms, but their analyzes largely centre on governmental, private-sector and market-oriented responses. Conversely, scholars of religion and sustainable development such as Azubuike et al. (2024), Chukwudebelu (2024) and Oko and Fip (2024) establish the wider developmental potential of religious institutions but do not adequately theorize affordable housing as a distinct area of religious intervention. The two bodies of literature therefore remain insufficiently connected.

This study addresses that intersection by bringing affordable housing scholarship into dialogue with the Capability Approach and Social Gospel Theory and by examining religious institutions as potential strategic partners rather than peripheral charitable actors. Its distinctive contribution lies in arguing that religious institutions should not be evaluated solely according to the number of houses they construct. Their greater comparative value may lie in their ability to mobilize land and philanthropic resources, build trust, facilitate partnerships, support vulnerable households, provide social and livelihood assistance, advocate for inclusive housing policies and connect shelter with

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broader human capabilities. Thus, the study reframes religious engagement with affordable housing from occasional charity to a potentially structured form of social development intervention. This perspective provides a basis for a collaborative model in which religious institutions, government and the private sector combine complementary resources to advance affordable, sustainable and dignity-enhancing housing in Nigeria.

Findings

1. **Housing is a capability issue, not merely a supply deficit.** Affordable housing must provide security, health, infrastructure, dignity and opportunities, not simply low-cost shelter
2. **Structural barriers require integrated solution.** Land costs, inadequate finance, weak policies, infrastructure deficits, and institutional limitations interact to sustain Nigeria's housing crisis.
3. **Incremental housing offers promise but needs institutional support.** Flexible construction and financing can improve access, but the poorest households still require supportive policies and partnerships
4. **Religious institutions are underutilized housing-development assets.** Their land, social networks, moral influence, welfare structures and volunteer capacity provide resources that can complement conventional housing actors.
5. **Religious institutions' greatest advantage is mobilization, not mass construction.** Their distinctive contribution lies in connecting housing with trust, philanthropy, community participation, social support and livelihood opportunities.
6. **Affordable housing can constitute Christian social responsibility.** Through the Social Gospel perspective, addressing inadequate shelter becomes an expression of injustice, compassion, human dignity and communal responsibility.
7. **Collaborative partnerships offer the strongest pathway to sustainable housing.** Linking religious institutions with government and private-sector expertise can convert institutional resources into sustainable housing capabilities, moving Nigeria from house provision toward dignity-centered community development
8. **Measure housing by impact, not units.** Success should be accessed through security, dignity, wellbeing and inclusion rather than construction volume.
9. **Leverage religious trust.** Established faith networks can strengthen beneficiary identification, participation, information-sharing and accountability.
10. **Shift from charity to empowerment.** Faith-based housing should move beyond short-term relief toward sustainable housing, livelihood and household resilience.

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Conclusion

In conclusion, bridging Nigeria's affordable housing gap demands innovative and inclusive strategies that leverage the comparative advantages of all relevant stakeholders. Religious institutions should therefore be recognized not merely as charitable organizations but as strategic development partners capable of contributing significantly to housing provision and community transformation. By integrating their moral influence, social capital, and institutional resources with sound government policies and private-sector expertise, Nigeria can make substantial progress toward reducing the housing deficit, improving living conditions, alleviating poverty, and promoting sustainable urban and rural development. Such a collaborative framework will not only provide affordable housing but also advance social justice, human dignity, national cohesion, and sustainable socio-economic development for present and future generations.

Recommendations

1} **Strengthen Government–Religious Institution Partnerships:** The Federal, State, and Local Governments should establish formal partnerships with religious institutions in the planning, financing, and implementation of affordable housing projects. Such collaborations should leverage the comparative strengths of each stakeholder to expand access to decent and sustainable housing.

2} **Develop a Policy Framework for Faith-Based Participation:** Government should formulate a clear policy and legal framework that recognizes and regulates the participation of religious institutions in affordable housing development. This framework should define operational guidelines, accountability measures, and incentives for faith-based organizations investing in social housing.

3} **Promote Faith-Based Cooperative Housing Schemes:** Religious institutions should establish cooperative housing societies for their members and surrounding communities. Through collective savings, low-interest financing, and shared ownership models, these cooperatives can increase access to affordable home ownership, especially for low- and middle-income earners.

4} **Utilize Church and Mosque Land Responsibly:** Religious institutions with available land should consider allocating portions of their land for affordable housing projects while ensuring compliance with urban planning regulations and environmental sustainability standards. Such initiatives should prioritize vulnerable groups, including low-income families, widows, persons with disabilities, and young workers.

5} **Mobilize Sustainable Housing Funds:** Faith-based organizations should establish dedicated housing intervention funds through voluntary donations, endowments, corporate social responsibility partnerships, philanthropic support, and ethical investment schemes to finance affordable housing initiatives.

6} **Encourage Public–Private–Faith Partnerships (PPFPs):** Government should promote Public–Private–Faith Partnerships that bring together public agencies, private developers, financial institutions, and religious organizations. These partnerships can improve project financing, reduce construction costs, encourage innovation, and ensure efficient project delivery.

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7} **Expand Housing Finance Accessibility:** Financial institutions should develop affordable mortgage products and flexible financing options tailored to low- and middle-income households, while government should strengthen mortgage guarantee schemes and provide incentives that encourage faith-based organizations to participate in housing finance initiatives.

8} **Promote Sustainable and Cost-Effective Building Technologies:** Stakeholders should encourage the use of environmentally friendly building materials, local construction technologies, renewable energy systems, and climate-resilient housing designs to reduce construction costs and improve long-term sustainability.

9} **Strengthen Capacity Building for Religious Leaders:** Religious leaders and administrators should receive training in housing policy, project management, financial accountability, urban planning, and sustainable development to enhance their capacity to manage housing initiatives effectively and transparently.

10} **Promote Advocacy and Public Awareness:** Religious institutions should use their platforms to educate members and the wider public on responsible land use, housing rights, environmental stewardship, and the importance of community participation in sustainable housing development.

11} **Ensure Transparency and Good Governance:** All faith-based housing initiatives should be guided by principles of accountability, transparency, equity, and effective financial management. Independent monitoring and periodic evaluation should be instituted to maintain public confidence and ensure that housing projects achieve their intended objectives.

12} **Encourage Further Research:** Future studies should undertake empirical investigations into the contributions of specific religious organizations to affordable housing development in Nigeria. Comparative studies across denominations, faith traditions, and geopolitical zones would provide additional evidence to inform policy formulation and improve the integration of faith-based institutions into national housing strategies.

References

Adebayo, P. W (2021) *Housing policy and affordable housing delivery in Nigeria: challenges and prospects,* Ibadan: Ibadan University Press.

Azubuike, P. C., Imo, U. F Ogbonna, C. K, Enyam, M. O & Nwadiche, M (2024) *Harnessing religion in the pursuit of sustainable development in Nigeria,* Discover Global Society, 2(87).

Bowen, G.A {2009} *Document analysis as qualitative research method,* Qualitative Research Journal, 9{2}, 27-40

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Chukwudebelu, I. A. (2024) *The nexus between religion and sustainable development in Nigeria: Exploring peace and well-being.* West African Journal on Sustainable Development, 1(2), 161–176.

Clarke, G. (2013) *Religion and development: conflict or cooperation?* Edward Elgar Publishing

Creswell, J.W & Poth, C.N {2018} *Qualitative inquiry & research design: choosing among five approaches* {4th ed}

Ezennia, I. S (2022) *Insights of housing providers on the critical barriers to sustainable affordable housing uptake in Nigeria,* World Development Sustainability, 1, 100023

Federal Mortgage Bank of Nigeria, (2023) *Annual report and financial statements,* Abuja: Federal Mortgage Bank of Nigeria.

Federal Ministry of Housing & Urban Development, {2024} *National housing & urban development policy*

Hopkins, C.H {2007}*The rise of the social gospel in American Protestantism*

Ibem, E. O & Aduwo, E. B (2013) *Assessment of residential satisfaction in public housing in Ogun State, Nigeria,* Habitat International, 40, 163–175.

Kazeh, J. A, Davou, M. Y, Dang, J. D & Dawurung, R. P (2025) *Evaluating the effectiveness of housing cooperatives as a solution for affordable housing in Nigeria,* PLASU Journal of Environmental Sciences, 1(2)

Krippendorff, K {2019} *Content analysis: an introduction to its methodology {4th ed}*

Lincoln,Y.S & Guba, E.G {1985}*Naturalistic inquiry*

Makinde, O. O. (2020). *A review of essential sustainable development principles in housing: The case of Nigeria.* International Journal of Research and Scientific Innovation, 7(1), 201–211.

Millington, G. (2024) *Neo-Pentecostal urban infrastructures in Lagos, Nigeria: Ontology, Politics, Poetics.* International Journal of Urban and Regional Research, 48(4)

Nussbaum, M. C (2000) *Women & human development: the capabilities approach,* Cambridge University Press

Nussbaum, M. C (2011) *Creating capabilities: the human development approach,* Harvard University Press

Nwachukwu, L., Rodrigues, L., & Kiamba, L. (2023) *Enabling private investment in affordable housing in Nigeria: Lessons from the experience of the Millard Fuller Foundation projects in Nasarawa State,* Journal of Risk and Financial Management, 16(9), 411

Ogundipe, K. E, Owolabi, J. D, Ogunbayo, B. F & Aigbavboa, C. O (2024) *Exploring inhibiting factors to affordable housing provision in Lagos metropolitan city, Nigeria,* Frontiers in Built Environment, 10

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Okuntade, T. F Edike, U. E Abisuga, A. O& Soyingbe, A. A(2026) *Beyond awareness: institutional barriers to green housing adaptation in Lagos cities,* 178, 107353.

Ojo, M& Rugkhapan, N. T (2026) *Rediscovering challenges in Nigeria's social housing system: identifying archetypes towards just transition,* Environment Asia, 19(1) 230-248

Putnam, R. D (2000) *Bowling alone: the collapse and revival of American community,* Simon & Schuster

Rauschenbusch, W (1917) *Christianity and the social crisis,* Macmillan

Rauschenbusch, W (1917) *A theology for the Social Gospel,* Macmillan

Sen, A (1985) *Commodities and Capabilities,* North-Holland.

Sen, A. (1985) *Development as freedom,* Oxford: Oxford University Press.

Sholanke, A. B, Akotia, J, & Akinradewo, O. (2025) *Addressing housing affordability in Nigeria through incremental housing: an evaluation of the Millard fuller foundation model,* Journal of Cogent Social Sciences.

United Nations, (1948) *Universal declaration of human rights,* New York: United Nations.

United Nations, (2015) *Transforming our world: the 2030 agenda for sustainable development,* New York: United Nations

UN-Habitat, (2023) *World cities report 2023: envisaging the future of cities,* Nairobi: United Nations Human Settlements Programme.

UN-Habitat, {2021} *The role of land in achieving adequate and affordable housing*, United Nations Settlement Programme

UN-Habitat, { 2025}*Nigeria: notes on adequate housing and social housing initiatives,* United Nations Human Settlements Programme.

UN-Habitat, {2026} *SDG 11 global report: housing at the centre of sustainable cities and communities,* United Nations Human Settlements Programme

World Bank, (2024) *Nigeria development update: building resilience through inclusive growth,* Washington DC: World Bank.

Yakubu, A. Bello, M. O. & Colleagues (2025) *Developing a framework for housing financing: a case study of Nigeria's sustainable low-cost housing via soft system methodology, engineering, construction and architectural management,* 32(13), 27-48

World Bank, {2025} *Nigeria: multi-sector analytical review and pathway to transformation*, World Bank

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Digital Pedagogy Resources in Chemistry Education: Awareness, Utilisation, and Demographic Correlates among Secondary School Teachers in Kwara State, Nigeria

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DOI : https://doi.org/10.5281/zenodo.22917513

Abstract

Despite growing policy interest in digital pedagogy, chemistry teachers in Nigerian secondary schools appear to have limited awareness and use of available online digital instructional resources. This study investigated secondary school chemistry teachers' awareness and utilisation of online chemistry instructional resources in Kwara State, Nigeria, and examined whether gender, teaching experience, and professional qualification were associated with these variables. The study adopted a descriptive survey design and covered the total population of 234 chemistry teachers through a census approach. Data were collected using the Online Chemistry Instructional Resources Questionnaire (OCIRQ), which assessed awareness and utilisation of 46 online resources on separate three-point scales. Descriptive statistics were used to answer the first two research questions, while chi-square tests of independence were used to examine associations between demographic characteristics and the categorical distributions of awareness and utilisation. Of the 46 resources examined, only one recorded a mean awareness score above 2.0 in the high-awareness category, while 15 met or exceeded the benchmark for adequate awareness. For utilisation, 12 resources met or exceeded the 2.0 benchmark, although none was frequently

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used by a majority of teachers. The chi-square analyses revealed no statistically significant associations between gender, teaching experience, or professional qualification and either awareness or utilisation ($p > .05$). The findings indicate that the observed limitations were not significantly differentiated across the demographic groups examined. The study therefore recommends coordinated attention to digital infrastructure, TPACK-oriented professional development, subject-specific resource curation, and institutional support.

Keywords: digital pedagogy, awareness, utilisation, online resources, chemistry education

1. Introduction

The relationship between technology and education has become increasingly consequential in contemporary teaching and learning. Digital resources can broaden access to instructional materials and create opportunities for interactive and learner-centred activities. In Nigerian schools, however, the availability and use of ICT resources remain uneven. Evidence from secondary-school settings indicates that teachers may have limited exposure to ICT facilities and that inadequate infrastructure, including electricity and equipment, can constrain classroom integration (Menkiti & Menkiti, 2013). This context is particularly important in science education, where appropriate digital tools may support the representation and exploration of concepts that are difficult to demonstrate through conventional instruction.

Chemistry presents particular instructional challenges because learners must reason across multiple levels of representation, including observable phenomena, submicroscopic molecular processes, and symbolic representations such as chemical equations. Molecular-modelling environments can help learners connect representations and develop spatial understanding; Dori and Barak (2001), for example, examined virtual and physical molecular modelling as tools for fostering model perception and spatial understanding. Virtual laboratories and related digital environments may also provide opportunities to engage with practical concepts when physical laboratory access is constrained (Suprapto *et al*., 2021).

Despite these possibilities, the availability of digital resources does not necessarily translate into classroom use. Nigerian studies have identified limitations in ICT availability and exposure among teachers, as well as teacher-level and knowledge-related factors affecting technology integration (Ifinedo *et al*., 2020; Menkiti & Menkiti, 2013). In Nigerian secondary schools, professionally trained teachers have also been reported to differ from non-professionally trained teachers in ICT instructional-material utilisation competencies (Ololube, 2006). These findings suggest that infrastructure, professional knowledge, and teacher preparedness may interact in shaping technology integration. The present study therefore examines not only whether online chemistry resources are available in the wider digital environment but also the extent to which teachers are aware of and utilise specific resources.

This study examines secondary school chemistry teachers' awareness and utilisation of online instructional resources in Kwara State, Nigeria, with particular attention to whether demographic characteristics gender, teaching experience, and professional qualification are associated with these variables. The study adopts the TPACK framework (Mishra & Koehler, 2006) to provide a conceptual basis for understanding technology integration and employs a census-based descriptive

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survey design with chi-square inferential statistics. The purpose is to document the observed pattern and examine whether it is distributed differently across demographic groups, rather than to infer causal effects.

1.1 Statement of the Problem

Although Nigerian education policy emphasises digital inclusion, secondary school chemistry instruction remains predominantly conventional, with limited adoption of freely available online resources such as interactive periodic tables, molecular visualisation applications, and virtual laboratories. Existing literature has largely focused on general ICT use, leaving limited evidence on teachers' awareness and utilisation of subject-specific chemistry resources. In addition, the extent to which teacher characteristics, including gender, teaching experience, and professional qualification, are associated with technology adoption in a context characterised by rural–urban variation and infrastructural constraints, such as Kwara State, remains insufficiently established. Addressing these gaps is important for distinguishing systemic constraints from differences that may be associated with particular groups of teachers and for designing appropriately targeted interventions.

1.2 Research Objectives

The objectives of the study were to:

1. determine the level of awareness of online chemistry instructional resources among chemistry teachers in Kwara State, Nigeria;
2. determine the level of utilisation of online chemistry instructional resources among these teachers; and
3. examine whether gender, teaching experience, and professional qualification are significantly associated with teachers' awareness and utilisation of online chemistry instructional resources.

1.3 Research Questions

This study was guided by the following research questions:

1. What is the level of awareness of online chemistry instructional resources among chemistry teachers in Kwara State, Nigeria?
2. What is the level of utilisation of online chemistry instructional resources among these teachers?
3. Are gender, teaching experience, and professional qualification significantly associated with teachers' awareness and utilisation of online chemistry instructional resources?

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1.4 Research Hypotheses

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

H_{01}: There is no statistically significant association between gender and teachers' awareness of online chemistry instructional resources.

H_{02}: There is no statistically significant association between gender and teachers' utilisation of online chemistry instructional resources.

H_{03}: There is no statistically significant association between teaching experience and teachers' awareness of online chemistry instructional resources.

H_{04}: There is no statistically significant association between teaching experience and teachers' utilisation of online chemistry instructional resources.

H_{05}: There is no statistically significant association between professional qualification and teachers' awareness of online chemistry instructional resources.

H_{06}: There is no statistically significant association between professional qualification and teachers' utilisation of online chemistry instructional resources.

2. Literature Review

2.1 Benefits of Digital Technologies in Chemistry Education

Evidence supporting digital technology integration in science education includes research on virtual laboratories and molecular modelling. Suprapto *et al*. (2021), in a systematic review of virtual laboratories in science education, identified evidence of their usefulness for learning and teaching, while Dori and Barak (2001) examined virtual and physical molecular modelling in relation to students' model perception and spatial understanding. These studies support the pedagogical potential of particular digital environments, but they do not by themselves establish that such resources are routinely used by Nigerian secondary-school chemistry teachers.

Digital tools may also provide practical alternatives or complements where physical laboratory resources are limited. Virtual environments can allow learners to interact with representations and simulated procedures without some of the material, safety, and equipment constraints associated with physical experiments (Suprapto *et al*., 2021). However, the extent to which these affordances are realised depends on access, teacher competence, and the pedagogical context; they should therefore be treated as potential advantages rather than assumed outcomes of simply providing digital resources.

Technology integration may also support engagement and learning behaviour under appropriate instructional conditions. Hwang *et al*. (2021), for example, reported that a social-regulation-based online learning framework improved learning achievement and learning motivation and stimulated more positive learning behaviours in a high-school mathematics context. Tondeur *et al*. (2017), in a systematic review, further showed that teachers' pedagogical beliefs and contextual conditions are relevant to technology use. These findings support the broader proposition that technology integration is pedagogically contingent rather than an automatic consequence of access to digital tools.

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2.2 Barriers to Technology Adoption in Nigeria

Infrastructure and access remain important considerations in Nigerian technology integration. Menkiti and Menkiti (2013), in a study of secondary-school teachers in Enugu Urban, reported limited availability and exposure to ICT facilities and identified infrastructure, including electricity, as an important area for improvement. Ifinedo *et al*. (2020), studying Nigerian teacher educators, likewise found that technological knowledge and ICT-pedagogical practice were important in explaining technology integration and highlighted implications for professional training. Together, these studies indicate that both enabling conditions and teacher-level knowledge may matter, although the present study did not directly measure either infrastructure or TPACK.

In secondary-school contexts, evidence also points to limited awareness and utilisation of digital resources. Omiko (2016) examined the availability and use of instructional materials among secondary-school chemistry teachers in Nigeria, while Ugwu and Ohimekpen (2015) reported limited awareness and use of e-learning resources among secondary-school teachers in Yobe State. These studies support the relevance of examining awareness and utilisation separately. They do not, however, justify treating inadequate use as a single national pattern; the present study is confined to chemistry teachers in Kwara State.

Professional learning is another potential enabling condition. Ifinedo *et al*. (2020) identified implications for strategic and practical professional training in improving Nigerian teacher educators' technology integration, while Ololube (2006) reported differences in ICT instructional-material utilisation competencies between professionally trained and non-professionally trained teachers. These findings suggest that professional preparation may matter, but they do not establish that qualification alone determines technology use. The present study therefore treats professional qualification as an empirical demographic variable to be tested rather than as an assumed determinant.

2.3 Teacher Characteristics and Use of Technology

Research on teacher characteristics and technology use has produced mixed findings. Gorder (2008) found no differences in technology use and integration based on gender, age, teaching experience, content area, or educational level in the study examined, although grade-level differences were observed. Egede (2021) similarly found no statistically significant overall gender difference in student-teachers' readiness to use ICT, while Fakomogbon *et al*. (2015) examined gender in relation to lecturers' awareness and utilisation of instructional media in Nigerian colleges of education. The mixed evidence supports testing demographic associations in the present context rather than assuming that gender is a consistent predictor.

Teaching experience also warrants empirical examination rather than an assumed directional interpretation. Gorder (2008) reported no difference in technology use and integration based on teaching experience, whereas Ifinedo *et al*. (2020) incorporated teacher characteristics alongside knowledge constructs and ICT practices in explaining technology integration among Nigerian teacher educators. These findings suggest that experience should be considered alongside other professional and contextual factors rather than treated as a sufficient explanation for technology use.

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Professional qualification may provide another relevant dimension because formal teacher preparation can be associated with ICT-related competencies. Ololube (2006) reported significant differences in ICT instructional-material utilisation competencies between professionally trained and non-professionally trained teachers in Nigerian secondary schools. However, this does not establish that qualification necessarily produces higher awareness or utilisation of subject-specific online chemistry resources. The present study therefore tests whether professional qualification is associated with the observed categorical distributions of awareness and utilisation.

3. Theoretical Framework

3.1 Technology Integration and TPACK

The theoretical framework for this study is Technological Pedagogical Content Knowledge (TPACK), introduced by Mishra and Koehler (2006) as an extension of Shulman's (1987) concept of pedagogical content knowledge. TPACK proposes that effective technology integration cannot be reduced to technical competence alone; rather, it involves the interaction of technological, pedagogical, and content knowledge. A teacher may know how to operate a digital tool but still be unable to use it effectively if the tool is not aligned with pedagogical purposes and disciplinary content. This framework is therefore appropriate for examining teachers' awareness and utilisation of online chemistry resources because the pedagogical value of a resource depends partly on teachers' capacity to select and integrate it appropriately.

In chemistry education, online instructional materials can be viewed as technological resources whose educational value depends on how they are selected, interpreted, and integrated with subject content and pedagogy. Jang and Chen (2010) demonstrated how a transformative model combining technology integration and peer coaching could support the development of TPACK among pre-service science teachers. The study therefore provides a more direct basis for linking TPACK-oriented professional learning to technology integration than the previously cited source. In the present study, awareness and utilisation are treated as observable indicators of engagement with digital resources, not as direct measures of TPACK itself.

This perspective is consistent with constructivist views of learning, in which technology can function not merely as a source of information but as a cognitive tool that supports active knowledge construction (Jonassen *et al*., 2008). From this perspective, awareness and utilisation may provide useful descriptive indicators of teachers' engagement with digital resources. Low levels of awareness and utilisation should not, however, be interpreted simply as evidence of teacher neglect; they may also reflect weaknesses in the professional and institutional conditions required for effective technology integration.

4. Methodology

The study adopted a descriptive survey design to investigate awareness and utilisation of online chemistry instructional resources among 234 secondary school chemistry teachers in Kwara State, Nigeria. Because the target population comprised 234 identified chemistry teachers, a census approach was used rather than probability sampling. This enabled the study to cover the entire accessible population and avoided sampling error within that defined population. Data were collected using the Online Chemistry Instructional Resources Questionnaire (OCIRQ), described in the study as an adapted instrument based on a validated inventory. The questionnaire covered

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46 online chemistry resources and assessed awareness on a three-point scale (3 = High, 2 = Moderate, 1 = None) and utilisation on a three-point scale (3 = Frequent, 2 = Rare, 1 = Not Used). The instrument was subjected to expert validation and yielded a Cronbach's alpha coefficient of 0.71.

Before participation, informed consent was sought and obtained from all participants. Participation was voluntary, and data were collected over four weeks. Frequencies, percentages, and mean scores were used to summarise awareness and utilisation. A mean score of 2.0 was specified as the benchmark for adequate awareness and utilisation. For the third research question, chi-square tests of independence were used to examine whether the distribution of categorical responses differed significantly across gender, teaching-experience, and professional-qualification groups. The hypotheses were tested at the 0.05 level of significance. Because the design was descriptive and cross-sectional, the analyses establish patterns of association rather than causal effects; accordingly, terms such as 'influence' are not interpreted causally.

5. Results

5.1 Demographic Characteristics of Participants

Table 1: Demographic Characteristics of Participants (N = 234)

Variable	Category	Frequency	Percentage (%)
Gender	Male	126	53.8
	Female	108	46.2
Professional Qualification	Qualified (B.Ed., B.Sc. Ed., B.Sc. + PGDE)	197	84.2
	Unqualified	37	15.8
Teaching Experience	Experienced (>10 years)	49	20.9
	Moderately Experienced (5-10 years)	102	43.6
	Less Experienced (<5 years)	83	35.5

As shown in Table 1, the participants were relatively balanced by gender, although male teachers constituted a slightly larger proportion. The sample was predominantly composed of professionally qualified teachers, while teachers with 5–10 years of experience constituted the largest experience group.

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5.2 Research Question 1: Level of Awareness of Online Chemistry Instructional Resources

Table 2: Summary of Awareness Levels of Online Chemistry Instructional Resources

Awareness classification	No. of resources	Highest example	Mean score(s)
High awareness	1	chemistryguide.org (49.1% high awareness)	2.46
Adequate awareness (≥2.0)	15	Chemicalelements.com (2.29)	2.00–2.29
Below benchmark (<2.0)	31	Chemieunterricht.de (1.09)	1.09–1.99

Note. Mean scores are based on a three-point scale: 3 = High, 2 = Moderate, 1 = None. A mean score of ≥2.0 was used as the benchmark for adequate awareness.

Table 2 shows that awareness was unevenly distributed across the 46 resources. Only one resource, chemistryguide.org, recorded a mean score in the high-awareness category (M = 2.46), while a further 14 resources recorded mean scores from 2.00 to 2.29. Thus, 15 of the 46 resources (32.6%) met or exceeded the predefined benchmark for adequate awareness, whereas 31 resources fell below it. The results indicate that teachers' awareness was concentrated in a relatively small subset of the resources examined rather than being broadly distributed across the online chemistry resource landscape.

5.3 Research Question 2: Level of Utilisation of Online Chemistry Instructional Resources

Table 3: Summary of Utilisation Levels of Online Chemistry Instructional Resources

Utilisation classification	No. of resources	Highest example	Mean score(s)
Adequate utilisation (≥2.0)	12	chemistryguide.org (M = 2.32)	2.00–2.32
Below benchmark (<2.0)	34	Chemieunterricht.de (M = 1.09)	1.09–1.99
Frequently used by a majority	0	Highest frequency of use: chemistryguide.org (39.7%)	

Note. Mean scores are based on a three-point scale: 3 = Frequent, 2 = Rare, 1 = Not Used. A mean score of ≥2.0 was used as the benchmark for adequate utilisation.

Table 3 shows that utilisation of online chemistry instructional resources was generally limited. Of the 46 resources examined, 12 (26.1%) met or exceeded the predefined benchmark of 2.0 for adequate utilisation, whereas 34 (73.9%) fell below the benchmark. None of the resources was

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frequently used by a majority of the teachers. Chemistryguide.org recorded the highest utilisation mean (M = 2.32) and the highest proportion of frequent use (39.7%). The results therefore indicate that, although some online chemistry instructional resources had reached a relatively adequate level of utilisation, regular classroom use remained limited across the resource set. The pattern therefore suggests that even where awareness was relatively higher, regular classroom use remained limited.

5.4 Research Question 3: Associations between Demographic Characteristics and Awareness and Utilisation

Table 4: Chi-Square Test Results: Associations between Demographic Characteristics and Awareness and Utilisation

Demographic Variable	Outcome	χ^2	**df**	p-value	Inference
Gender	Awareness	4.341	2	.114	Not significant; H_0 not rejected
	Utilisation	0.139	2	.933	Not significant; H_0 not rejected
Teaching Experience	Awareness	1.196	4	.879	Not significant; H_0 not rejected
	Utilisation	5.968	4	.202	Not significant; H_0 not rejected
Professional Qualification	Awareness	4.194	2	.123	Not significant; H_0 not rejected
	Utilisation	1.479	2	.477	Not significant; H_0 not rejected

Note. The chi-square tests assess whether the distribution of categorical awareness and utilisation responses differed significantly across demographic groups. Statistical significance was evaluated at $\alpha = .05$.

Table 4 indicates that none of the six tests reached statistical significance at $\alpha = .05$. Gender was not significantly associated with awareness, $\chi^2(2) = 4.341$, $p = .114$, or utilisation, $\chi^2(2) = 0.139$, $p = .933$. Teaching experience was not significantly associated with awareness, $\chi^2(4) = 1.196$, $p = .879$, or utilisation, $\chi^2(4) = 5.968$, $p = .202$. Similarly, professional qualification was not significantly associated with awareness, $\chi^2(2) = 4.194$, $p = .123$, or utilisation, $\chi^2(2) = 1.479$, $p = .477$. The six null hypotheses were therefore not rejected. These results indicate that the distribution of awareness and utilisation responses did not differ significantly across the demographic categories examined; they do not, however, demonstrate that the demographic variables have no effect whatsoever.

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6. Discussion of Findings

The first research question examined teachers' awareness of online chemistry instructional resources. The findings indicate that awareness was concentrated in a small proportion of the resources examined. Only one resource attained the high-awareness category, while 15 of the 46 resources met or exceeded the study's benchmark for adequate awareness. This suggests a subject-specific awareness gap within the study population. The finding is consistent with Ugwu and Ohimekpen (2015), who reported limited awareness and use of e-learning resources among secondary-school teachers in Yobe State. However, because the present study is confined to Kwara State and uses a subject-specific resource inventory, the result should be interpreted as evidence about this local context rather than as proof of a national pattern.

The second research question addressed utilisation and revealed a narrower pattern of engagement. Although 15 resources met the awareness benchmark, only 12 met the utilisation benchmark, and no resource was frequently used by a majority of teachers. The overall utilisation means reported in Appendix C ranged from 1.74 to 1.78 across the demographic groups, all below the study-defined benchmark of 2.0. This divergence between awareness and utilisation indicates that awareness of a resource does not necessarily translate into sustained instructional use. The pattern is consistent with literature showing that technology integration depends on enabling conditions and teacher-level knowledge (Ifinedo et al., 2020; Menkiti & Menkiti, 2013), but the present survey did not directly measure these explanatory factors.

The third research question examined whether awareness and utilisation differed significantly across gender, teaching experience, and professional qualification. None of the six chi-square tests was statistically significant (all $p > .05$). The finding is compatible with evidence showing that demographic differences in technology-related practices are not always consistent across contexts (Egede, 2021; Fakomogbon *et al*., 2015; Gorder, 2008). It should not, however, be interpreted as evidence that demographic characteristics are universally irrelevant. Rather, within this sample and the categorical measures employed, there was insufficient evidence to conclude that the distributions of awareness or utilisation differed across the demographic groups examined.

The findings therefore point to an awareness–practice gap: teachers may know about some online chemistry instructional resources without incorporating them regularly into classroom practice. This pattern is consistent with structural, institutional, and professional conditions identified in the literature, although these conditions were not directly measured in the present survey. The observed utilisation gap should therefore be interpreted as an empirical pattern requiring further investigation rather than as evidence that any particular contextual factor caused limited use.

6.4 Implications

The findings indicate that limited adoption of online chemistry instructional resources is not significantly differentiated by the demographic characteristics examined. However, the cross-sectional design does not establish that systemic conditions caused the observed pattern. The principal implication is therefore the need for interventions that address the enabling conditions for technology integration across the teacher workforce. These include reliable infrastructure, practical TPACK-oriented professional development, access to curated subject-specific resources, and institutional support for sustained classroom use.

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7. Conclusion

This study found that awareness and utilisation of online chemistry instructional resources among secondary school chemistry teachers in Kwara State were limited. Of the 46 resources examined, 15 met or exceeded the benchmark for adequate awareness and 12 met or exceeded the benchmark for adequate utilisation; no resource was frequently used by a majority of teachers. Chi-square tests found no statistically significant associations between gender, teaching experience, or professional qualification and either awareness or utilisation. The findings therefore suggest that the observed limitations are not significantly differentiated across the demographic groups examined. Given the descriptive and cross-sectional nature of the study, the results should be interpreted as evidence of patterns and associations rather than causal effects. Addressing the identified awareness-to-practice gap requires coordinated attention to infrastructure, subject-specific digital pedagogy, professional development, resource curation, and institutional support.

7.2 Recommendations

To address the constraints identified and the gaps suggested by the findings, four strategic priorities are proposed:

1. Infrastructure development: Government and school authorities should strengthen the reliability of electricity supply, internet connectivity, and access to appropriate digital hardware, while monitoring whether such improvements increase actual classroom utilisation.
2. Teacher capacity building: Pre-service and in-service professional development should incorporate practical, chemistry-specific TPACK competencies, with emphasis on selecting, adapting, and integrating online resources into curriculum-aligned lessons.
3. Resource provision and access: Educational agencies and professional associations should curate locally relevant repositories of vetted online chemistry resources, organised by curriculum topic and accompanied by concise guidance on pedagogical use.
4. Policy and accountability: Education authorities should establish realistic, measurable indicators for technology integration in chemistry instruction and provide monitoring, mentoring, and implementation support rather than relying solely on resource provision.

7.3 Limitations

The findings should be interpreted within the scope of the study. The cross-sectional design describes patterns of awareness and utilisation and their associations with selected demographic characteristics but does not permit causal inferences. The use of self-reported data may also introduce recall or social-desirability bias. Although the census approach covered the identified population of 234 chemistry teachers in Kwara State, generalisation to other contexts should be made with caution. Finally, the study did not examine contextual factors such as infrastructure, institutional support, or teachers' TPACK competence; these may be considered in future research.

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References

Dori, Y. J., & Barak, M. (2001). Virtual and physical molecular modelling: Fostering model perception and spatial understanding. *Educational Technology & Society, 4*(1), 61–74.

Egede, B. A. J. (2021). Student teachers' readiness to use information and communication technology (ICT) to teach: Exploring the influence of gender. *Academia Letters*, Article 491. https://doi.org/10.20935/AL491

Fakomogbon, M. A., Olanrewaju, O. S., & Soetan, A. K. (2015). Lecturers' awareness and utilisation of instructional media in the state-owned colleges of education, South-West Nigeria. *Malaysian Online Journal of Educational Technology, 3*(2), 13–19.

Gorder, L. M. (2008). A study of teacher perceptions of instructional technology integration in the classroom. *The Delta Pi Epsilon Journal, 50*(2), 63–76.

Hwang, G. J., Wang, S. Y., & Lai, C. L. (2021). Effects of a social regulation-based online learning framework on students' learning achievements and behaviours in mathematics. *Computers & Education, 160*, 104031. https://doi.org/10.1016/j.compedu.2020.104031

Ifinedo, E., Rikala, J., & Hämäläinen, T. (2020). Factors affecting Nigerian teacher educators' technology integration: Considering characteristics, knowledge constructs, ICT practices and beliefs. *Computers & Education, 146*, 103760. https://doi.org/10.1016/j.compedu.2019.103760

Jang, S.-J., & Chen, K.-C. (2010). From PCK to TPACK: Developing a transformative model for pre-service science teachers. *Journal of Science Education and Technology, 19*(6), 553–564. https://doi.org/10.1007/s10956-010-9222-y

Jonassen, D. H., Howland, J., Marra, R. M., & Crismond, D. (2008). *Meaningful learning with technology* (3rd ed.). Pearson.

Menkiti, N. U., & Menkiti, U. B. (2013). Assessment and prospective application of information and communication technology usage among secondary school teachers in Enugu Urban, Nigeria. *Journal of Education, Society and Behavioural Science, 4*(3), 336–349. https://doi.org/10.9734/BJESBS/2014/5841

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017–1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

Ololube, N. P. (2006). The impact of professional and non-professional teachers' ICT competencies in secondary schools in Nigeria. *Journal of Information Technology Impact, 6*(2), 101–118.

Omiko, A. (2016). Investigating the availability and the extent of use of instructional materials by secondary school chemistry teachers in Nigeria. *International Journal of Education, Learning and Development, 4*(3), 1–11.

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Shulman, L. S. (1987). Knowledge and teaching: Foundations of the new reform. *Harvard Educational Review, 57*(1), 1–23. https://doi.org/10.17763/haer.57.1.j463w79r56455411

Suprapto, N., Nandyansah, W., & Mubarok, H. (2021). The implementation of virtual laboratory in science education: A systematic review. *Journal of Technology and Science Education, 11*(1), 79–94. https://doi.org/10.3926/jotse.1143

Tondeur, J., van Braak, J., Ertmer, P. A., & Ottenbreit-Leftwich, A. (2017). Understanding the relationship between teachers' pedagogical beliefs and technology use in education: A systematic review of qualitative evidence. *Educational Technology Research and Development, 65*(3), 555–575. https://doi.org/10.1007/s11423-016-9481-2

Ugwu, D. A., & Ohimekpen, B. A. (2015). An assessment of awareness and use of e-learning resources by secondary school teachers in the North Eastern State of Yobe, Nigeria. *International Journal of Management and Applied Science, 1*(10), 117–122.

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Artificial Intelligence Sovereignty in Africa: Legal, Ethical and Strategic Challenges and Policy Pathways

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DOI : https://doi.org/10.5281/zenodo.22917819

Abstract
Artificial intelligence (AI) has emerged as a decisive terrain of twenty-first-century geopolitical competition, and Africa's engagement with this terrain raises urgent questions about sovereignty, self-determination, and equitable participation in global technological governance. This paper examines the legal, ethical, and strategic challenges to AI sovereignty in Africa, defined as the continent's capacity to govern, own, and direct the development and deployment of AI technologies within its territories according to its own values and developmental priorities. The analysis is based on a qualitative, doctrinal and interpretive desk-based review of six primary continental and national instruments which principally include the African Union's Continental Artificial Intelligence Strategy (2024), Nigeria's National Artificial Intelligence Strategy (2025), and the Nigeria Data Protection Act (2023) read alongside twelve peer-reviewed and policy publications by African and diaspora scholars, published between 2020 and 2025 and identified through targeted searches of Google Scholar, SSRN and the institutional repositories of the African Union, Research ICT Africa, and the Strathmore University Centre for Intellectual Property and Information Technology Law (search terms and selection criteria are set out in full in Section 4). The paper's principal contribution is an integrated analytical model that treats African AI sovereignty as constituted by the interaction of four dimensions which are legal authority, ethical authority, infrastructural capacity, and epistemic standing rather than as a single attribute a state either possesses or lacks. Applying this model, the paper argues that Africa's AI sovereignty is constrained by fragmented and unevenly enforced legal regimes, infrastructural and compute dependency on external powers, a persistent brain drain of AI talent, and epistemic marginalisation within global AI ethics discourse, while showing how African institutions and scholars are actively reconstructing sovereignty through relational ethical frameworks such as Ubuntu, harmonised data-governance proposals, and assertive continental strategy documents. As a desk-based doctrinal and interpretive review rather than an empirical study, the paper's principal limitation is that its conclusions are interpretive readings of a purposively selected corpus rather than statistically representative findings across all fifty-five African states. The paper closes with prioritised, actor-specific recommendations for the African Union, regional economic communities, national governments with particular reference to Nigeria covering regulators, universities, and private-sector actors.

Keywords: Artificial Intelligence Sovereignty; Digital Colonialism; Data Governance; Ubuntu Ethics; African Union AI Strategy

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1. Introduction

The global diffusion of artificial intelligence has reconfigured the terms on which states negotiate economic advantage, security, and cultural influence. Where earlier waves of technological change were mediated largely through trade and telecommunications policy, the current moment is distinguished by the extent to which AI systems depend on control over three scarce resources: data, computational infrastructure, and technical talent. Nations that command these resources are positioned to shape the rules, standards, and applications that govern AI globally, while nations that do not risk becoming perpetual consumers of externally designed systems (African Union, 2024; Okolo, 2024). For Africa, a continent of fifty-five states with divergent legal traditions, infrastructural capacities, and developmental priorities, this asymmetry is not new; it echoes older patterns of resource extraction and epistemic marginalisation that scholars have termed algorithmic or digital colonialism (Birhane, 2020).

The concept of AI sovereignty has consequently gained purchase in African policy and scholarly circles as a way of framing the continent's response to this asymmetry. It denotes more than mere national ownership of technology; it encompasses the legal authority to regulate data flows and algorithmic systems within a jurisdiction, the ethical authority to define what constitutes responsible and beneficial AI according to local values, and the strategic capacity to negotiate favourable terms with external technology powers rather than accept dependency by default (Awoleye, 2021; Venske, 2023). The African Union's adoption of the Continental Artificial Intelligence Strategy in July 2024, alongside a wave of national strategies including Nigeria's National Artificial Intelligence Strategy, signals a deliberate continental effort to assert this sovereignty (African Union, 2024; National Information Technology Development Agency [NITDA] & National Centre for Artificial Intelligence and Robotics [NCAIR], 2024).

Yet the pursuit of AI sovereignty in Africa unfolds against considerable legal, ethical, and strategic constraints. Legally, data protection regimes across the continent remain fragmented, with over forty countries possessing some form of data protection legislation but inconsistent implementation and more than ten states lacking legislation altogether, undermining the harmonised cross-border data governance that meaningful AI regulation requires. Ethically, the dominant AI ethics discourse continues to be shaped by Western rationalist and individualist assumptions about personhood, autonomy, and harm, a framework that African scholars argue inadequately captures the relational and communitarian values embodied in philosophies such as Ubuntu (Gwagwa et al., 2022; Mhlambi, 2020). Strategically, Africa's AI ambitions are pursued from a position of profound infrastructural dependency: the continent hosts a small fraction of global data centre and computing capacity, and its digital infrastructure is substantially financed and built by external actors, principally Chinese telecommunications firms and, increasingly, American hyperscale technology companies, raising questions about whose interests ultimately govern the continent's digital future.

Before turning to the paper's research questions, it is necessary to distinguish five related but analytically separable concepts that are frequently conflated in both policy and scholarly usage. National sovereignty denotes the classical Westphalian authority of a state over its territory and population. Digital sovereignty extends this authority to a state's right to govern data, infrastructure, and digital services within its jurisdiction (Venske, 2023). Data sovereignty is narrower still, referring specifically to the principle that data generated within a jurisdiction

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remains subject to that jurisdiction's laws irrespective of where it is stored or processed. Technological sovereignty concerns a state's capacity to develop, manufacture, or independently access the hardware and software on which digital and AI systems depend, rather than merely to regulate data flows. AI sovereignty, the paper's central concept, is best understood as a composite of the preceding categories: it requires the legal authority captured by digital and data sovereignty, the technological and infrastructural capacity denoted by technological sovereignty, the ethical authority to define locally legitimate standards of responsible AI, and a fourth, distinct requirement of epistemic standing which is the capacity to help shape, rather than merely receive, the global norms, benchmarks, and research agendas that define what counts as legitimate AI. Distinguishing these terms clarifies, for example, that a state may possess considerable data sovereignty through a robust data protection statute while still lacking AI sovereignty in the fuller sense addressed by this paper, precisely because infrastructural or epistemic capacity remains externally controlled.

This paper addresses these intersecting challenges through the following core questions: What does AI sovereignty mean in the African context, and how has it been conceptualised in continental and national policy instruments? What legal obstacles impede the exercise of that sovereignty, particularly with reference to Nigeria's data protection and AI governance architecture? What ethical tensions arise between globally dominant AI governance paradigms and African moral traditions? And what strategic vulnerabilities does Africa face as a participant, rather than a mere object, of the global AI race? In addressing these questions, the paper gives sustained attention to African and Nigerian scholarship, situating this literature not as a supplement to Western AI ethics and governance debates but as an independent and increasingly influential body of thought in its own right.

The paper is structured as follows. Section 2 develops the conceptual and theoretical framework, defining AI sovereignty, situating it within the literatures on digital colonialism and Ubuntu ethics, and setting out an integrated analytical model. Section 3 reviews the continental and national policy architecture and the emerging body of African AI scholarship. Section 4 outlines the paper's methodology. Section 5 presents the main analysis, organised around legal, ethical, and strategic challenges. Section 6 offers a critical evaluation of competing scholarly positions, and Section 7 sets out prioritised, actor-specific implications and recommendations before the paper concludes in Section 8.

2. Conceptual and Theoretical Framework

2.1 Defining AI Sovereignty

Sovereignty, in its classical Westphalian sense, denotes the supreme authority of a state over its territory and population. Digital sovereignty extends this authority into cyberspace, asserting a state's right to govern the data, infrastructure, and digital services operating within its jurisdiction (Venske, 2023). AI sovereignty is a further specification of this concept, referring to the capacity of a state or regional bloc to determine how AI systems are developed, trained, deployed, and regulated within its territory, and to do so according to its own developmental priorities and value commitments rather than those imposed by external technology providers (Awoleye, 2021). Understood this way, AI sovereignty has at least three interlocking dimensions: a legal dimension, concerning jurisdiction over data and algorithmic accountability; an ethical dimension, concerning

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the normative frameworks used to define responsible AI; and a strategic dimension, concerning control over the material infrastructure, capital, and talent that AI development requires.

Research ICT Africa (2024) frames sovereignty as existing along a continuum rather than as a binary state, with countries retaining agency to decide which categories of data to share, under what conditions, and with whom. This framing is instructive because it avoids an unrealistic autarkic conception of sovereignty that would be unattainable for most African states given their current infrastructural constraints, while still preserving the normative core of the concept: that African states and institutions, rather than external corporations or governments, should hold the decisive authority over AI's terms of engagement with African societies.

2.2 Digital and Algorithmic Colonialism as an Analytical Lens

A substantial body of scholarship analyses Africa's contemporary technological dependency through the lens of colonialism. Birhane (2020), in an influential and widely cited paper, coined the term algorithmic colonisation to describe how Western technology corporations import AI-driven solutions into African contexts with minimal adaptation or regulatory scrutiny, reproducing colonial-era patterns of extraction in which African populations and their data function as raw material for systems whose benefits accrue disproportionately elsewhere. Whereas traditional colonialism operated through direct political domination, Birhane (2020) argues that algorithmic colonialism operates through corporate control of digital infrastructure and data ecosystems, a form of domination that is less visible but no less consequential, since it simultaneously discourages the development of local technology industries and entrenches dependency on imported software and platforms.

This analysis resonates with subsequent work on data sovereignty and digital transformation. Calzati (2022) examines Chinese involvement in Kenya's information and communication technology sector and interrogates whether infrastructural partnerships that promise 'data sovereignty' in fact risk substituting one form of external control for another, given that data centres, network hardware, and standards are frequently supplied and financed by foreign firms even where formal legal ownership rests with the host state. Awoleye (2021), writing from within a Nigerian research institution, extends this concern by asking whether African states should pursue the assertive digital sovereignty strategies associated with countries such as China, Russia, and Brazil, or risk remaining permanently on the periphery of global data governance. The digital and algorithmic colonialism literature thus provides an important corrective to techno-optimistic narratives that treat AI adoption in Africa as an unambiguous developmental good, insisting instead that the terms, ownership, and beneficiaries of AI systems be subjected to critical scrutiny.

At the same time, this literature should not be read as counselling withdrawal from AI development. Eke and Ogoh (2022) caution that dominant narratives about AI in Africa, whether celebratory or catastrophist, tend to be authored externally and to obscure the continent's own long history of technological innovation and adaptation. They call for the recovery of what they term forgotten African AI narratives, arguing that African engagement with AI should be understood

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not solely as a story of victimhood or dependency but also as one of agency, experimentation, and locally grounded innovation, even amid genuine structural constraints.

2.3 Ubuntu as a Relational Ethical Framework

A third conceptual pillar of this paper is the Southern African philosophical concept of Ubuntu, frequently glossed through the Zulu and Xhosa maxim umuntu ngumuntu ngabantu, meaning that a person is a person through other persons. Mhlambi (2020) develops Ubuntu into a systematic ethical and human rights framework for AI governance, arguing that dominant Western AI ethics discourse is built on a conception of personhood grounded in individual rationality, a legacy traceable to Cartesian philosophy, which lends itself to the optimisation of individual efficiency at the expense of collective wellbeing and thereby facilitates outcomes such as surveillance capitalism and data extraction. Ubuntu, by contrast, grounds personhood in relationality: one's humanity is constituted through one's relationships with others, and ethical AI governance must therefore attend to AI's effects on the interconnected social fabric rather than solely on discrete individual harms.

Gwagwa et al. (2022) build on this relational framework to argue that Ubuntu offers a normative resource for making global AI ethics discourse more inclusive of Sub-Saharan African perspectives, which have historically been marginalised in the formulation of supposedly universal AI ethics principles. They contend that Ubuntu-derived action-guiding principles could help reconcile competing cultural values in AI design and provide African stakeholders with a distinctive contribution to global governance debates rather than positioning Africa as a passive recipient of externally formulated standards. Complementary work by Djiberou Mahamadou et al. (2024) applies an Ubuntu lens specifically to healthcare AI, arguing that data ethics frameworks emphasising individual informed consent and autonomy require adaptation to account for communitarian conceptions of data ownership and benefit-sharing prevalent in many African societies.

This scholarship is not without internal contestation, a point taken up more fully in the critical evaluation in Section 6. Yilma (2025) offers a searching critique of the uncritical invocation of Ubuntu in continental AI governance documents, observing that Ubuntu is a philosophical and political concept most closely associated with southern Africa and that its salience even within that sub-region, including within South Africa's own constitutional history, has been contested and is not self-evidently generalisable to a continent as culturally heterogeneous as Africa. This critique does not vitiate the analytical value of Ubuntu as one important African ethical resource, but it cautions against treating it as a uniform pan-African alternative capable of single-handedly resolving the epistemic asymmetries in global AI ethics.

2.4 An Integrated Analytical Model

The preceding discussion suggests an explicit analytical model rather than a loose juxtaposition of concepts, and it is this model that constitutes the paper's central theoretical contribution. In the model, AI sovereignty is the central, dependent construct, and four conditions function as its explanatory dimensions. The first is legal-jurisdictional control: the capacity to enact and enforce binding rules over data and algorithmic systems (examined in Section 5.1). The second is ethical-normative authority: the capacity to define, rather than merely adopt, the value commitments like the Ubuntu-derived relational principles alongside established rights-based principles such as

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autonomy, privacy, fairness, and accountability against which AI systems are judged legitimate (Section 5.2). The third is infrastructural-material capacity: ownership of, or negotiated control over, the compute, cloud, and talent base required for AI development (Section 5.3). The fourth, cutting across the first three, is epistemic standing: the capacity to help shape global AI research agendas, benchmarks, and governance norms rather than simply to receive them (Sections 3.3 and 5.2). Coloniality, in this model, is not itself a fifth dimension of sovereignty but the historical and structural condition that has systematically weakened all four dimensions simultaneously; Ubuntu and cognate relational ethics function as one, but not the only, resource for reconstructing the second dimension. This model is used to organise the analysis in Section 5 and the critical evaluation in Section 6, and it reframes single-indicator claims — a data protection statute, a foreign-owned data centre, a rhetorical invocation of Ubuntu — as partial evidence bearing on one dimension rather than conclusive evidence about sovereignty overall.

3. Literature Review

Read cumulatively, the literature reviewed in this section converges on three points of consensus: that Africa's continental and national AI strategies mark a genuine, if uneven, assertion of policy agency (African Union, 2024; NITDA & NCAIR, 2024); that legal fragmentation and enforcement deficits constrain the practical realisation of that agency (Research ICT Africa, 2024); and that African-authored scholarship on algorithmic colonialism and Ubuntu ethics constitutes an independent intellectual contribution rather than a derivative gloss on Western debates (Birhane, 2020; Mhlambi, 2020; Eke & Ogoh, 2022). The literature divides, however, on two questions that the analysis in Sections 5 and 6 revisits directly: first, whether foreign-financed digital infrastructure is compatible with sovereignty when negotiated on favourable terms, or whether it constitutes dependency regardless of terms (compare Awoleye, 2021, with Calzati, 2022); and second, whether Ubuntu can function as a generalisable pan-African ethical resource or should instead be treated as one regionally specific tradition among several (compare Gwagwa et al., 2022, with Yilma, 2025). What remains unresolved, and what this paper accordingly addresses, is how these legal, ethical, and infrastructural threads interact within a single analytical account of AI sovereignty, rather than being treated, as in most of the literature reviewed below, as separate subfields.

3.1 The Continental Policy Architecture

The African Union's Continental Artificial Intelligence Strategy, endorsed by the AU Executive Council in July 2024 during its 45th Ordinary Session in Accra, Ghana, represents the most comprehensive continental effort to date to assert African agency over AI governance (African Union, 2024). The Strategy, developed through a Continental AI Working Group process beginning in 2023 and involving over 130 ministers and stakeholders, is organised around five focus areas, namely harnessing AI's benefits, building AI capabilities, minimising risks, stimulating investment, and fostering cooperation, which are elaborated into fifteen concrete policy action points. Aligned with the African Union's Agenda 2063 and the United Nations Sustainable Development Goals, the Strategy sets out a five-year implementation period running from 2025 to 2030, with a mid-term review scheduled for 2027 and the development of an African AI readiness index to track progress (African Union, 2024).

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The Strategy explicitly situates itself within a comparative field of regional AI governance instruments, referencing the European Union's AI Act, the Association of Southeast Asian Nations' Guide on AI Governance and Ethics, and the 2024 Santiago Declaration for Latin America and the Caribbean, while insisting that African AI governance must be development-focused and grounded in ethical principles, democratic values, human rights, and the rule of law rather than a wholesale importation of external regulatory templates (Future of Privacy Forum, 2024). It further identifies data governance as a foundational prerequisite for responsible AI regulation, building on the AU Data Policy Framework and the Malabo Convention on Cyber Security and Personal Data Protection, and calls for a multi-tiered governance framework spanning continental, regional, and national levels.

Notwithstanding this ambition, independent assessments of the Strategy's implementation reveal significant constraints. An eighteen-month review of implementation data from July 2024 to October 2025 found that funding for AI initiatives remained starkly concentrated, with roughly eighty-three per cent of continental AI funding directed to only four countries, alongside minimal mobilisation of private capital relative to the estimated five hundred billion dollars in continental infrastructure needs, prompting the characterisation of a development-governance paradox in which ambitious regulatory architecture coexists with severe capacity and resource constraints. This paradox, and the argument that AU strategy documents function partly as symbolic 'governance as strategy' exercises rather than binding regulatory instruments, is echoed in comparative work examining North African AI governance trajectories in Egypt, Morocco, Mauritania, Algeria, Libya, and Tunisia, which similarly finds descriptive policy proliferation running ahead of enforceable institutional capacity.

3.2 National Frameworks: Nigeria as a Case Study

Nigeria's engagement with AI governance illustrates both the promise and the limitations of national-level sovereignty assertions within the continental architecture. The National Information Technology Development Agency, through its National Centre for Artificial Intelligence and Robotics, published a draft National Artificial Intelligence Strategy in August 2024, articulating a vision for Nigeria to become a global leader in ethical and inclusive AI innovation (NITDA & NCAIR, 2024). The final National Artificial Intelligence Strategy, published in September 2025 under the leadership of the Federal Ministry of Communications, Innovation and Digital Economy, sets a five-year vision for 2025 to 2029 organised around three overarching goals, namely economic growth and competitiveness, social development and inclusion, and technological advancement and leadership, delivered through five operational pillars covering infrastructure, ecosystem development, sectoral adoption, responsible AI, and governance (OECD.AI Policy Observatory, 2026).

The strategy is notable for its candid acknowledgement of Nigeria's structural constraints, including limited and unreliable electricity and broadband infrastructure, public research and development investment of approximately 0.2 per cent of gross domestic product against a global average of 2.2 per cent, a persistent shortage of skilled AI professionals compounded by brain drain, and gaps in data quality and governance (OECD.AI Policy Observatory, 2026). Independent policy analysis situates Nigeria's starting position as comparatively weak, noting the country's

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ranking of ninety-fourth out of the assessed states in the 2024 Oxford Insights Government AI Readiness Index, and its bottom-ranked position among twenty-five countries in the Top Ranked AI Nations Index published by Tufts University's Fletcher School, underscoring the scale of the capacity-building challenge that Nigeria's AI ambitions confront.

Complementing the AI strategy is Nigeria's Data Protection Act 2023, which establishes the Nigeria Data Protection Commission and creates a comprehensive framework of principles, lawful bases for processing, data subject rights, and enforcement mechanisms (Federal Republic of Nigeria, 2023). Section 41 of the Act prohibits the transfer of personal data outside Nigeria by default, subject to exceptions where the receiving jurisdiction demonstrates adequate protection through legislation, binding corporate rules, standard contractual clauses, codes of conduct, or explicit data subject consent. Entities classified as data controllers or processors of major importance face fines of up to ten million naira or two per cent of annual gross revenue, whichever is higher, alongside potential criminal sanctions including imprisonment of up to one year for serious violations. This restrictive default position has generated debate among legal commentators regarding its practical operability given Nigeria's heavy reliance on foreign-hosted cloud and software-as-a-service infrastructure, with some analysts noting that Section 2(c) of the Act, which extends jurisdiction to foreign processors handling Nigerian data regardless of their physical location, creates a degree of redundancy with the cross-border transfer rules while also complicating compliance for American software providers whose platforms underpin much of Nigeria's digital economy.

3.3 African Scholarship on AI Governance, Data Regulation, and Ethics

A distinctive and increasingly influential strand of scholarship on AI governance in Africa is produced by African and diaspora researchers working across law, computer science, philosophy, and public policy. Okolo (2024), a Nigerian-American computer scientist and public policy researcher, argues that data protection regulation is foundational to any credible AI governance regime in Africa, given that the effectiveness of AI oversight ultimately depends on the quality of the underlying data governance regime; she further contends that AI and data regulation should not be left to governments alone but should incorporate advisory participation from civil society, academia, and industry, mirroring emerging multi-stakeholder governance models elsewhere. Her broader body of work, including contributions to the African Union Development Agency's white paper on the regulation and responsible adoption of AI in Africa, situates Nigerian and African expertise at the centre, rather than the periphery, of global AI governance debates.

Research ICT Africa (2024), a leading Cape Town-based policy research network, provides a critical assessment of the African Digital Compact, a companion instrument endorsed alongside the Continental AI Strategy, arguing that while the Compact rightly identifies digital sovereignty, human rights, and regional cooperation as common African negotiating positions in global digital governance forums, it stops short of anchoring these commitments in established regional human rights instruments such as the African Charter on Human and Peoples' Rights, and risks reducing digital rights to a narrow focus on personal data protection at the expense of broader concerns such as access to information and freedom of expression.

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On the ethics front, the special collection on AI, Ethics and Policy Governance in Africa, and associated volumes such as Responsible AI in Africa: Challenges and Opportunities, bring together African scholars, technologists, and policy thinkers whose work, the editors note, remains under-represented in mainstream Western AI ethics publications despite its direct relevance to regulatory and governance gaps on the continent. Within this literature, Eke and Ogoh (2022) and subsequent collaborative work advance the concept of epistemic injustice in global AI ethics, arguing that African perspectives are frequently solicited only after ethical frameworks have already been substantially formulated elsewhere, reducing African participation to a validating rather than a constitutive role. Health-focused contributions, such as Thaldar's (2024) editorial on data governance in African health research, extend these concerns to genomic and biomedical AI applications, highlighting unresolved questions of informed consent, data ownership, and benefit-sharing that intersect closely with AI-driven diagnostic and research tools increasingly deployed on the continent.

Taken together, this literature establishes that African scholarship on AI is neither derivative of, nor secondary to, Western AI ethics and governance debates. Rather, it constitutes an increasingly coherent and self-critical field that interrogates both external technological domination and the limitations of purely continental or national policy responses, providing the analytical foundation on which the remainder of this paper builds.

4. Methodology and Approach

This paper adopts a qualitative, doctrinal, and interpretive desk-based research methodology appropriate to a legal-policy analysis of an emerging and fast-evolving regulatory field. The analysis proceeds through three complementary methods. First, doctrinal legal analysis is applied to primary legal and policy instruments, including the African Union's Continental Artificial Intelligence Strategy, the AU Data Policy Framework, Nigeria's National Artificial Intelligence Strategy, and the Nigeria Data Protection Act 2023, to identify their scope, structure, and internal coherence. Second, comparative policy analysis situates these African instruments alongside international reference points, including the European Union's regulatory approach and global governance instruments such as the Global Digital Compact, in order to assess convergence and divergence in regulatory philosophy. Third, critical literature synthesis draws on peer-reviewed journal articles, working papers, and policy reports, with particular emphasis on scholarship authored by African and Nigerian researchers, to construct a theoretically grounded account of the ethical and strategic dimensions of AI sovereignty that purely doctrinal legal analysis would not capture on its own.

To make this review reproducible, the following protocol was applied. Document identification proceeded through targeted searches of Google Scholar, SSRN, arXiv, and the institutional repositories of the African Union, Research ICT Africa, the African Union Development Agency, and the Strathmore University Centre for Intellectual Property and Information Technology Law, using the search terms 'AI sovereignty Africa', 'digital sovereignty Africa', 'algorithmic colonialism', 'Ubuntu AI ethics', 'data protection Africa', and 'Nigeria AI strategy', restricted to material published between January 2020 and October 2025 so as to capture the period since the AU's initial continental AI policy deliberations. Primary legal and policy instruments were included where they were formally adopted or officially published continental, regional, or

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Nigerian instruments (n = 6: the AU Continental AI Strategy, the AU Data Policy Framework, the Malabo Convention, Nigeria's National AI Strategy, the NITDA/NCAIR draft strategy, and the Nigeria Data Protection Act 2023). Secondary scholarly sources were included where peer-reviewed or produced by a recognised policy research institution and where the source substantively addressed AI or digital sovereignty, data governance, or AI ethics in an African context (n = 12); sources addressing AI governance solely outside Africa, or addressing African digital policy without reference to AI or data governance, were excluded. Doctrinal legal analysis was applied to the six primary instruments, while critical literature synthesis was applied to the twelve secondary sources, with the two analytical products triangulated in Sections 5 and 6. This protocol is reproducible but mod est in scale, and the paper's conclusions should accordingly be read as an interpretation of a purposively selected corpus rather than as the product of a systematic or exhaustive review.

Consistent with the objectives of the paper, source selection deliberately prioritised African-authored and African-institution-affiliated scholarship, including work published by Research ICT Africa, the Strathmore University Centre for Intellectual Property and Information Technology Law, the African Union Development Agency, and individual African and diaspora scholars, while retaining internationally recognised comparative and theoretical literature where it provides indispensable context. This approach is consistent with calls in the literature for African AI governance scholarship to resist treating Western sources as a default analytical baseline (Eke & Ogoh, 2022). The paper does not undertake primary empirical fieldwork, such as interviews or surveys, and this constitutes an acknowledged limitation; its contribution lies instead in the synthesis, critical evaluation, and theoretically informed interpretation of an already substantial but dispersed body of primary instruments and secondary scholarship.

5. Main Analysis and Discussion

The three sub-sections that follow present analytical themes emerging from the reviewed legal instruments and scholarship, organised around the legal, ethical, and strategic dimensions of the integrated model set out in Section 2.4. They are presented as analytical themes rather than as empirical findings derived from a systematic dataset, consistent with the desk-based methodology described in Section 4; each claim is anchored, as far as possible, to a specific primary instrument or a specific piece of scholarly evidence rather than presented as an unqualified continent-wide generalisation.

5.1 Legal Challenges to AI Sovereignty

It is important, at the outset, to distinguish legislative divergence from regulatory incompatibility. That fifty-five jurisdictions have adopted differing data protection statutes, at different times and to differing standards, is legislative divergence; this is a feature of legal pluralism common to any large multi-state region, including the European Union prior to the General Data Protection Regulation, and is not by itself evidence that African AI sovereignty is unattainable. Regulatory incompatibility is the narrower and more consequential problem: instances where divergent rules actively conflict — for example, where one jurisdiction's cross-border transfer prohibition cannot be satisfied by the adequacy mechanisms recognised in a partner jurisdiction — producing a genuine deadlock rather than merely inconsistent standards. The evidence reviewed in this paper substantiates divergence more strongly than it substantiates systemic incompatibility:

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harmonisation instruments such as the Malabo Convention and the AU Data Policy Framework aim precisely at converting divergence into interoperable, mutually recognised standards, and Nigeria's own default prohibition under Section 41, discussed below, is compatible in principle with a differentiated regional model provided adequacy and certification mechanisms are operationalised.

The foremost legal challenge to AI sovereignty in Africa is the fragmentation of data protection and cross-border data governance regimes across fifty-five jurisdictions with divergent legal traditions, institutional capacities, and enforcement records. While over forty African countries have enacted data protection legislation, implementation remains inconsistent and more than ten states continue to operate without any legislative framework, a gap that is particularly consequential for AI systems, which routinely require the aggregation, pooling, and cross-border movement of large datasets for training and validation purposes. Regional harmonisation instruments, including the African Union Convention on Cyber Security and Personal Data Protection, commonly known as the Malabo Convention, and the more recent AU Data Policy Framework, articulate ambitious harmonisation objectives, but continental initiatives such as the African Continental Free Trade Area's Digital Trade Protocol and the AU Data Policy Framework have yet to translate into operative, harmonised cross-border data transfer mechanisms.

Nigeria's own regulatory posture exemplifies the tension between asserting sovereign control over data and maintaining the cross-border data flows on which much of the digital economy, and AI development specifically, depends. The default prohibition on cross-border personal data transfer under Section 41 of the Data Protection Act 2023, while a legitimate and arguably necessary assertion of sovereign authority over Nigerian citizens' data, imposes considerable compliance burdens on both domestic and foreign entities. Because so much of Nigeria's digital ecosystem runs on United States-based cloud infrastructure and software-as-a-service platforms, compliance with the Act's cross-border provisions requires firms to demonstrate adequate safeguards for essentially all routine international data processing, a requirement whose practical enforceability remains uncertain in the absence of a fully resourced and technically capable Nigeria Data Protection Commission. This illustrates a broader structural challenge for AI sovereignty across the continent: robust data protection legislation, however well designed on paper, cannot by itself secure sovereignty where the underlying computational infrastructure, the servers, cloud platforms, and processing capacity on which AI systems run, remains predominantly foreign-owned and foreign-hosted.

A second legal challenge concerns the absence, in most African jurisdictions, of AI-specific legislation addressing algorithmic accountability, liability for AI-related harms, intellectual property in AI-generated outputs, and sector-specific regulation of high-risk AI applications such as facial recognition, credit scoring, and predictive policing. Nigeria's National Artificial Intelligence Strategy signals an intention to develop responsible AI governance mechanisms, including consideration of internationally recognised risk-management frameworks such as the United States National Institute of Standards and Technology framework, but as of the Strategy's publication these mechanisms remained largely aspirational rather than codified in binding law (NITDA & NCAIR, 2024). This legislative gap creates uncertainty for both AI developers seeking regulatory clarity and citizens seeking redress for algorithmic harm, and it leaves African jurisdictions structurally dependent on foreign regulatory precedents, most prominently the

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European Union's AI Act, as reference points, a dependency that itself raises sovereignty concerns insofar as regulatory standards developed for European social, economic, and infrastructural conditions may be poorly suited to African contexts (Future of Privacy Forum, 2024).

A third and related legal challenge concerns enforcement capacity. Even where comprehensive legislation exists, as with Nigeria's Data Protection Act, meaningful sovereignty requires regulatory institutions with the technical expertise, financial resources, and political independence to investigate violations, impose sanctions, and adjudicate disputes involving powerful multinational technology firms. The literature on AI governance in North Africa similarly finds that policy proliferation, the drafting of strategies, frameworks, and guidelines, has substantially outpaced the development of institutional enforcement capacity, a pattern that appears to recur across the continent's AI governance landscape more broadly.

5.2 Ethical Challenges to AI Sovereignty

The ethical dimension of AI sovereignty concerns Africa's capacity to define, rather than merely receive, the normative standards by which AI systems are judged responsible, fair, and beneficial. As discussed in Section 2.3, a significant body of African scholarship contends that dominant global AI ethics discourse, encapsulated in instruments such as the European Union's Ethics Guidelines for Trustworthy AI and various international principle-based frameworks, is grounded in a Western, individualist conception of personhood and harm that inadequately captures relational and communitarian African moral traditions (Mhlambi, 2020; Gwagwa et al., 2022). This is not merely an abstract philosophical concern; it has concrete implications for how AI systems are designed and evaluated. An AI system optimised to protect individual privacy and autonomy according to Western liberal norms may nonetheless produce outcomes that are experienced as ethically deficient within communities that understand data, identity, and benefit as fundamentally shared and relational, as Djiberou Mahamadou et al. (2024) illustrate with reference to healthcare AI and questions of communal consent and benefit-sharing.

This framing should not be read as positing a clean binary between a monolithic 'Western' individualist ethics and a unified 'African' relational ethics. Africa itself encompasses Islamic, Christian, indigenous, and secular legal-philosophical traditions whose positions on privacy, consent, and collective welfare vary considerably, and Ubuntu itself is most directly associated with southern Africa rather than the continent as a whole (Yilma, 2025). The more defensible claim, and the one this paper adopts, is narrower: established rights-based principles of autonomy, privacy, fairness, and accountability are not rendered inapplicable in African contexts, but they require supplementation, and in some cases reweighting, where relational conceptions of personhood and communal data ownership are salient. Ubuntu, on this reading, does not replace autonomy or accountability as governance principles; it reframes how they are operationalised — for example, by treating community-level consent and benefit-sharing as a legitimate complement to individual informed consent in the healthcare AI context discussed by Djiberou Mahamadou et al. (2024), rather than as a substitute for it.

A second ethical challenge concerns epistemic injustice in the production of AI ethics knowledge itself. Eke and Ogoh (2022) argue that African voices are too often invited into global AI ethics conversations only after foundational frameworks have already been settled elsewhere, positioning African contributors as commentators on, rather than co-authors of, global standards. This dynamic

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is compounded by the well-documented underrepresentation of African researchers in the major AI research venues, journals, and funding bodies that shape the field's mainstream ethical vocabulary, meaning that even well-resourced African ethical scholarship faces structural barriers to achieving comparable global visibility and influence.

A third ethical challenge, related to but distinct from questions of philosophical framing, concerns the material conditions of AI production that occur within Africa but largely serve external markets. The continent has become a significant site for data annotation, content moderation, and other forms of what has been termed data work, activities essential to training large-scale AI systems but frequently characterised by low wages, psychologically taxing content exposure, and limited labour protections. Birhane's (2020) analysis of algorithmic colonisation is directly pertinent here: the extraction of low-cost cognitive labour from African workers to train AI systems whose profits and benefits accrue substantially to foreign technology corporations reproduces, in digital form, the extractive economic relationships characteristic of historical colonialism, even where the workers themselves are nominally free wage labourers rather than colonial subjects.

Finally, the Ubuntu-centred response to these ethical challenges, while valuable, is itself subject to important internal critique, as Yilma (2025) demonstrates. Treating Ubuntu as a ready-made, pan-African ethical solution risks two errors: first, essentialising a culturally and historically specific southern African philosophical tradition as representative of a continent characterised by enormous religious, linguistic, and philosophical diversity; and second, allowing continental policy documents to invoke Ubuntu rhetorically, as a gesture toward cultural authenticity, without translating its relational commitments into operational governance mechanisms. A mature account of AI ethics sovereignty in Africa must therefore draw on Ubuntu and cognate relational philosophies as important but partial resources within a broader, pluralistic African ethical landscape, rather than as a singular substitute for the difficult work of context-specific ethical deliberation.

5.3 Strategic Challenges to AI Sovereignty

This section distinguishes six related but non-identical concepts that are frequently collapsed in policy discourse: dependency (reliance on a single external source with limited alternatives), interdependence (mutual reliance in which both parties hold some leverage), bargaining power (the capacity to negotiate favourable terms irrespective of ownership), ownership (formal title to infrastructure or capital), regulatory control (the capacity to impose binding conditions on operators regardless of ownership), and strategic autonomy (the composite capacity to pursue an independent developmental trajectory). Foreign ownership of data-centre and cloud infrastructure is evidence of a lack of asset ownership; it is not, by itself, evidence of a lack of strategic autonomy, provided host states retain regulatory control and sufficient bargaining power to negotiate terms — for example, data-localisation conditions, technology-transfer commitments, or local-employment requirements — that serve domestic developmental priorities. The scholarly disagreement identified in Section 3.1 between infrastructural pragmatists and infrastructural sceptics is, on this reading, substantially a disagreement about how much bargaining power African states in practice hold vis-à-vis Chinese and American infrastructure providers, rather than a disagreement about whether foreign ownership is compatible with sovereignty in principle.

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The strategic dimension of AI sovereignty concerns Africa's position within the broader geopolitical competition over AI infrastructure, standards, and markets, a competition increasingly dominated by the United States and China, with the European Union pursuing a distinctive regulatory-power strategy. Africa's digital infrastructure, including the data centres, fibre networks, and cloud computing capacity on which AI training and deployment ultimately depend, has been substantially financed and constructed through partnerships with external powers, most prominently Chinese telecommunications firms, whose infrastructure underpins a majority of the continent's third- and fourth-generation mobile networks, alongside a growing presence of American hyperscale cloud providers establishing data centres in markets such as South Africa. This infrastructural dependency creates a strategic vulnerability: irrespective of the sophistication of African data protection or AI governance legislation, sovereignty over the legal and ethical dimensions of AI cannot be fully realised while the physical infrastructure and, in many cases, the underlying AI models themselves remain externally owned, controlled, and serviced.

Scholarly assessment of this infrastructural dependency is divided over its implications. Some analysts argue that Africa's digital sovereignty must remain paramount regardless of which foreign partner, whether Chinese or Western, is involved in infrastructure development, emphasising that African agency lies in the terms negotiated for such partnerships rather than in an unrealistic aspiration toward complete infrastructural self-sufficiency. Others caution that the framing of a binary choice between Chinese and Western digital partners risks obscuring the more fundamental question of whether any foreign-financed infrastructure model can deliver genuine sovereignty, given that data centres built with foreign capital typically remain embedded in commercial and, in some cases, security relationships that persist well beyond the initial construction phase (Calzati, 2022).

A second strategic challenge is the persistent shortage of African AI talent and the accompanying brain drain, whereby African-trained computer scientists, engineers, and AI researchers frequently pursue careers in North American, European, or Gulf state technology hubs, drawn by higher salaries and better-resourced research environments than most African institutions can currently offer. Nigeria's National Artificial Intelligence Strategy explicitly identifies this brain drain as a structural constraint, alongside chronically low public research and development investment, estimated at roughly 0.2 per cent of gross domestic product against a global average exceeding two per cent (OECD.AI Policy Observatory, 2026). The consequence is that African AI development remains heavily reliant on foreign-trained diaspora researchers and corporate-funded training initiatives, arrangements that can accelerate capacity building in the short term but which may also reinforce longer-term dependency on external funding cycles.

A third strategic challenge concerns Africa's limited leverage in shaping the international AI governance norms increasingly being negotiated in venues such as the United Nations, the Group of Twenty, and plurilateral technology governance initiatives. Although the African Digital Compact and the Continental AI Strategy represent efforts to project a coordinated African position in fora such as the Global Digital Compact process, Research ICT Africa (2024) finds that this coordinated position remains thin in substantive terms, insufficiently anchored in binding regional human rights instruments, and vulnerable to being overtaken by the far greater negotiating capacity and technical resourcing that established powers such as the United States, China, and the European Union bring to these discussions. Without a stronger, more technically resourced, and

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more unified African negotiating position, the continent risks being a rule-taker rather than a rule-maker in the emerging international AI governance order, notwithstanding the ambitious language of its own continental strategy documents.

6. Critical Evaluation

Relative to the literature reviewed in Section 3, this paper's synthesis supports the implementation-gap diagnosis advanced by independent assessments of the AU Strategy and by Nigeria's own strategy documents; it contradicts, or at minimum substantially qualifies, accounts that treat any foreign infrastructure ownership as definitionally incompatible with sovereignty (Section 5.3); it extends Yilma's (2025) critique of Ubuntu-as-panacea by integrating it with, rather than treating it as a rejection of, established rights-based ethical principles (Section 5.2); and it reframes the legal-fragmentation literature by distinguishing legislative divergence from regulatory incompatibility, a distinction that is implicit in the sources reviewed but not made explicit by them (Section 5.1).

Assessed cumulatively, the African Union's Continental Artificial Intelligence Strategy and its constituent national strategies, including Nigeria's, represent a genuine and historically significant assertion of African agency in AI governance. Their strengths include an explicitly development-oriented rather than purely risk-oriented regulatory philosophy, sustained engagement with regional human rights and constitutional traditions, and an emerging body of home-grown scholarship that challenges the presumption that AI ethics and governance frameworks must originate in Brussels, Washington, or Beijing before being adapted for African use. The candour with which instruments such as Nigeria's National AI Strategy acknowledge structural weaknesses, in infrastructure, research investment, and talent retention, is itself a strength, since credible policy planning depends on an accurate diagnosis of constraints rather than aspirational rhetoric alone.

Nonetheless, the critical literature reviewed in this paper identifies persistent weaknesses that qualify optimistic readings of Africa's AI sovereignty trajectory. First, there is a demonstrable implementation gap between the ambition of continental and national strategy documents and the funding, institutional capacity, and enforcement mechanisms available to realise them, evidenced by the concentration of continental AI funding in a small number of countries and Nigeria's comparatively low position in independent AI readiness indices. Second, the invocation of African values, whether through references to Ubuntu or to broadly stated commitments to human rights and inclusive development, risks functioning symbolically rather than operationally unless translated into concrete legal standards, technical requirements, and enforceable accountability mechanisms, a concern substantiated by Yilma's (2025) critique of ethics-washing in continental policy documents. Third, the debate between scholars emphasising infrastructural pragmatism, who argue that African states should accept foreign-financed infrastructure on the best available terms while building domestic capacity over time, and scholars emphasising infrastructural caution, who warn that reliance on any single external power for critical digital infrastructure reproduces dependency regardless of that power's identity, remains unresolved and merits continued empirical monitoring as continental data centre and compute capacity expands.

A further point of scholarly disagreement concerns the appropriate relationship between African AI governance instruments and international regulatory templates such as the European Union's AI Act. One position, reflected in the AU Strategy's explicit comparative engagement with the EU framework, holds that African states can benefit from adapting proven international regulatory

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architecture, particularly its risk-tiered approach to AI oversight, rather than beginning entirely from first principles (Future of Privacy Forum, 2024). A competing position, informed by the digital colonialism literature, cautions that wholesale adoption of externally designed regulatory templates risks importing assumptions about market structure and enforcement resourcing that do not hold in most African jurisdictions, potentially privileging the compliance capabilities of large foreign firms over smaller domestic AI enterprises (Birhane, 2020). This paper's assessment, consistent with Eke and Ogoh's (2022) call for context-specific governance narratives, is that selective, critically adapted borrowing of international regulatory concepts, combined with genuinely African-authored enforcement design, offers a more defensible middle path than either wholesale importation or wholesale rejection.

The paper's theoretical contribution, accordingly, is not the application of digital colonialism and Ubuntu as pre-existing critical lenses to a current policy problem, but the integrated four-dimensional model set out in Section 2.4, which treats legal, ethical, infrastructural, and epistemic capacity as interacting rather than independent conditions, and which reframes single indicators such as foreign ownership or legal divergence as necessary but not sufficient markers of a sovereignty deficit.

7. Implications and Recommendations

The recommendations below convert the analysis in Sections 5 and 6 into prioritised, actor-specific actions, each with an indicative feasibility and timeframe assessment, in place of the more general aspirations of the original manuscript.

Priority	Recommendation	Responsible Actor(s)	Feasibility / Timeframe
High	Resource and empower the Nigeria Data Protection Commission with technical staff, budget, and institutional independence, and issue clarifying regulatory guidance on how routine cross-border cloud services satisfy Section 41's adequacy exceptions.	Federal Government of Nigeria; Nigeria Data Protection Commission	Short-term (1–2 years); primarily budgetary/administrative, no new legislation required.
High	Pursue sector-by-sector data-governance harmonisation (e.g., health, financial, and identity data) under the AU Data Policy Framework and Malabo Convention rather than a single comprehensive continental instrument.	African Union Commission; Regional Economic Communities	Medium-term (2–5 years); sequencing reduces negotiation complexity relative to a single instrument.
Medium	Integrate Ubuntu-informed relational principles with established autonomy, privacy, fairness and accountability principles into concrete algorithmic impact-assessment tools.	National AI regulators; universities; AI developers	Medium-term; a technical design task, not a legislative one.

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High	Establish dedicated, ring-fenced R&D appropriation lines to close the gap between Nigeria's approximately 0.2% R&D/GDP ratio and the global average, reducing reliance on episodic donor or corporate funding.	National legislature; Federal Ministry of Finance	Long-term (5+ years); contingent on fiscal capacity and competing budget priorities.
Medium	Ground Africa's negotiating position in international AI governance forums explicitly in the African Charter on Human and Peoples' Rights, rather than in data-protection language alone.	African Union; African Digital Compact negotiators	Medium-term; primarily a drafting and coordination task.
Ongoing	Commission independent monitoring of AU Strategy implementation — funding allocation, enforcement actions, and AI readiness indicators — across the 2025–2030 period.	Independent research institutions (e.g., Research ICT Africa); African Union	Ongoing throughout the implementation period.

8. Conclusion

This paper has examined the legal, ethical, and strategic challenges confronting the pursuit of AI sovereignty in Africa, using an integrated four-dimensional model — legal authority, ethical authority, infrastructural capacity, and epistemic standing — to synthesise a rapidly evolving continental policy architecture and a maturing body of African-authored scholarship. Its principal contribution is this model itself, which reframes single-indicator claims about sovereignty — a data protection statute, a foreign-owned data centre, a rhetorical invocation of Ubuntu — as partial evidence bearing on one dimension rather than as conclusive evidence about sovereignty overall. Applying this model, the paper has argued that Africa's AI sovereignty is constrained legally by fragmented and, in places, only partially harmonised data-governance regimes; ethically by the continued dominance of Western rationalist frameworks even as Ubuntu and cognate relational ethics offer a substantive, if regionally specific and still only partially operationalised, complement rather than a wholesale alternative; and strategically by infrastructural dependency, talent drain, and constrained negotiating leverage, tempered in each case by the bargaining power African states retain through regulatory control even absent asset ownership.

The paper's principal limitation is that, as a doctrinal and interpretive desk-based review of a purposively selected corpus rather than a systematic or empirical study, its conclusions describe patterns discernible in the reviewed instruments and scholarship rather than statistically representative findings across fifty-five heterogeneous states; future research combining this analytical model with country-level empirical fieldwork would substantially strengthen the evidentiary base. Realistically, the coming 2025–2030 implementation period of the AU Continental AI Strategy is likely to produce uneven progress across the four dimensions identified here, with legal harmonisation and infrastructural investment probably advancing more slowly than ethical and epistemic reframing. Tracking this unevenness, rather than resolving it into a

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single verdict on whether Africa becomes a 'rule-shaper' or a 'rule-taker', is the more analytically productive and realistic framing for subsequent research and policy monitoring.

References

African Union. (2024, August 9). Continental Artificial Intelligence Strategy. African Union Commission. https://au.int/en/documents/20240809/continental-artificial-intelligence-strategy

Awoleye, O. M. (2021). Reconfiguring data infrastructure ecosystem in Africa: A primer toward digital sovereignty. arXiv. https://arxiv.org/abs/2109.14186

Birhane, A. (2020). Algorithmic colonization of Africa. SCRIPTed, 17(2), 389–409. https://doi.org/10.2966/scrip.170220.389

Calzati, S. (2022). 'Data sovereignty' or 'data colonialism'? Exploring the Chinese involvement in Africa's ICTs: A document review on Kenya. Journal of Contemporary African Studies, 40(2), 270–285.

Djiberou Mahamadou, A. J., Ochasi, A., & Altman, R. B. (2024). Data ethics in the era of healthcare artificial intelligence in Africa: An Ubuntu philosophy perspective. arXiv. https://arxiv.org/abs/2406.10121

Eke, D., & Ogoh, G. (2022). Forgotten African AI narratives and the future of AI in Africa. International Review of Information Ethics, 32, 1–8.

Federal Republic of Nigeria. (2023). Nigeria Data Protection Act, 2023.

Future of Privacy Forum. (2024, November 18). The African Union's Continental AI Strategy: Data protection and governance laws set to play a key role in AI regulation. https://fpf.org/blog/global/the-african-unions-continental-ai-strategy-data-protection-and-governance-laws-set-to-play-a-key-role-in-ai-regulation/

Gwagwa, A., Kazim, E., & Hilliard, A. (2022). The role of the African value of Ubuntu in global AI inclusion discourse: A normative ethics perspective. Patterns, 3(4), Article 100462. https://doi.org/10.1016/j.patter.2022.100462

Mhlambi, S. (2020). From rationality to relationality: Ubuntu as an ethical and human rights framework for artificial intelligence governance (Carr Center Discussion Paper Series 2020-009). Harvard Kennedy School, Carr Center for Human Rights Policy.

National Information Technology Development Agency & National Centre for Artificial Intelligence and Robotics. (2024). Draft National Artificial Intelligence Strategy 2024. Federal Ministry of Communications, Innovation and Digital Economy.

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OECD.AI Policy Observatory. (2026). National Artificial Intelligence Strategy (NAIS) – Nigeria. https://oecd.ai/en/dashboards/policy-initiatives/national-artificial-intelligence-strategy-nais

Okolo, C. T. (2024). Reforming data regulation to advance AI governance in Africa. In Foresight Africa 2024. The Brookings Institution. https://www.brookings.edu/articles/reforming-data-regulation-to-advance-ai-governance-in-africa/

Research ICT Africa. (2024, October 4). Governing data as a public good: The key to Africa's realisation of the Global Digital Compact? https://researchictafrica.net/2024/10/04/governing-data-as-a-public-good-the-key-to-africas-realisation-of-the-global-digital-compact/

South African Institute of International Affairs. (2025). How to achieve African digital sovereignty. https://saiia.org.za/research/how-to-achieve-african-digital-sovereignty/

Thaldar, D. (2024). Editorial: Data governance in African health research: ELSI challenges and solutions. Frontiers in Pharmacology, 15, Article 1525434. https://doi.org/10.3389/fphar.2024.1525434

Venske, T. (2023). Navigating digital sovereignty in Africa: A review of key challenges and constraints. Africa Governance Papers, 1(4). Good Governance Africa.

Yilma, K. (2025). Ethics of AI in Africa: Interrogating the role of Ubuntu and AI governance initiatives. Ethics and Information Technology, 27, Article 24. https://doi.org/10.1007/s10676-025-09834-5

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Compliance of Tax Reforms on Infrastructural Development in Nigeria: The SEM Approach

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DOI : https://doi.org/10.5281/zenodo.22918089

Abstract

Nigeria's current tax-reform agenda is intended to simplify the legal framework, modernise administration, broaden the tax base and improve domestic revenue mobilisation. Whether these reforms acquire developmental legitimacy, however, depends on two connected outcomes: taxpayers must comply with the reformed system, and the resulting revenue must be converted transparently into visible infrastructure. This article developed a structural equation model in which reform quality and clarity, digital tax administration, taxpayer support and education, and fair enforcement predict tax compliance; compliance predicts revenue mobilisation; and revenue mobilisation predicts infrastructural development, with transparency and accountability moderating the final relationship. Fiscal exchange reasoning was integrated with the slippery-slope perspective to provide the theoretical basis. The proposed survey instrument contains 32 reflective indicators designed for businesses, tax practitioners, revenue officials and public-finance stakeholders. A dataset of 438 cases was used solely to demonstrate the analytical procedure. Partial least squares structural equation modelling yielded satisfactory measurement properties, with composite reliability values of .913–.929 and average variance extracted values of .723–.766. Each hypothesised compliance driver had a positive coefficient. Tax compliance strongly predicted revenue mobilisation ($\beta = .526$, $p < .001$), revenue mobilisation predicted infrastructural development ($\beta = .453$, $p < .001$), and transparency strengthened that relationship ($\beta = .152$, $p < .001$). The model accounted for 42.6% of the variance in infrastructural development. Taken together, the results illustrate why legal reform cannot operate in isolation: clear rules, dependable digital systems, credible and fair enforcement, practical taxpayer assistance and transparent public spending must function as parts of the same fiscal-governance chain. The policy implications therefore centre on clearer reform communication, stronger tax technology, fair enforcement, transparent reporting of infrastructure expenditure and independent scrutiny of public spending.

Keywords: tax reform; tax compliance; infrastructural development; revenue mobilisation; transparency; PLS-SEM; Nigeria

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1.0 Introduction

Taxation contributes to development only when revenue collection is connected to a credible system of public obligation and public benefit. Beyond imposing statutory liabilities, an effective tax system must make obligations enforceable, support voluntary cooperation, provide a reasonably predictable stream of public revenue and sustain citizens' confidence that contributions are used for collective purposes. That connection is particularly consequential in Nigeria, where persistent infrastructure deficits exist alongside a historically narrow non-oil revenue base, widespread informality, administrative fragmentation and recurrent distrust of public institutions. When revenue remains weak, federal, state and local governments face greater difficulty financing roads, electricity networks, health facilities, water systems, schools and digital infrastructure without increasing reliance on borrowing.

Against this background, tax reform has become an important part of Nigeria's fiscal strategy. The Finance Act 2020 sustained the annual reform process by amending tax provisions in response to changing economic conditions and administrative priorities (Federal Republic of Nigeria, 2020). A much broader restructuring followed in 2025 with the Nigeria Tax Act, the Nigeria Tax Administration Act, the Nigeria Revenue Service (Establishment) Act and the Joint Revenue Board of Nigeria (Establishment) Act (Federal Republic of Nigeria, 2025a, 2025b, 2025c, 2025d). Taken together, the four statutes consolidate substantive rules, reorganise revenue administration, establish common procedural principles and create institutions for coordination, adjudication and taxpayer protection. The underlying policy direction is therefore not limited to changing rates or bases; it is an attempt to replace overlapping provisions and fragmented administrative practices with a more coherent national tax architecture.

Passing legislation, however, does not by itself change taxpayer behaviour. Compliance is shaped by what people and firms experience when they register, receive assessments, file returns, make payments, undergo audits, challenge decisions or interact with government services. A technically sound reform can still perform poorly if taxpayers face unclear language, unreliable digital portals, inconsistent official interpretations, high compliance costs or little evidence that public revenue produces valued services. The practical issue is therefore wider than the content of revised rates and tax bases. It is whether the reform reduces uncertainty, makes lawful compliance feasible, applies consequences for non-compliance fairly and strengthens the reciprocal fiscal relationship between citizens and the state (Olaniyi et al.,2023).

Evidence from Nigeria has begun to clarify several parts of this behavioural problem, although the studies generally examine them separately. Vincent (2021), approaching the issue from a measurement perspective, developed a multidimensional scale for small-business tax compliance and showed why demographic, institutional, economic and behavioural influences should not be reduced to a single enforcement construct. Collectively, these studies deepen understanding of compliance antecedents, but none traces the full sequence from reform implementation to compliance, from compliance to revenue mobilisation, and ultimately from mobilisation to infrastructure outcomes.

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A related literature examines the developmental consequences of tax revenue. Using electricity production as a proxy for infrastructure, Oziegbe and Itua (2024) found positive short- and long-run relationships between value-added tax, customs duties, company income tax and infrastructural development. That macroeconomic evidence supports the importance of revenue, yet aggregate coefficients cannot show how taxpayers' perceptions of reform quality shape compliance or whether transparency affects the conversion of collected revenue into public assets. Nor does a positive revenue coefficient imply that every additional naira generated by reform yields an equivalent developmental return. Weak project selection, procurement failures, leakages, maintenance deficiencies and limited disclosure can interrupt the path between fiscal capacity and completed infrastructure.

These relationships are difficult to represent with single observed measures because the central concepts are latent and multidimensional. Reform clarity, digital administration, taxpayer support, enforcement fairness, compliance, transparency and perceived infrastructure improvement each contain several related attributes. Structural equation modelling is therefore appropriate because it assesses measurement quality and structural relationships together, accounts explicitly for measurement error, and accommodates mediation and moderation within the same analytical framework (Hair et al., 2021, 2022; Kline, 2023). In the present context, SEM makes it possible to test whether reform dimensions influence compliance, whether revenue mobilisation transmits compliance into development, and whether transparency changes the strength of the final revenue–infrastructure relationship.

The main objective of this study, therefore, is to specify an integrated SEM framework for examining tax reform compliance and infrastructural development in Nigeria. Five specific objectives guide the analysis and they are to:

1. determine the effects of reform quality, digital administration, taxpayer support and fair enforcement on tax compliance;
2. evaluate the effect of tax compliance on revenue mobilisation;
3. examine the effect of revenue mobilisation on infrastructure development;
4. test the indirect compliance–revenue–infrastructure pathway; and
5. assess whether transparency moderates the relationship between revenue mobilisation and infrastructure development.

By placing behavioural tax compliance and public-finance outcomes in one model, the article connects literatures that are often treated separately. It also provides a detailed measurement instrument and analytical template that can be applied to authentic multi-state field data.

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2.0 Literature Review

2.1 Conceptual Review

2.1.1 Tax Reform and Reform Quality

Tax reform encompasses deliberate changes to the legal rules, administrative procedures and institutional arrangements through which taxes are defined, assessed, collected, enforced and disputed (Mardan, 2023; Afolabi, 2026). Changes to rates, thresholds, exemptions and tax bases are part of reforms, but they do not fully describe its practical quality as opined by Benzarti and Wallossek (2024). From the taxpayer's standpoint, Olumoh (2024) noted that reform also involves the clarity of obligations, consistency across agencies, simplicity of procedures, quality of transition arrangements and accessibility of official guidance. Reform quality is therefore treated here as a taxpayer-facing construct rather than as the number of statutes enacted. The construct captures whether new rules are understandable, internally coherent, predictable in application and easier to use than the arrangements they replace.

Nigeria's 2025 package demonstrates why that broader interpretation is necessary. The Nigeria Tax Act consolidates substantive tax provisions, the Nigeria Tax Administration Act establishes common administrative procedures, the Nigeria Revenue Service (Establishment) Act reorganises federal revenue administration, and the Joint Revenue Board legislation provides institutions for coordination, adjudication and taxpayer protection (Federal Republic of Nigeria, 2025a, 2025b, 2025c, 2025d). Whether these legal changes improve compliance will depend largely on implementation. Consolidated statutes must be accompanied by consistent interpretation, functional administrative systems, adequately trained officers and guidance that taxpayers can use in practice. The expected compliance effect of reform quality therefore rests on reducing ambiguity and limiting perceptions of arbitrary administration.

2.1.2 Digital Tax Administration

Digital tax administration refers to the use of electronic systems for registration, taxpayer identification, return filing, payment, invoicing, data matching, audit selection, communication and case management (Ogbeta & Ayeni, 2024). Properly designed systems can reduce travel and waiting time, limit informal contact, lower clerical error and improve the information available to revenue authorities (Okunogbe & Santoro, 2022). Their benefits are nevertheless conditional. In lower-income settings, Okunogbe and Santoro (2022) noted that technology produces meaningful administrative gains only when systems are reliable, interoperable, inclusive and integrated with wider institutional reform.

Accessible and traceable digital services reduce transaction costs, but failed portals, weak connectivity, separate credentials across agencies and slow correction of automated assessments can have the opposite effect. The digital-administration construct therefore focuses on perceived accessibility, reliability, interoperability and cost reduction rather than the mere presence of online services. A positive association with compliance is expected when digital systems make lawful behaviour easier while also improving the authority's ability to detect non-compliance through integrated information.

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2.1.3 Taxpayer Support and Education

According to OECD (2021), taxpayer support includes guidance, education, help desks, reminders, pre-filing assistance, complaint mechanisms and timely responses to technical questions. Education develops the taxpayer's substantive and procedural knowledge; support services help convert that knowledge into correctly completed compliance tasks. The OECD (2021) places taxpayer education within the broader development of tax culture and fiscal citizenship, an issue that is particularly relevant where first-time taxpayers and participants in the informal sector need continuing orientation rather than occasional awareness campaigns.

The influence of support depends less on whether a channel exists than on whether it resolves the taxpayer's problem. Effective assistance can reduce uncertainty, unintentional mistakes and the anxiety associated with complex obligations. Evidence from Olaniyi et al. (2023) is instructive: tax education had a positive effect, while support services were insignificant. That contrast suggests that nominal service provision is insufficient when access, accuracy or responsiveness is weak. The present article consequently combines education and support within one latent construct, while retaining indicators that distinguish the quality of information from the responsiveness of service delivery.

2.1.4 Fair and Credible Enforcement

Enforcement covers audit, verification, penalties, collection action and prosecution, yet its behavioural effect depends on how taxpayers judge both its credibility and its fairness. Credibility requires a realistic probability that non-compliance will be identified and appropriately sanctioned (Nwokoye et al.,2023). Fairness requires comparable treatment of similar cases, due process, proportionate penalties and workable channels for dispute resolution (Kogler et al.,2023).
Siglé et al. (2022) likewise found that cooperative engagement can improve interactions between corporate taxpayers and revenue authorities, although effects vary across taxes and forms of non-compliance. On that basis, enforcement in the present framework is defined as credible but procedurally fair, rather than simply punitive.

2.1.5 Tax Compliance

Tax compliance describes the extent to which taxpayers register when required, file accurate returns, declare the correct tax base, pay liabilities within the prescribed period and cooperate with lawful verification. Compliance is therefore both formal and substantive (Mascagni & Nell, 2022). Timely filing can coexist with understated income, just as correct reporting can coexist with late payment caused by liquidity constraints (Mascagni & Nell, 2022; D'Agostino et al., 2024). The multidimensional approach advanced by Vincent (2021) is useful for this reason: it recognises that economic, demographic, institutional and behavioural influences affect different aspects of compliance rather than a single undifferentiated act.

In this article, self-reported compliance is represented by timely registration and filing, accurate declaration, timely payment and willingness to cooperate with legitimate audits. The indicators deliberately capture both voluntary and enforced dimensions of behaviour without assuming that one mechanism operates independently of the other. Within the structural model, compliance is the immediate behavioural outcome of reform implementation and the main antecedent of revenue mobilisation.

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2.1.6 Revenue Mobilisation

Revenue mobilisation should not be equated with a rise in nominal tax receipts (Mascagni & Nell, 2022). It refers to the state's capacity to secure adequate, stable and sustainable revenue from legally defined tax bases while controlling leakage and avoiding excessive compliance costs (OECD, 2024; World Bank, 2024). Better compliance can broaden the effective base, reduce arrears and improve the predictability of collections (Okunogbe & Santoro, 2022). Nominal revenue may still rise for other reasons, including inflation, exchange-rate movements, rate adjustments or one-off settlements (OECD, 2024). For that reason, the perception-based SEM construct asks whether reform is associated with wider participation, lower leakage, greater collection efficiency and more stable revenue rather than with headline receipts alone (World Bank, 2024).

The Nigerian fiscal setting gives this transmission particular importance. The World Bank (2022) estimated a substantial difference between actual tax collection and the country's revenue potential. Similarly, the African Union Commission, African Tax Administration Forum, and OECD (2024) reported a tax-to-GDP ratio for Nigeria below the African average. Revenue mobilisation is therefore relevant not only as an accounting outcome but as the fiscal space through which improved compliance can finance public investment. The World Bank (2025) makes the complementary argument that stronger fiscal performance must ultimately be reflected in better public services and more inclusive development.

2.1.7 Infrastructural Development

Infrastructural development concerns the expansion, quality, reliability and maintenance of the physical and social systems on which economic and human activity depend (Saadaoui Mallek et al., 2024; El-Bouayady et al., 2024). Transport networks, electricity, water and sanitation, schools, health facilities and digital connectivity all fall within this domain (Saadaoui Mallek et al., 2024). A useful measure must go beyond announced capital expenditure because spending commitments can coexist with delayed projects, abandonment, poor maintenance or uneven geographical access (Selcuk et al., 2024; Gertler et al., 2024). The indicators used in this study therefore focus on perceived changes in access, service reliability, project completion and maintenance across several major infrastructure categories (Oziegbe and Itua ,2024).

As stated by Benitez et al. (2023), tax revenue can finance infrastructure directly through budgetary allocation and counterpart funding, indirectly through maintenance expenditure, and more broadly by strengthening the fiscal credibility needed for long-term investment. The result does not, however, remove the institutional problem between collection and delivery. Adequate revenue is necessary but not sufficient; project appraisal, procurement, implementation, monitoring and disclosure determine whether available fiscal resources are eventually transformed into functioning public assets (Bah, 2024).

2.1.8 Transparency and Accountability

Transparency concerns whether information on revenue collection, budget allocation, procurement, project implementation and final outcomes is available, understandable and timely (Hsu, 2024). Accountability goes further by requiring public institutions to explain decisions, permit scrutiny and face consequences when resources are misused (Omoniyi & Akintoye, 2024).

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Both concepts operate on the two sides of the fiscal relationship (de la Cuesta et al., 2023). Before taxes are paid, credible evidence of public spending can affect tax morale (Capasso et al., 2021). After revenue has been collected, openness and oversight can reduce losses in the process through which fiscal resources are converted into infrastructure (McDonough et al., 2024).

Recent studies underline the relevance of this governance dimension. Across 32 sub-Saharan African countries, Nichelatti and Hiilamo (2024) associated citizens' governance perceptions with tax compliance. Amani (2024) similarly showed that public trust mediated the relationship between corporate legitimacy and SME compliance intentions. Such findings suggest that taxpayers do not evaluate the revenue authority in isolation; their judgement extends to the wider conduct of the state. The model therefore assigns transparency both a direct relationship with infrastructure perceptions and a moderating role in the revenue–infrastructure path, on the expectation that mobilisation should translate more effectively into development when allocation and project delivery are open to scrutiny.

2.2 Theoretical Framework

2.2.1 Fiscal Exchange and Social Contract Reasoning

Fiscal exchange reasoning interprets taxation as part of a reciprocal relationship between citizens and the state. Citizens surrender resources through taxes, while government is expected to provide public goods, protection and accountable administration (Hassan et al.,2021). The expected exchange is collective rather than a direct purchase of services by each taxpayer.

In the Nigerian setting, fiscal exchange reasoning therefore helps explain why administrative reform alone may not be enough. Reform becomes more legitimate when taxpayers can connect improved administration and additional revenue to visible public infrastructure, which also provides the theoretical justification for treating transparency as a condition affecting the conversion of revenue into development.

2.2.2 Slippery-Slope Framework

Darmayasa and Hardika (2024) noted that the slippery-slope framework approaches compliance through two interacting dimensions: trust in authorities and the power of authorities. Trust supports voluntary compliance because taxpayers view the authority as competent, legitimate and broadly benevolent. Power underpins enforced compliance because the authority can detect evasion and impose sanctions.

Cross-cultural evidence reported by Kogler et al. (2023) associates perceptions of trust and authority power with indicators of tax compliance. The framework maps closely onto the constructs used here: reform clarity, digital administration and taxpayer support can strengthen trust, whereas fair enforcement expresses legitimate authority power. The four reform-implementation dimensions are therefore expected to influence compliance through complementary routes. For Nigeria, the theoretical implication is practical: service and enforcement should not be designed as competing approaches. Predictable assistance and credible sanctions are more likely to reinforce one another within a mature tax administration.

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2.2.3 Integrated Theoretical Position and Hypotheses

The integrated position uses the slippery-slope framework to explain the behavioural entry into compliance and fiscal exchange reasoning to explain the developmental consequences that follow (Darmayasa & Hardika, 2024). Reform quality, digital administration and taxpayer support can reduce uncertainty and build institutional trust, while fair enforcement supplies legitimate authority power (Gobena, 2024). These mechanisms shape compliance behaviour. Compliance, in turn, expands the state's capacity to mobilise revenue, creating fiscal space for infrastructure. Transparency and accountability strengthen the final link by making the use of revenue more visible and by reducing the likelihood that taxpayer contributions are dissipated before they become public assets (Bah, 2024).

Drawing from the foregoing theoretical arguments, conceptual relationships and empirical evidence, the study is consistent with recent evidence showing that tax administration reforms can generate sustained improvements in revenue performance, and that digital technologies can strengthen tax capacity and compliance. Also, institutional quality and perceptions of governance are associated with tax revenue mobilisation and tax compliance respectively (Okunogbe & Tourek, 2024; Bah, 2024; Nichelatti & Hiilamo, 2024). Accordingly, and in line with the study's theoretical framework and conceptual model, the following hypotheses are proposed:

H_1: reform quality and clarity positively affect tax compliance;

H_2: digital tax administration positively affects tax compliance;

H_3: taxpayer support and education positively affect tax compliance;

H_4: fair and credible enforcement positively affects tax compliance;

H_5: tax compliance positively affects revenue mobilisation;

H_6: revenue mobilisation positively affects infrastructural development;

H_7: tax compliance has a positive direct effect on infrastructural development;

H_8: revenue mobilisation mediates the relationship between tax compliance and infrastructural development; and

H_9: transparency and accountability positively moderate the relationship between revenue mobilisation and infrastructural development.

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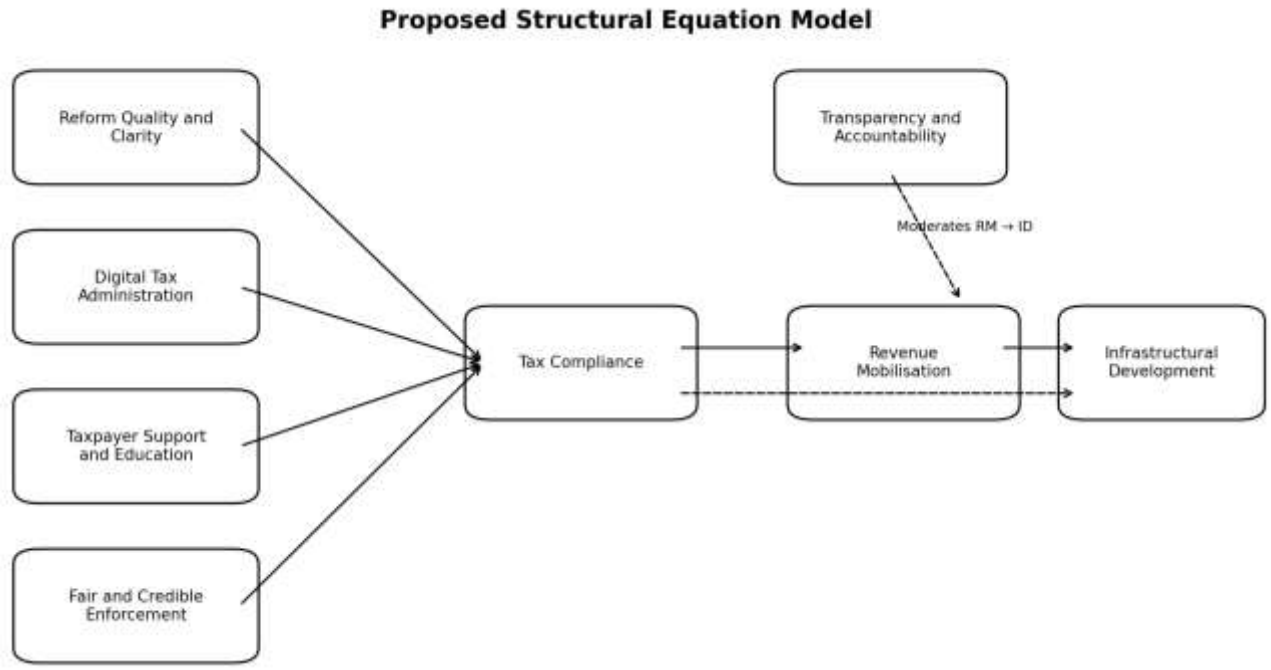

Figure 2.1. Proposed structural equation model for tax reform compliance and infrastructural development.

2.3 Empirical Review

Table 2.1. Selected empirical studies on tax administration, compliance, governance and infrastructure

Author(s)/ context	Focus	Method/sample	Principal finding	Limitation relevant to this study
Vincent (2021), Nigeria	Developed an SME tax-compliance scale from Fischer's model.	Survey; principal component analysis.	Produced a reliable multidimensional scale and identified demographic and institutional influences.	Focused on measurement; did not connect reform compliance to revenue or infrastructure.
Hassan et al. (2021), Pakistan	Examined economic, social, behavioural and institutional determinants of voluntary compliance.	Survey; SEM.	Simplicity, tax morale, spending perceptions and fairness shaped voluntary compliance; fairness mediated relationships.	Non-Nigerian setting and no public-investment outcome.

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Siglé et al. (2022), Netherlands	Assessed cooperative corporate tax compliance.	Empirical corporate-tax assessment.	Cooperative engagement improved authority–taxpayer interaction, with varied compliance effects.	Large-corporate context; infrastructure and reform transmission were outside scope.
Olaniyi et al. (2023), Nigeria	Tested tax education, support, penalties and administrative efficiency.	365 individual taxpayers; PLS-SEM.	Education, penalties and administrative efficiency were positive; support services were insignificant.	Explained personal income tax compliance only; no revenue-development chain.
Nwokoye et al. (2023), South-East Nigeria	Assessed fiscal incentives and determinants of firm compliance in industrial clusters.	Cluster survey; descriptive statistics and logistic regression.	Audits, simplified communication, deterrence, owner education, legitimacy and incentives influenced compliance.	Regional and firm-cluster focus; latent mediation and infrastructure were not modelled.
Kogler et al. (2023), cross-cultural	Related trust and authority power to shadow-economy and corruption indicators.	14,509 participants across countries/regions ; multilevel analysis.	Trust and power were associated with compliance-related national outcomes.	Country-level associations did not trace reform-specific Nigerian outcomes.
Oziegbe & Itua (2024), Nigeria	Linked non-oil taxes to infrastructural development proxied by electricity production.	Time series; ARDL.	VAT, customs duties and company income tax had positive short- and long-run effects.	Used aggregate revenue and one infrastructure proxy; behavioural compliance was absent.
Nichelatti & Hiilamo (2024), 32 SSA countries	Tested governance perceptions and individual tax compliance.	Afrobarometer Round 7; logistic and mediation analysis.	Governance perceptions significantly explained compliance differences.	Cross-country design could not model Nigeria's 2025 reform architecture or infrastructure delivery.
Amani (2024), SMEs	Modelled corporate legitimacy, public trust and tax-compliance intention.	Survey; mediation analysis with 5,000 bootstrap samples.	Corporate legitimacy increased public trust, which strengthened compliance intention.	Focused on intention rather than realised revenue and development outcomes.
Okunogbe & Tourek (2024),	Synthesised evidence on	Review of field and	Technology raises capacity when paired	A synthesis rather than an integrated latent-

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lower-income countries	technology, tax agents and political incentives.	administrative evidence.	with administrative incentives and political commitment.	variable test for Nigeria.

2.4 Gap in Literature

The available literature clarifies important parts of the tax–development relationship, but it rarely estimates the entire behavioural and fiscal sequence within one model. Vincent (2021) improved the measurement of compliance but did not connect taxpayer behaviour to public outcomes. At the macro level, Oziegbe and Itua (2024) related non-oil tax revenue to electricity production, although their time-series design could not identify taxpayers' perceptions of reform implementation or the institutional mechanisms linking revenue to infrastructure. Cross-country evidence further shows that governance, trust and authority power matter (Kogler et al., 2023; Nichelatti & Hiilamo, 2024), yet Nigeria's restructured tax institutions and the full infrastructure pathway remain insufficiently tested. The unresolved gap is therefore an integrated latent-variable framework in which reform clarity, digital administration, support and fair enforcement shape compliance, compliance supports revenue mobilisation, and transparency conditions the conversion of that mobilisation into multidimensional infrastructure. This study addresses that gap through a mediation-moderation SEM framework.

3.0 Methodology

3.1 Research Design and Analytical Strategy

The substantive field study is designed as a cross-sectional explanatory survey. Its unit of analysis is the informed stakeholder with practical knowledge of tax obligations, tax administration or public infrastructure. Respondents are intended to include owners and senior managers of registered businesses, accountants and tax practitioners, officers of federal and state revenue institutions, and professionals working in public finance or infrastructure. Bringing these groups together reflects the structure of the model, which combines taxpayer experience with perceptions of revenue generation and expenditure outcomes. During field implementation, the sample should be stratified by geopolitical zone, taxpayer category and institutional role so that a single tax type, profession or region does not dominate the evidence.

Partial least squares structural equation modelling is used because the proposed model is prediction-oriented, contains several latent constructs, includes mediation and moderation, and does not require multivariate normality for estimation. It is also appropriate where theory is being extended by combining relationships that have usually been analysed separately in behavioural taxation and public finance (Hair et al., 2021, 2022; Sarstedt et al., 2022). The measurement specification is reflective, meaning that the observed items are treated as manifestations of their underlying perceptions. If future fieldwork considers formative alternatives, construct specification should be reassessed through a theory-based review or confirmatory tetrad assessment rather than changed solely on statistical grounds.

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3.2 Demonstration Dataset and Research Integrity

Because no questionnaire responses or administrative microdata were supplied for this study, the numerical analysis uses a reproducible synthetic dataset of 438 cases generated with a fixed random seed. Its purpose is to demonstrate how the proposed SEM can be estimated and reported. The observations were constructed to resemble five-point Likert responses while retaining plausible positive relationships among reform implementation, compliance, revenue mobilisation, transparency and infrastructure. They do not represent actual taxpayers, officials, states or organisations in Nigeria. Accordingly, the reported p-values and effect sizes illustrate analytical mechanics only; they cannot be interpreted as population estimates or evidence of the actual performance of the tax reforms.

A field version suitable for publication should add the safeguards that a demonstration dataset cannot provide. Where required, ethical approval should be obtained, informed consent administered, respondent identities protected, and a de-identified dataset and analysis script archived. Statistical power analysis should be used to justify sample adequacy rather than relying on the ten-times rule alone. With four predictors of tax compliance and a small-to-medium expected effect, a sample above 200 would ordinarily provide reasonable power, whereas 400 or more observations would make subgroup and robustness analyses more defensible. Non-response bias should also be examined through early-versus-late response comparisons and, where the sampling frame permits, comparison with known population characteristics.

3.3 Instrument Development and Operationalisation

The instrument contains 32 items measured on a five-point agreement scale from 1 (strongly disagree) to 5 (strongly agree). The items were adapted conceptually from recent work on tax compliance, governance and PLS-SEM and then rewritten for the Nigerian reform setting. Before field administration, specialists in taxation, public finance and measurement should review the instrument for relevance, clarity and domain coverage. A pilot involving approximately 30–50 knowledgeable respondents can then identify ambiguous wording, excessive completion time and preliminary reliability problems. Procedural controls for common-method bias should include separation of predictor and criterion sections, respondent anonymity and carefully varied item wording, supplemented by a marker variable or full-collinearity assessment at the analytical stage. Table 3.1 summarises the constructs and their indicative content. Reform quality is represented through clarity, consistency, predictability and simplification; digital administration through accessibility, reliability, integration and cost reduction; and taxpayer support through the usefulness of guidance and the responsiveness of assistance. Fair enforcement captures consistency, proportionality, detection credibility and due process. Compliance covers registration, filing, accurate declaration and payment behaviour. Revenue mobilisation reflects base expansion, reduced leakage, efficiency and stability, while transparency concerns disclosure, traceability, oversight and corrective feedback. Infrastructure development is assessed in terms of access, reliability, completion and maintenance.

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Table 3.1. Measurement constructs and proposed indicators

Construct	Code	Indicative content
Reform quality and clarity (RQ)	RQ1–RQ4	Rules are understandable; provisions are consistent; transition guidance is adequate; reform reduces complexity.
Digital tax administration (DA)	DA1–DA4	Online services are accessible; platforms are reliable; systems are interoperable; digital processes reduce compliance cost.
Taxpayer support and education (TS)	TS1–TS4	Guidance is understandable; education reaches taxpayers; help channels respond; rulings/FAQs resolve uncertainty.
Fair and credible enforcement (FE)	FE1–FE4	Audits are risk-based; penalties are proportionate; similar cases are treated consistently; appeals follow due process.
Tax compliance (TC)	TC1–TC4	Registration and filing are timely; declarations are accurate; liabilities are paid; lawful verification is supported.
Revenue mobilisation (RM)	RM1–RM4	Tax base broadens; leakages decline; collection becomes efficient; revenue becomes predictable.
Transparency and accountability (TR)	TR1–TR4	Collections and allocations are disclosed; projects are traceable; oversight is credible; feedback produces corrective action.
Infrastructural development (ID)	ID1–ID4	Access improves; services become reliable; projects are completed; maintenance is sustained.

3.4 Model Specification

The structural model is specified as follows:

$$TC = \beta_0 + \beta_1 RQ + \beta_2 DA + \beta_3 TS + \beta_4 FE + \zeta_1 \quad (1)$$

$$RM = \alpha_0 + \alpha_1 TC + \alpha_2 DA + \zeta_2 \quad (2)$$

$$ID = \gamma_0 + \gamma_1 RM + \gamma_2 TR + \gamma_3 TC + \gamma_4 (RM \times TR) + \zeta_3 \quad (3)$$

In these equations, TC represents tax compliance; RQ, reform quality; DA, digital administration; TS, taxpayer support and education; FE, fair enforcement; RM, revenue mobilisation; TR, transparency and accountability; ID, infrastructural development; and ζ, the disturbance terms. The indirect effect of tax compliance on infrastructure is $\alpha_1\gamma_1$. The conditional effect of revenue mobilisation on infrastructure is $\gamma_1 + \gamma_4 TR$. A positive γ_4 therefore means that the relationship between mobilisation and infrastructure becomes stronger as transparency increases.

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For each reflective construct, the measurement model is expressed as $x_i = \lambda_i \eta + \varepsilon_i$, where x_i denotes an observed indicator, λ_i its loading, η the latent construct and ε_i measurement error. Indicator loadings are preferably above .708, although values between .40 and .70 may be retained when the item remains substantively important and the overall measures of reliability are satisfactory. Cronbach's alpha and composite reliability are used for internal consistency, average variance extracted for convergent validity, and the heterotrait–monotrait ratio together with the Fornell–Larcker criterion for discriminant validity (Hair et al., 2022).

3.5 Data Analysis Procedure

Analysis proceeds in two linked stages. The first evaluates the measurement model through indicator reliability, internal consistency, convergent validity and discriminant validity, with variance inflation factors used to inspect collinearity. The second evaluates the structural model using standardised path coefficients, bootstrap confidence intervals, coefficients of determination, predictive relevance and effect sizes. For the demonstration, inference is based on 2,000 bootstrap resamples and two-tailed tests. A substantive field analysis should increase this to at least 5,000 resamples and report the resulting confidence intervals explicitly.

Mediation is supported when the bootstrapped indirect-effect interval does not include zero. Moderation is assessed by mean-centring revenue mobilisation and transparency, creating the interaction term and estimating its contribution to infrastructure. Where the interaction is significant, simple slopes are examined at one standard deviation below and above the mean of transparency. Cross-validated Q^2 values provide evidence on predictive relevance, while a field application should also assess out-of-sample performance by comparing PLS prediction errors with a linear benchmark. Multi-group analysis can then be used to determine whether structural paths differ by firm size, region, tax type or respondent role.

4.0 Illustrative Results and Discussion

Every numerical result reported in this section comes from the synthetic demonstration dataset described in Section 3.2. The purpose is to illustrate the form of a complete SEM report using the proposed model. None of the coefficients, probabilities or descriptive statistics should be interpreted as empirical estimates for Nigerian taxpayers, revenue institutions or states.

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4.1 Respondent Profile

Table 4.1. Illustrative profile of synthetic cases (n = 438)

Characteristic	Category	Frequency	Percent
Primary role	Business owner/manager	213	48.6
	Accountant/tax practitioner	96	21.9
	Revenue/public-sector officer	63	14.4
	Public-finance/infrastructure professional	66	15.1
Organisation sector	Trade and general services	128	29.2
	Manufacturing	94	21.5
	Professional services	71	16.2
	Construction/real estate	62	14.2
	Transport/logistics	48	11.0
	Other	35	8.0
Tax-System Experience	Below 5 years	104	23.7
	5–10 years	157	35.8
	11–15 years	103	23.5
	Above 15 years	74	16.9

The synthetic profile was constructed to include several stakeholder perspectives rather than a single respondent type. Business owners and managers account for almost half of the cases, with the remainder drawn from tax practitioners, public officers and public-finance or infrastructure professionals. This composition is not intended to reproduce Nigeria's taxpayer population. In an actual field survey, formal businesses and professionals may be easier to reach than micro-enterprises or informal operators, so weighting may be required where the sampling frame permits. The final report should disclose the sampling frame, state distribution and response rate clearly enough for readers to assess the limits of external validity.

4.2 Descriptive Statistics

Table 4.2. Illustrative construct-level descriptive statistics

Construct	Mean	Std. deviation	Skewness	Kurtosis
Reform quality and clarity	3.433	.590	−.18	−.21
Digital tax administration	3.431	.630	−.11	−.17
Taxpayer support and education	3.457	.619	−.07	−.26
Fair and credible enforcement	3.443	.610	−.15	−.19
Transparency and accountability	3.441	.591	−.12	−.18
Tax compliance	3.459	.615	−.09	−.24
Revenue mobilisation	3.447	.600	−.10	−.20
Infrastructural development	3.460	.624	−.14	−.22

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Construct means fall between 3.431 and 3.460, a moderately favourable pattern created by the design of the demonstration data. Standard deviations are close to .60, providing adequate variation for illustrating the estimation procedure, while the reported skewness and kurtosis do not suggest severe univariate non-normality. Although PLS-SEM does not require multivariate normality, a real survey should still be screened for extreme cases, straight-lining, careless responding and unusual distributional patterns. These descriptive statistics are not evidence that the reforms have succeeded; they describe the synthetic respondents' central tendencies and would need to be interpreted alongside objective fiscal and infrastructure indicators in field research.

4.3 Measurement Model Assessment

Table 4.3. Reliability and convergent-validity results

Construct	Loading range	Cronbach's α	Composite reliability	AVE
RQ	.821–.877	.874	.914	.726
DA	.856–.900	.896	.928	.763
TS	.835–.875	.872	.913	.723
FE	.838–.875	.880	.918	.736
TR	.829–.872	.873	.914	.725
TC	.834–.890	.889	.924	.752
RM	.840–.880	.873	.913	.724
ID	.851–.893	.897	.929	.766

All illustrative indicator loadings are above .80. Cronbach's alpha ranges from .872 to .897 and composite reliability from .913 to .929, comfortably above the conventional .70 benchmark without reaching levels that would automatically signal item redundancy. Average variance extracted ranges from .723 to .766, so every construct explains substantially more than half of the variance in its indicators. On these criteria, the demonstration satisfies accepted requirements for internal consistency and convergent validity (Hair et al., 2022).

The Fornell–Larcker assessment also supports discriminant validity in the demonstration. For every construct, the square root of AVE is greater than its correlations with the remaining constructs. Tax compliance and revenue mobilisation show the largest association (.611), followed by revenue mobilisation and infrastructural development (.587). Both relationships are theoretically plausible and remain below the relevant diagonal values. A substantive field analysis should supplement this check with the heterotrait–monotrait ratio, using .85 as a conservative threshold and .90 where conceptually similar constructs justify the less restrictive criterion.

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Table 4.4. Illustrative Fornell–Larcker matrix

Construct	RQ	DA	TS	FE	TR	TC	RM	ID
RQ	.852							
DA	.263	.874						
TS	.323	.324	.850					
FE	.232	.249	.324	.858				
TR	.239	.271	.345	.249	.852			
TC	.397	.450	.433	.374	.348	.867		
RM	.304	.427	.328	.249	.211	.611	.851	
ID	.244	.313	.269	.231	.340	.486	.587	.875

Note: Diagonal values are square roots of AVE; off-diagonal values are inter-construct correlations.

4.4 Structural Model and Hypothesis Tests

Table 4.5. Illustrative structural paths and hypothesis decisions

Hyp.	Path	β	Boot SE	t	p	95% CI	Decision
H1	RQ → TC	.211	.039	5.42	< .001	.135, .290	Supported
H2	DA → TC	.279	.040	6.97	< .001	.202, .358	Supported
H3	TS → TC	.214	.043	4.98	< .001	.131, .299	Supported
H4	FE → TC	.187	.043	4.34	< .001	.109, .273	Supported
H5	TC → RM	.526	.042	12.52	< .001	.442, .604	Supported
—	DA → RM	.190	.037	5.14	< .001	.117, .261	Control path
H6	RM → ID	.453	.046	9.85	< .001	.362, .539	Supported
—	TR → ID	.196	.037	5.30	< .001	.124, .268	Direct effect
H7	TC → ID	.142	.048	2.95	.003	.049, .236	Supported
H9	RM × TR → ID	.152	.032	4.75	< .001	.085, .212	Supported

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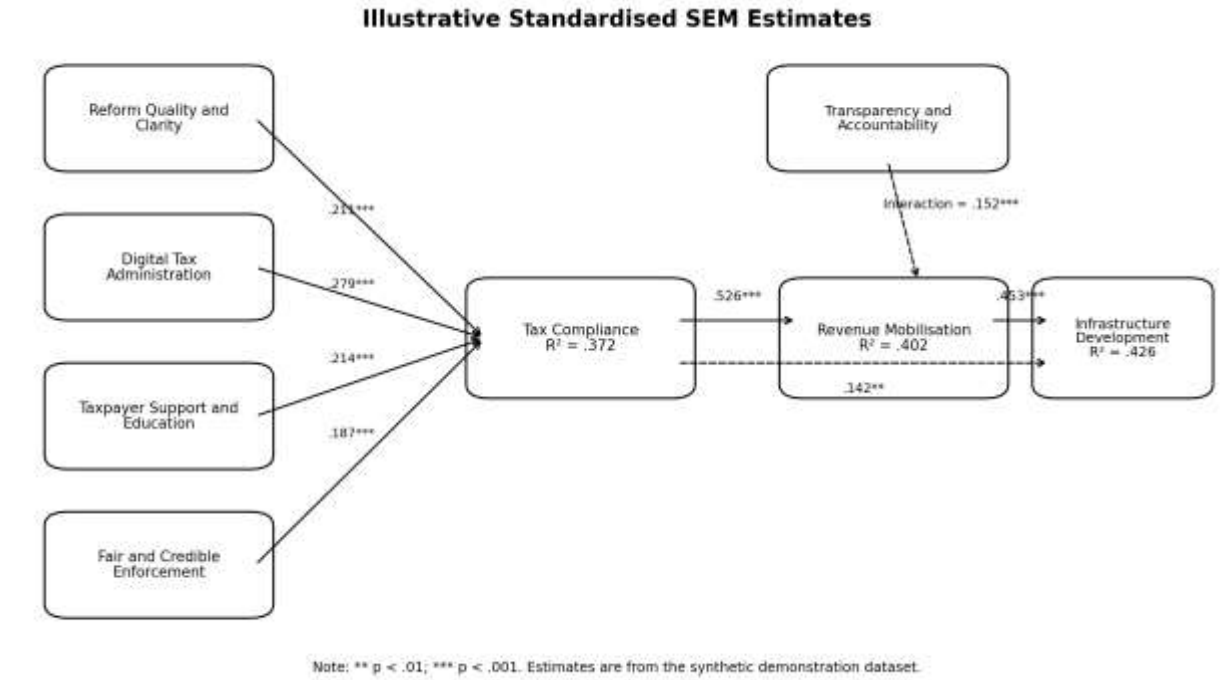

Figure 4.1. Illustrative structural model with standardised coefficients.

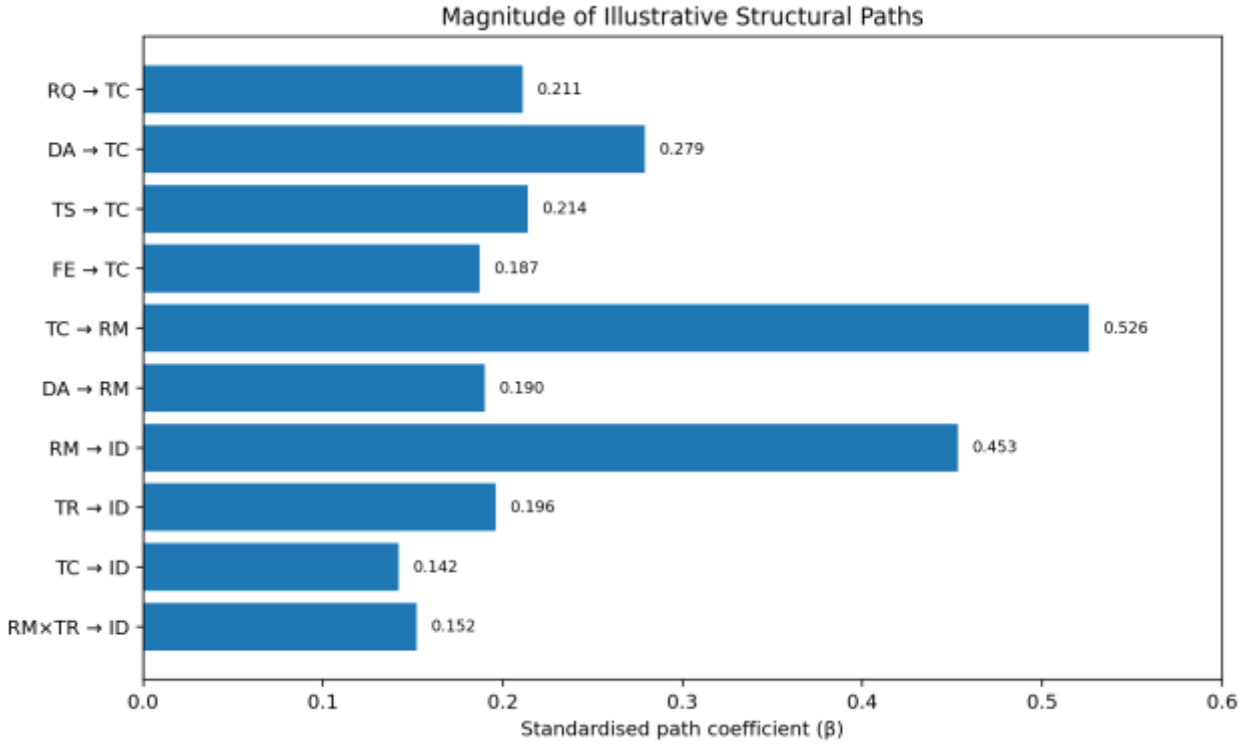

Figure 4.2. Comparative magnitude of the illustrative structural-path coefficients.

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The structural model accounts for 37.2% of the variance in tax compliance, 40.2% in revenue mobilisation and 42.6% in infrastructural development. Its cross-validated Q^2 values are .436 for compliance, .505 for revenue mobilisation and .391 for infrastructure, indicating positive predictive relevance within the synthetic dataset. Predictor variance inflation factors are below 2.0, so collinearity is not problematic in the demonstration. These statistics describe the performance of the constructed model only; they are not national estimates.

Among the four reform-related predictors of compliance, digital tax administration has the largest direct coefficient (β = .279). It is followed by taxpayer support and education (β = .214), reform quality (β = .211) and fair enforcement (β = .187). The ordering illustrates a practical point: the usability of the tax system may matter at least as much as the formal content of legal reform. Clear statutes implemented through unstable portals or fragmented payment procedures can leave the effective compliance burden largely unchanged, while digitalisation built on unclear rules can simply automate uncertainty. The coefficients therefore favour an integrated reform strategy rather than a sequence in which law, technology, support and enforcement are treated independently.

Tax compliance is the strongest structural predictor of revenue mobilisation in the model (β = .526). The relationship represents the fiscal consequence of broader registration, accurate declarations, timely filing and actual payment: each makes collections more adequate and predictable. Digital administration retains an additional direct path to mobilisation (β = .190), suggesting that technology can reduce leakage or improve collection efficiency apart from its influence on voluntary behaviour. When field data become available, that direct mechanism could be examined against administrative indicators such as the electronic-payment share, return-processing time and audit yield.

Revenue mobilisation has a positive relationship with infrastructural development (β = .453), while tax compliance retains a smaller direct coefficient (β = .142). The latter may capture legitimacy or earmarking perceptions that are not fully expressed through general revenue adequacy. Transparency also has a positive direct effect on infrastructure (β = .196). More importantly for the proposed theory, the positive interaction coefficient indicates that the revenue–infrastructure relationship becomes stronger at higher levels of transparency.

4.5 Mediation and Moderation Results

Table 4.6. Illustrative bootstrapped indirect effects

Indirect pathway	Effect	Boot SE	95% CI	Interpretation
TC → RM → ID	.237	.030	.181, .297	Significant partial mediation
RQ → TC → RM → ID	.050	.012	.029, .075	Significant serial indirect effect
DA → TC → RM → ID	.066	.013	.043, .093	Significant serial indirect effect
TS → TC → RM → ID	.051	.012	.029, .076	Significant serial indirect effect
FE → TC → RM → ID	.045	.012	.024, .070	Significant serial indirect effect

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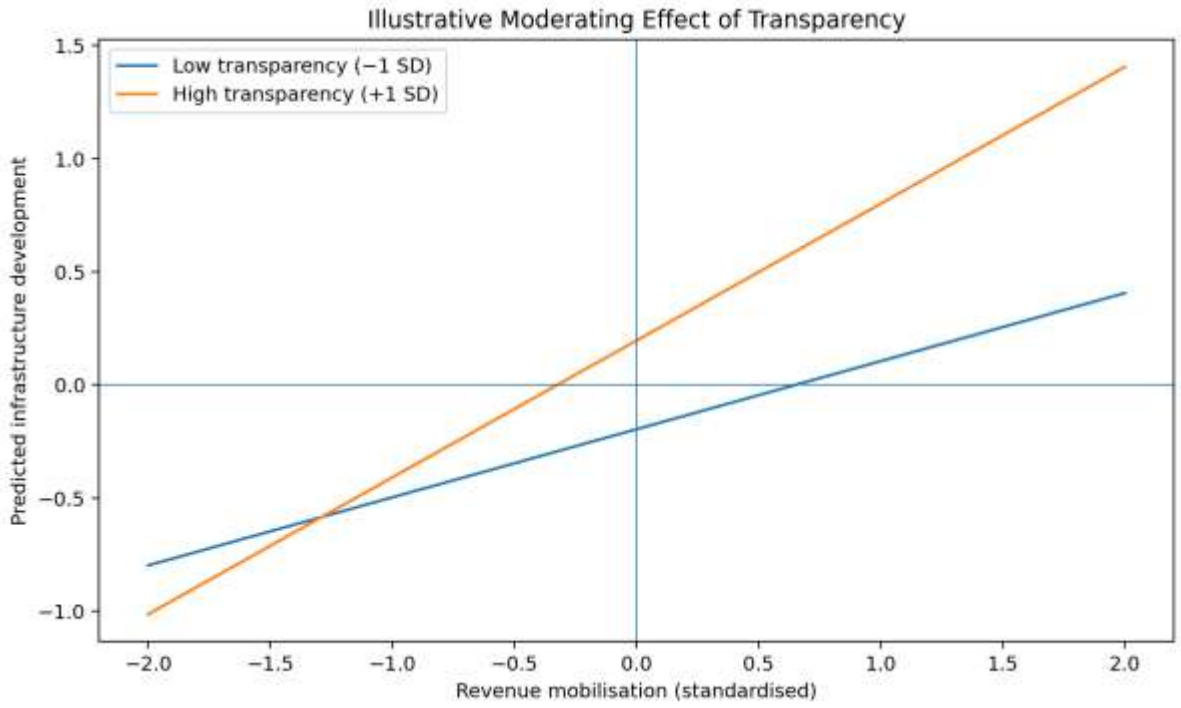

Figure 4.3. Illustrative simple slopes for the moderating role of transparency and accountability.

The indirect effect from compliance to infrastructure through revenue mobilisation is .237, with a bootstrap interval that excludes zero. Because the direct compliance–infrastructure relationship remains significant, the demonstration exhibits partial rather than full mediation. Each reform driver also produces a positive serial indirect effect through compliance and revenue mobilisation. This pattern changes the way reform performance should be interpreted. Legal or administrative quality cannot be judged only by immediate collection figures or isolated satisfaction measures; the developmental effect depends on whether reform first changes behaviour and then strengthens the fiscal capacity available for public investment.

The simple-slope pattern is similarly conditional. Predicted infrastructure increases more quickly with revenue mobilisation when transparency is one standard deviation above its mean, whereas the positive slope is weaker under low transparency. This should not be read as though disclosure directly constructs roads or power systems. The institutional argument is that open allocation, procurement and monitoring can reduce the losses that occur between increased fiscal capacity and completed public assets. A substantive field study should therefore combine perception measures with objective project-level evidence so that actual delivery can be distinguished from communication effects.

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4.6 Discussion of Findings

The positive illustrative path from reform quality to compliance is consistent with the proposition that understandable and predictable obligations reduce accidental non-compliance. Hassan et al. (2021) identified simplicity as an important influence on voluntary behaviour and showed that fairness mediated several institutional relationships. Nigeria's consolidation of tax provisions under the 2025 legislation could therefore reduce interpretive fragmentation, but only where administrative guidance is timely and consistent. In practice, reform quality will be judged by whether taxpayers and advisers can establish their liabilities without confronting conflicting circulars, duplicate registrations or uncertain transition rules.

Digital administration has the largest reform-related coefficient in the illustrative model. The implication is that digital reform should be evaluated through user outcomes rather than the number of services moved online. Registration success, filing completion, payment confirmation, correction of errors and platform uptime provide more informative measures of modernisation than a catalogue of digital modules.

Support and education also have a positive path in the demonstration, which is consistent with the OECD's (2021) treatment of sustained taxpayer learning as part of tax-culture development. The result differs from the insignificant support-service effect reported by Olaniyi et al. (2023), but the contrast is plausible because support varies greatly in quality. General seminars may do little to change behaviour, whereas sector-specific guidance, pre-filled information, multilingual assistance, enforceable service standards and rapid case resolution can reduce real compliance mistakes. Future field analysis should therefore distinguish the reach of taxpayer education from the quality of support services rather than assuming that both operate identically.

Fair enforcement makes a further positive contribution, in line with Nwokoye et al. (2023), whose study of industrial clusters identified audits and deterrent communication as compliance influences. The result is also compatible with the slippery-slope interpretation supported by Kogler et al. (2023), under which legitimate power and trust work together. For Nigeria, this means strengthening risk-based audit capacity without normalising discretionary harassment. Penalties need to be predictable, proportionate and reviewable. The Office of the Tax Ombud and the Tax Appeal Tribunal may improve perceptions of procedural fairness when they are accessible, independent and capable of providing timely remedies.

The strong compliance–mobilisation path gives the behavioural model a direct fiscal meaning. Tax bases produce usable fiscal space only after taxpayers are brought into the system, declarations are made accurately and liabilities are paid. This extends Vincent's (2021) multidimensional treatment of SME compliance by showing how the separate components contribute to aggregate revenue capacity: registration enlarges the known base, filing generates information, accurate declaration protects the assessment process, and payment converts liability into cash. A balanced compliance scorecard should therefore accompany gross collection figures. Relevant measures include active taxpayer growth, on-time filing, payment compliance, arrears recovery, audit yield, dispute age and the cost of collection.

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The positive revenue–infrastructure coefficient is broadly consistent with Oziegbe and Itua (2024), who found that VAT, customs duties and company income tax supported electricity production in both the short and long run. The present SEM framework extends that aggregate relationship by placing revenue within a behavioural sequence and by treating infrastructure as multidimensional rather than limiting it to electricity. Causal interpretation nevertheless remains difficult. Expanding infrastructure programmes can create pressure for higher taxes, better infrastructure can enlarge the tax base through productivity, and macroeconomic shocks can move both revenue and investment. For that reason, field evidence from stakeholder SEM should eventually be triangulated with time-series results and project-level indicators.

The moderating role of transparency is especially important because it shifts attention from revenue collection to revenue conversion. The positive interaction is consistent with the governance evidence of Nichelatti and Hiilamo (2024) and with the trust mechanism examined by Amani (2024). Higher revenue is an input, not a developmental outcome in itself. Tax reform acquires stronger developmental legitimacy when citizens can trace collections through approved budgets, procurement decisions, disbursements, physical implementation and final service outcomes. Transparent infrastructure reporting may also strengthen later compliance by making fiscal exchange visible, although that reciprocal relationship is not estimated in the present model.

The remaining direct path between compliance and infrastructure requires a cautious interpretation. It may indicate that taxpayers who view the fiscal system as legitimate also hold more favourable beliefs about collective development, rather than implying a separate physical channel from compliance to infrastructure. Such a common-attitude effect would create risks of common-method variance and reverse causality in field data. Objective indicators of road completion, electricity reliability, water access, school condition and health-facility functionality should therefore be matched to survey evidence at state or local-government level wherever feasible.

Viewed as a whole, the model argues against treating legal reform, technology, taxpayer service, enforcement and public expenditure as separate policy projects. Clear rules without usable services can still leave taxpayers uncertain; service without credible enforcement can reward strategic evasion; enforcement without fairness can weaken legitimacy; mobilisation without transparency can fail to produce development; and infrastructure spending that is poorly communicated may do little to strengthen fiscal trust. The relevant unit of policy is therefore the complete chain. That system-level interpretation is the principal contribution of the proposed SEM approach.

5.0 Conclusion and Policy Implications

5.1 Conclusion

This article develops an integrated structural equation model for examining how tax reforms may influence infrastructural development in Nigeria. The framework links four implementation dimensions (reform quality, digital administration, taxpayer support and fair enforcement) to tax compliance, connects compliance with revenue mobilisation, and then relates mobilisation to multidimensional infrastructure. Transparency and accountability are incorporated as a substantive moderating condition in the final relationship rather than treated as a peripheral governance consideration.

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The illustrative analysis shows how that architecture can be estimated and reported. In the synthetic dataset, all four reform drivers positively predict compliance; compliance strongly predicts mobilisation; mobilisation predicts infrastructure; and transparency strengthens the final relationship. These coefficients do not represent Nigerian taxpayers or institutions. Their purpose is methodological: they show the types of measurement, mediation and moderation evidence that a field study can test with authentic observations. Substantively, the model proposes that tax reform reaches development only when the chain remains intact, i.e. from understandable rules and workable administration, through credible compliance and efficient collection, to transparent allocation and competent delivery of public infrastructure.

5.2 Policy Recommendations

1. Translate legal reform into operational clarity. The Nigeria Revenue Service, state revenue services and the Joint Revenue Board should issue harmonised implementation manuals, sector guidance, transition calendars and searchable rulings. These materials should use clear language and follow a controlled updating process so that taxpayers are not forced to reconcile conflicting circulars.

2. Build one interoperable taxpayer journey. Registration, identification, filing, payment, withholding information, e-invoicing, correspondence and dispute tracking should exchange data securely across authorised institutions. Performance should be judged by uptime, completion rates, correction time and user cost rather than by the number of digital modules introduced.

3. Combine taxpayer service with risk-based enforcement. Revenue authorities should distinguish between taxpayers who are willing but confused and those presenting a high risk of deliberate non-compliance. Targeted assistance is appropriate for the former, while intensive enforcement should be concentrated on the latter. Audit selection, penalty calculation and collection action should remain documented, proportionate and open to effective review.

4. Publish an infrastructure-linked fiscal platforms. Government should disclose tax collections, statutory allocations, project budgets, procurement milestones, disbursements, geolocated physical progress, completion status and maintenance funding in reusable formats. The reporting system should allow citizens to follow the path from a revenue category to a service outcome without requiring specialist fiscal knowledge.

5. Protect taxpayer rights and make feedback consequential. Actions that identify constant administrative failures should serve as feed back into personnel training, guidance and system redesign.

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References

Afolabi, A. B. (2026). Regulating tax administration in Nigeria: Legal and institutional challenges in revenue enforcement. Nigerian Law and Practice Journal.

African Development Bank. (2023). Nigeria country diagnostic note 2023. African Development Bank Group.

African Union Commission, African Tax Administration Forum, & Organisation for Economic Co-operation and Development. (2024). Revenue statistics in Africa 2024: Facilitation and trust as drivers of voluntary tax compliance in selected African tax administrations. OECD Publishing. https://doi.org/10.1787/78e9af3a-en

Amani, D. (2024). Modeling the impact of corporate legitimacy on tax compliance intention to small and medium-sized enterprises. Cogent Business & Management, 11(1), 2368098. https://doi.org/10.1080/23311975.2024.2368098

Bah, M. (2024). Tax revenue mobilization and institutional quality in sub-Saharan Africa: An empirical investigation. African Development Review, 36(2), 201–221.

Benitez, J. C., Mansour, M., Pecho, M., & Vellutini, C. (2023). Building tax capacity in developing countries. IMF Staff Discussion Note, 2023/006. International Monetary Fund. https://doi.org/10.5089/9798400246098.006

Benzarti, Y., & Wallossek, L. (2024). Rising income tax complexity. National Tax Journal, 77(1), 143–173.

Capasso, S., Cicatiello, L., De Simone, E., Gaeta, G. L., & Mourão, P. R. (2021). Fiscal transparency and tax ethics: Does better information lead to greater compliance? Journal of Policy Modeling, 43(5), 1031–1050.

D'Agostino, G., Dunne, J. P., & Pieroni, L. (2024). Tax evasion and tax compliance: Evidence and implications for developing economies. Journal of Economic Surveys, 38(2), 387–415.

Darmayasa, I. N., & Hardika, N. S. (2024). Core tax administration system: The power and trust dimensions of slippery slope framework tax compliance model. Cogent Business & Management, 11(1), 2337358.

de la Cuesta, B., Martin, L., Milner, H. V., & Nielson, D. L. (2023). Do indirect taxes bite? How hiding taxes erases accountability demands from citizens. The Journal of Politics, 85(4), 1305–1320.

El-Bouayady, R., Radoine, H., El Faouzi, N.-E., Tayi, S., & Ozkan, H. C. (2024). Assessing and modeling the impact of urbanization on infrastructure development in Africa: A data-driven approach. Cities, 155, 105486.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Federal Republic of Nigeria. (2020). Finance Act, 2020. Federal Government Printer.

Federal Republic of Nigeria. (2025a). Joint Revenue Board of Nigeria (Establishment) Act, 2025. Federal Government Printer.

Federal Republic of Nigeria. (2025b). Nigeria Revenue Service (Establishment) Act, 2025. Federal Government Printer.

Federal Republic of Nigeria. (2025c). Nigeria Tax Act, 2025. Federal Government Printer.

Federal Republic of Nigeria. (2025d). Nigeria Tax Administration Act, 2025. Federal Government Printer.

Gertler, P. J., Gonzalez-Navarro, M., Gračner, T., & Rothenberg, A. D. (2024). Road maintenance and local economic development: Evidence from Indonesia's highways. Journal of Urban Economics, 143, 103687.

Gobena, L. B. (2024). The interplay between power and trust in stimulating voluntary deference: Testing the "Slippery Slope Framework" of tax compliance among taxpayers in Addis Ababa City Administration, Ethiopia. Journal of Business and Administrative Studies, 16(1).

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). A primer on partial least squares structural equation modeling (PLS-SEM) (3rd ed.). Sage.

Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Partial least squares structural equation modeling (PLS-SEM) using R: A workbook. Springer. https://doi.org/10.1007/978-3-030-80519-7

Hassan, I. E., Naeem, A., & Gulzar, S. (2021). Voluntary tax compliance behavior of individual taxpayers in Pakistan. Financial Innovation, 7, 21. https://doi.org/10.1186/s40854-021-00234-4

Hsu, H.-Y. (2024). Fiscal transparency and tax morale: Is the relationship shaped by perceptions of government performance and corruption? International Review of Administrative Sciences, 90(3), 563–580.

Kline, R. B. (2023). Principles and practice of structural equation modeling (5th ed.). Guilford Press.

Kogler, C., Olsen, J., Kirchler, E., Batrancea, L. M., & Nichita, A. (2023). Perceptions of trust and power are associated with tax compliance: A cross-cultural study. Economic and Political Studies, 11(3), 365–381.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Mardan, M. (2023). The unintended consequences of semi-autonomous revenue agencies. Canadian Journal of Economics/Revue canadienne d'économique. https://doi.org/10.1111/caje.12669

Mascagni, G., & Nell, C. (2022). Tax compliance in low-income countries: A review of the evidence. Journal of Economic Surveys, 36(5), 1519–1548.

McDonough, R. P., & Yan, C. J. (2024). Maintaining maintenance: The real effects of financial reporting for infrastructure. *Contemporary Accounting Research, 41*(3), 1952–1985.

Nichelatti, E., & Hiilamo, H. (2024). The effect of citizens' perception of governance on tax compliance: A cross-country analysis study for 32 Sub-Saharan African countries. The European Journal of Development Research, 36, 1198–1226.

Nwokoye, E. S., Igbanugo, C. I., Ekesiobi, C., & Dimnwobi, S. K. (2023). Fiscal incentives and tax compliance behaviour in industrial clusters: A survey of clusters in South-East Nigeria. Journal of African Business, 24(1), 147–166.

Ogbeta, K. O., & Ayeni, O. (2024). Digitalization and tax administration in The Gambia. African Journal of Politics and Administrative Studies, 17(1), 191–211.

Okunogbe, O., & Santoro, F. (2022). Increasing tax collection in African countries: The role of information technology. Journal of African Economies, 32(Supplement_1), i57–i83.

Okunogbe, O., & Tourek, G. (2024). How can lower-income countries collect more taxes? The role of technology, tax agents, and politics. Journal of Economic Perspectives, 38(1), 81–106.

Olaniyi, O. O., Ayoola, T. J., Wright, O., Aregbesola, O. D., & Kolawole, P. E. (2023). Tax administration and personal income tax compliance in Nigeria: A PLS-SEM approach. International Journal of Applied Economics, Finance and Accounting, 17(1), 117–126.

Olumoh, Y. A. (2024). Tax administration practices and compliance: Evidence from Kwara State, Nigeria. FUDMA Journal of Accounting and Finance Research, 2(4), 17–30.

Omoniyi, O. S., & Akintoye, I. R. (2024). Transparency and accountability concerns in the Nigerian public sector. International Journal of Business and Management Review, 8(6), 2406–2416.

Organisation for Economic Co-operation and Development. (2021). Building tax culture, compliance and citizenship: A global source book on taxpayer education (2nd ed.). OECD Publishing. https://doi.org/10.1787/18585eb1-en

Organisation for Economic Co-operation and Development. (2024). Revenue statistics in Africa 2024. OECD Publishing.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Oziegbe, D. J., & Itua, P. O. (2024). Non-oil tax revenue and infrastructural development in Nigeria. Central European Economic Journal, 11(58), 200–213.

Saadaoui Mallek, R., Awad, A., Ozturk, I., & ben Douissa, I. (2024). Infrastructure development and poverty eradication in sub-Saharan Africa: Its effect and transmission channels. Cities, 144, 104658.

Sarstedt, M., Hair, J. F., Pick, M., Liengaard, B. D., Radomir, L., & Ringle, C. M. (2022). Progress in partial least squares structural equation modeling use in marketing research in the last decade. Psychology & Marketing, 39(5), 1035–1064

Selcuk, O., Turkoglu, H., Polat, G., & Hajdu, M. (2024). An integrative literature review on the causes of delays in construction projects: Evidence from developing countries. International Journal of Construction Management, 24(6), 610–622.

Siglé, M. A., Goslinga, S., Speklé, R. F., & van der Hel-van Dijk, L. (2022). The cooperative approach to corporate tax compliance: An empirical assessment. Journal of International Accounting, Auditing and Taxation, 46, 100447.

Vincent, O. (2021). The development of a scale to measure SMEs tax compliance in Nigeria: An adaptation of Fischer's model. Journal of Accounting and Taxation, 13(3), 132–143.

World Bank. (2024). Business ready 2024. World Bank.

World Bank. (2022). Nigeria public finance review: Fiscal adjustment for better and sustainable results. World Bank.

World Bank. (2025). Nigeria development update: Building momentum for inclusive growth. World Bank.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
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Appendix A. Questionnaire Items

Instruction: Please indicate your level of agreement with each statement using 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree and 5 = Strongly agree.

Table A1. 32-item measurement instrument

Code	Statement	Response
RQ1	The reformed tax rules are understandable to taxpayers.	1 2 3 4 5
RQ2	Different provisions of the reform are internally consistent.	1 2 3 4 5
RQ3	Official transition guidance makes new obligations predictable.	1 2 3 4 5
RQ4	The reform reduces unnecessary complexity and duplication.	1 2 3 4 5
DA1	Online tax services are easy to access.	1 2 3 4 5
DA2	Digital tax platforms operate reliably when needed.	1 2 3 4 5
DA3	Tax registration, filing and payment systems exchange information effectively.	1 2 3 4 5
DA4	Digital processes reduce the time and cost of compliance.	1 2 3 4 5
TS1	Official tax guidance explains obligations clearly.	1 2 3 4 5
TS2	Taxpayer education reaches the groups that need it.	1 2 3 4 5
TS3	Help channels respond to questions within a reasonable time.	1 2 3 4 5
TS4	Published rulings and frequently asked questions resolve uncertainty.	1 2 3 4 5
FE1	Tax audits are based on credible risk indicators.	1 2 3 4 5
FE2	Penalties are proportionate to the nature of non-compliance.	1 2 3 4 5
FE3	Taxpayers in similar circumstances receive consistent treatment.	1 2 3 4 5
FE4	Appeals and complaints are handled through fair procedures.	1 2 3 4 5
TC1	Taxpayers register when legally required.	1 2 3 4 5
TC2	Tax returns are submitted by the due date.	1 2 3 4 5
TC3	Income and transactions are declared accurately.	1 2 3 4 5
TC4	Assessed liabilities are paid on time.	1 2 3 4 5
RM1	The reforms broaden the effective tax base.	1 2 3 4 5
RM2	Revenue leakages have reduced.	1 2 3 4 5
RM3	Tax collection has become more efficient.	1 2 3 4 5
RM4	Government tax revenue has become more stable and predictable.	1 2 3 4 5
TR1	Government discloses tax collections and their allocation clearly.	1 2 3 4 5
TR2	Citizens can trace infrastructure projects from budget to completion.	1 2 3 4 5
TR3	Independent oversight of tax-funded projects is credible.	1 2 3 4 5
TR4	Public feedback leads to corrective action when projects underperform.	1 2 3 4 5
ID1	Access to essential infrastructure is improving.	1 2 3 4 5
ID2	Infrastructure services are becoming more reliable.	1 2 3 4 5
ID3	Approved projects are completed within reasonable time and cost.	1 2 3 4 5
ID4	Existing infrastructure receives adequate maintenance.	1 2 3 4 5

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Effect of Seed Treatment with Imidacloprid, Metalaxyl-M and Tebuconazole (Dress Force) on Growth and Performance of Roselle (*Hibbiscus sabdariffa* L.) in Aliero, Kebbi State

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DOI : https://doi.org/10.5281/zenodo.22918478

Abstracts

Roselle (*Hibiscus sabdariffa* L.) is one of the most important Traditional Leafy Vegetables (TLVs) in the tropics and sub-tropics belonging to the *Malvaceae* Family. The crop is believed to have originated from Nigeria. An experiment was conducted during the 2023/2024 dry season at the Screen House of the Abdullahi Fodio University of Science and Technology, Aliero, Kebbi State, Nigeria, to evaluate the effects of different levels of Imidacloprid, Metalaxyl-M and Tebuconazole (Dress-force) on the growth and performance of Roselle plants in Aliero, Kebbi State. The treatments consisted of five (5) levels of Imidacloprid, Metalaxyl-M and Tebuconazole applied at 1.0 g, 2.0g, 3.0g, 4.0g, 5.0g, and 0.0 g (control. The treatments were laid out in a Complete Randomized Design (CRD) with six (6) replications. Data were collected on Plant Height, Number of Leaves, and Leaf Length. Data obtained were subjected to the Analysis of Variance (ANOVA), and significant means were separated using the Least Significant Difference (LSD) at a 0.05 probability level. Results revealed that there were significant statistical differences among the treatments except for the number of leaves at 4WAS and leaf length at 2WAS. It can be concluded that treatment 4.0g had the tallest Roselle Plant (18.80) at 2WAS over the 0.0g control (13.800). The research findings recommend the use of a moderate level of Imidacloprid, Metalaxyl-M and Tebuconazole as seed treatment for enhanced growth and performance of Roselle plant in the study area.

Keywords: Imidacloprid, Growth**,** Roselle, Metalaxyl-M and Tebuconazole

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1. Introduction

Roselle (*Hibiscus sabdariffa* L.) belongs to the family *Malvaceae*, it is a shrubby annual plant species of Hibiscus and occurs in many tropical and subtropical countries (Frank *et al.,* 2012). It is cultivated mainly for its calyxes (Luis *et al.,* 2023). The calyx is rich in flavour, a rich source of micronutrients (Vitamin C, B1, and B2) and contains colorants (Anthocyanins), as stated by Alarcón-Alonso *et al.* (2012). Locally, the dried red calyx is processed into a colourful cold beverage; green calyces and bracts are also used to prepare soup/sauce, while in some localities it serves as a medicine for curing human diseases. In many parts of the world, leaves and stalks are consumed as a green vegetable/salad (Mahadevan and Shivali, 2009; Oyewole and Mera, 2010). In Nigeria, Roselle is intercropped with staple foods such as yam, maize, sorghum or oilseed, Beniseed crops, or planted along field margins, preponderantly by women. Roselle is a multi-purpose crop with significant economic, nutritional, and medicinal value, widely cultivated in the tropical and subtropical regions, including Nigeria (Ali *et al.,* 2021). Its calyces are used for beverages, food colouring, and herbal remedies, while its leaves and seeds serve as important sources of nutrients and oils. Despite its importance, Roselle yields are often limited by poor seed germination, soil-borne diseases, and pest infestations, which seed dressers like Apron-Plus may help mitigate (Ogundeji *et al.,* 2023). Different phenological stages of Roselle (seedling, flowering and fruiting stages) are attacked by various insect pests, causing economic losses (Abdel-Moniem *et al.,* 2006; Abdel-Moniem *et al.,* 2011). In the peasantry, the polycultural system of crop production in Nigeria, the inclusion of two or more *malvaceous* crops are prevalent, thus encouraging cross-infection and damage by insects (Adewole, 2010). Despite its economic and nutritional importance, the production of Roselle is often constrained by poor growth and performance due to susceptibility to pests and diseases. Seed dressing with protective chemicals, such as Seed dressers, has been proposed as a potential solution to enhance seedling vigour, reduce pest and disease pressures, and improve overall crop performance (Saeed and Zainol-Abidin, 2024). However, there is limited empirical evidence on the specific effects of seed dressing on the growth and yield of Roselle in improving quality under the Kebbi State environmental conditions. This gap in knowledge hinders farmers and stakeholders from adopting this seed dressing as an effective agronomic practice (Builders, 2013).

The study of the effects of the fungicidal action of seed dressers on the performance of Roselle is both timely and significant, given the increasing interest in optimizing agricultural productivity under sustainable practices. Seed treatment technologies such as seed dressers offer a preventative measure to combat seed- and soil-borne pathogens during the early stages of plant development, leading to better germination, seedling vigour, and overall crop yield. Systemic seed dressers provide fungicidal and insecticidal protection, which has been shown to improve crop establishment and reduce disease pressure in various crops (Abubakar *et al.,* 2022). Evaluating the impact of fungicides on roselle growth and performance in the Sudan savanna is particularly critical because this region is one of Nigeria's key agricultural zones, with unique environmental conditions and soil characteristics that can influence treatment effectiveness. Moreover, as farmers increasingly adopt integrated pest management strategies, understanding the efficacy of dress-force in local conditions could help guide best practices, enhance Roselle productivity and contribute to the broader goal of achieving food security.

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2.0 Materials and Methods

2.1 Experimental Site

The experiment was conducted at the premises of the Abdullahi Fodio University of Science and Technology, Aliero (AFUSTA), at the premises of Screen House, situated at Latitude $12^0$16'42''N; Longitude $4^0$27'6''E. The climate of the State is characterized by alternating wet and dry seasons in response to the changes in pressure patterns; the rainy season in the area is associated with a late onset. The challenges of erratic, recurring rainfall variability have adversely affected moisture quality in the area, with agriculture being the most dominant economic activity in the area.

2.3 Treatments and Experimental Design

The treatments consisted of six (6) levels of seed-dressing chemical (Dress Force) applied at 1.0 g, 2.0 g, 3.0 g, 4.0 g, 5.0 g, and 0.0 g (Control), which was laid out in Complete Randomized Design (CRD) with three (3) replications.

2.3 Source of Seeds

Roselle seeds were obtained from the Roselle farmers in Aliero town while Dress-force was purchased from the Jega Central Market; the seeds were visually checked to ensure that they were not infested by insect pests.

2.4 Imidacloprid, Metalaxyl-M and Tebuconazole (Dress-force) Concentrations

This was measured using sensitive digital weighing balance for an accurate measurement and viable Roselle seeds were thoroughly mixed with Imidacloprid, Metalaxyl-M and Tebuconazole before sowing figure 1.

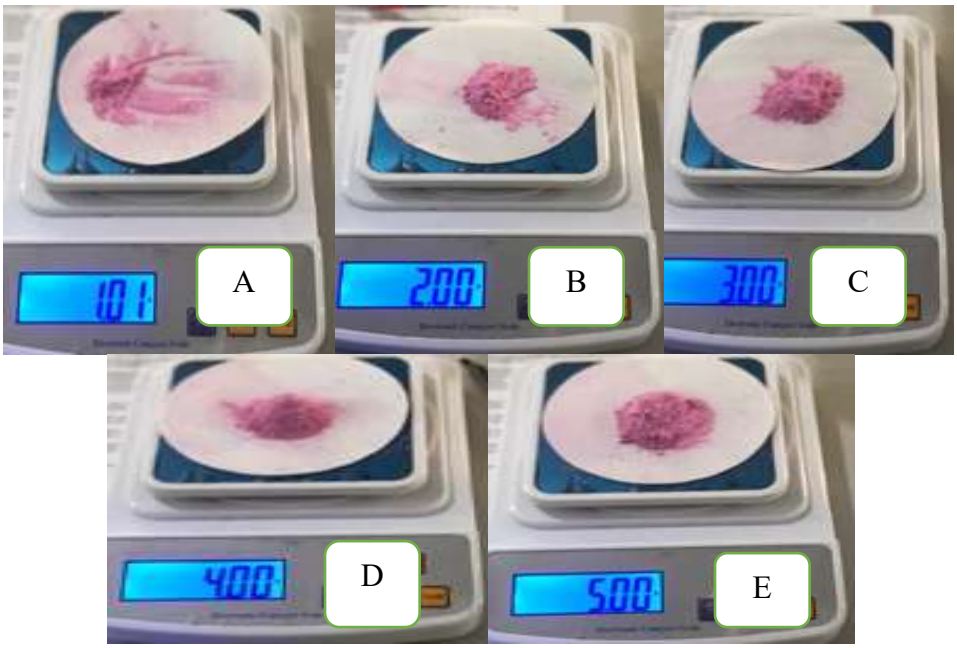

Plate. 1: Different concentrations of Imidacloprid, Metalaxyl-M and Tebuconazole (Dress-force) as treatments: A = 1.0g, B = 2.0g, C = 3.0g, D = 4.0g, E = 5.0g

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2.5 Cultural Practices

2.5.1 Soil Preparation

A well-drained sandy-loam soil was thoroughly mixed with manure and sawdust. This was placed into a small plastic container, watered and kept for about one week before sowing.

2.5.2 Seed Sowing

Matured and viable seeds (15 seeds) were sown in six (6) plastic containers, giving a total number of 75 seeds per treatment; the containers were watered at two-day intervals and subsequently for three days for better seed germination.

2.5.3 Fertilizer application

A compound fertilizer (NPK 15-15-15) was judiciously applied at split doses.

2.5.4 Weed control

Weeds were manually controlled at 2 and 4 WAS, and subsequently, when needed.

2.6 Data Collection

2.6.1 Plant Height (cm)

Plant height was obtained by measuring the height of the plant from the base to the last leaf at 2 and 4 WAS, using a meter rule, and the average was recorded.

2.6.2 Number of Leaves per Plant

This was obtained by counting the number of leaves from the tagged plants, and means were recorded.

2.6.3 Leaf Length (cm)

Leaf length was obtained by measuring the leaf length from the tagged plants, and averages were recorded.

2.7 Data Analysis

The data generated were subjected to Analysis of Variance (ANOVA) using SAS Statistical Software (Analytical Software). Differences between significant means were separated using the Least Significant Difference (LSD) at a 0.05 level of probability.

3.0 Results

3.1 Effects of Imidacloprid, Metalaxyl-M and Tebuconazole (Dress-force) on Plant Height and Number of Leaves of Roselle Plant

The effect of Imidacloprid, Metalaxyl-M and Tebuconazole as a treatment shows a significant difference at the 0.05% level of probability in all parameters except for the number of leaves at 4WAS (Table 1). The results on plant height at 2WAS indicated that 4.0g (18.80^{a}) and 1.0g (18.60^{a}) recorded the tallest plants, followed by 2.0g (16.60^{a}) and (16.6^{a}), which were all statistically similar. The shortest plants were recorded by the treatments 0.0g (13.8^{c}) and 3.0g (13.20^{c}) (Table 1). However, the same treatments maintained a similar trend at 4WAS as 1.0g and 4.0g (22.20^{a}), followed by the treatments 5.0g (20.60^{b}) and 2.0g (20.20^{b}), while treatment 3.0g (17.0^{d}) had the

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shortest plants over the control 0.0g (18.20^{c}). Moreover, treatment 3.0g (4.60^{a}) produced more leaves than 1.0g, 5.0g and the control 0.0g, which recorded the same number of leaves at 2WAS (4.20^{b}), while the same number of leaves was obtained by the treatments 2.0g and 3.0g (3.80^{c}).

Similarly, treatments did not affect the number of leaves at 4WAS, although treatments 3.0g and 0.0g control produced similar results and produced a greater number of leaves (5.20^{a}) than 1.0g, 4.0g and 5.0g, with the least number of leaves recorded on treatment 2.0g (4.80^{a}), Table 1.

Table 1: Effects of Imidacloprid, Metalaxyl-M, and Tebuconazole (Dress-force) on Plant Height and Number of Leaves of Roselle Plant

Treatments	Plant Height at 2WAS (cm)	Plant Height at 4WAS (cm)	No. Leaf at 2WAS	No. Leaf at 4WAS
1.0g	18.60^{a}	22.20^{a}	4.20^{b}	5.00
2.0g	16.60^{a}	20.20^{b}	3.80^{c}	4.80
3.0g	13.20^{c}	17.00^{d}	3.80^{c}	5.20
4.0g	18.80^{a}	22.20^{a}	4.60^{a}	5.00
5.0g	16.60^{a}	20.60^{b}	4.20^{b}	5.00
0.0g Control	13.80^{c}	18.20^{c}	4.20^{b}	5.20
Sig	*	*	*	**NS**
LSD $_{0.05}$	**1.19**	**1.06**	**0.22**	**1.26**

Within a treatment group, means followed by the same letters (S·) are not significantly different at the 0.05% probability level; NS = not significant, $_{0.05}$% level of significance, *= significant difference, WAS: Week After Sowing

3.2 Effects of Imidacloprid, Metalaxyl-M and Tebuconazole (Dress-force) on the leaf length of Roselle Plant

The results showed that only Leaf Length (cm) at 4WAS was significantly influenced by Imidacloprid, Metalaxyl-M and Tebuconazole (Dress-force) as seed treatment at a 0.05 probability level. Although 1.0g and 2.0g recorded the same and longest leaves (4.30), followed by 4.0g (4.27), which was the second, and 3.0g (4.0) the third, the shortest leaves were recorded in 5 g and 0.0g (control) (3.70), Table 2.

However, at 4 WAS, 1.0g (6.30^{a}) of Imidacloprid, Metalaxyl-M and Tebuconazole had the longest leaves over the 2.0g, 3.0g and 4.0g, which recorded similar leaf length (5.70^{ab}, 5.70^{ab}, 6.00^{ab} respectively), the shortest leaves were obtained in 5.0g (5.30^{b}) and 0.0g (control) (5.27^{b}), Table 2.

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Table 2: Effects of Imidacloprid, Metalaxyl-M and Tebuconazole (Dress-force) on the leaf length of Roselle Plant

Treatments	Leaf Length (cm) at 2WAS	Leaf Length (cm) at 4WAS
1.0g	4.30	6.30[a]
2.0g	4.30	5.70[ab]
3.0g	4.00	5.70[ab]
4.0g	4.27	6.00[ab]
5.0g	3.70	5.30[b]
0.0g Control	3.70	5.27[b]
Sig	**NS**	*
LSD $_{0.05}$	**0.75**	**0.75**

Within a treatment group, means followed by the same letters (S) are not significantly different at the 0.05 probability level; NS = not significant; $_{0.05}$% level of significance; *= significant difference; WAS: Week After Sowing

4.0 Discussion

4.1 Influence of Imidacloprid, Metalaxyl-M and Tebuconazole (Dress-Force) on the Plant Height and Number of Leaves on Roselle Plant

This Research investigates the effects of a combined seed treatment formulation (Dress-Force: Imidacloprid 20% + Metalaxyl-M 20% + Tebuconazole 2%) on early growth parameters of roselle (*Hibiscus sabdariffa* L.). Seed treatment with systemic pesticides has gained prominence as an integrated pest management strategy that protects seedlings during vulnerable early growth stages while potentially enhancing plant vigour through bioactivator effects (Sehrish *et al.,* 2024)

The study revealed the significant effects on plant height at both at 2 and 4 (Weeks After Sowing (WAS) ($p < 0.05$). Notably, the 4.0 g treatment produced the greatest plant height at 4 WAS), statistically comparable to the 1.0 g treatment but significantly superior to the 3.0 g treatment, this could be attributed to its fungicidal effects in controlling soil borne disease which could influences the growth of the roselle plant, but contrary to the findings of (Sehrish *et al.,* 2024) who reported that, neonicotinoid seed treatments, particularly imidacloprid, can function as physiological bio activators that enhance shoot elongation and overall seedling vigor.

However, the number of leaves at 2 WAS showed significant differences at the 0.05% probability level, with the 4.0 g application yielding the highest leaf number, while the number of leaves at 4 WAS were not significantly different among treatments. Moreover, the highest number of leaves could be due to the active ingredients released by the fungicides, which are effective against pathogens affecting the root system of the roselle plant. This temporal pattern reflects the transient nature of seed treatment effects, which are typically most pronounced during early seedling establishment, as reported by (Vyavhare *et al.,* 2020), but also contradicts the findings of Ramos *et al.* (2011), who reported that Roselle plant growth is influenced by growth-promoting factors.

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This is also contrary to the reports of Wenyonu *et al.* (2011), who reported that wider spacing significantly increases growth due to less competition for light in physiological activities. Similarly, the differences in plant height of the Roselle plant could be assigned to differences in the genetic make-up (Schippers, 2000; Denton, 2004).

However, the number of leaves produced by 4.0 g of Imidacloprid, Metalaxyl-M and Tebuconazole could be attributed to this, which is in line with reports of (Yirzagla, 2023). But in disagreement with the results of Rasheed *et al.* (2018), who stated that the number of leaves of Roselle is determined by varietal differences. This was in line with the findings of (Abubakar *et al.,* 2022), who reported that Imidacloprid, Metalaxyl-M, and Tebuconazole have a positive influence on the growth of Roselle plant (Table 1).

4.2 Effects of Imidacloprid, Metalaxyl-M and Tebuconazole (Dress Force) on the leaf length of Roselle Plant

Leaf length at 4 WAS was significantly influenced by treatment, with the 1.0 g application producing the longest leaves. These morphological responses are consistent with findings that systemic insecticide-fungicide combinations can improve photosynthetic capacity by protecting developing foliage from pest and pathogen pressure (Agronomy, 2024). The longest leaves observed at 4 WAS could be due to the effects of Imidacloprid, Metalaxyl-M and Tebuconazole on the pathogens by targeting RNA, which reduces the early-season damping-off and root rot that commonly limit roselle establishment in tropical soils and by suppressing cell division in fungal pathogens, as reported by (Chemosphere, 2022). Moreover, Imidacloprid, Metalaxyl-M and Tebuconazole could be effective at low doses in promoting leaf length development more than the higher doses, as reported by Okoro (2020). This indicates that lower doses of Imidacloprid, Metalaxyl-M and Tebuconazole are more beneficial for leaf growth during this period Table 2.

5. Conclusion

The study concluded that the application of Imidacloprid, Metalaxyl-M and Tebuconazole (Dress-force) influenced Roselle performance positively at lower doses (1.0g and 2.0g) better than higher doses. These doses enhanced plant height, leaf production, and leaf length, likely due to improved protection against pathogens and pests during early growth stages. Higher doses (3.0g, 4.0g, and 5.0g), however, showed reduced effectiveness, possibly due to phytotoxicity or overstimulation of protective mechanisms. The untreated seeds (control) had poorer performance across most parameters, highlighting the importance of Imidacloprid, Metalaxyl-M and Tebuconazole (Dress-force) in optimizing Roselle growth under the prevailing environmental conditions in Aliero, Kebbi State.

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References

Abdel-Moniem, A. S. H., Abd El-Wahab, T. E. and Farag, N. A. (2011). Prevailing insects in Roselle plants, *Hibiscus sabdariffa* L., and their pollination efficiency. Archives of *Phytopathology and Plant Protection, 44* (3):242–252.

Abdel-Moniem, A. S. H., and Abd El-Wahab, T. E. (2006). Insect pests and predators inhabiting Roselle plants, *Hibiscus sabdariffa* L., a medicinal plant in Egypt. Archives of *Phytopathology and Plant Protection, 39*(1):25-32

Abubakar, S. T., Musa, A. H. and Yakubu, L. (2022). Advances in seed treatment technologies for sustainable crop production. *Journal of Agricultural Innovations and Practices, 10*(3), 112–123.

Adewole, M. M. (2010). Host preference in family malvaceae by *Podagrica spp* (Coleoptera: Chrysomelidae): An Oligophagus herbivore. B. Agric project report. Department of Crop Protection, University of Agriculture, Abeokuta. 42.

Agronomy. (2024). Effects of neonicotinoid seed treatments on cotton seedling physiology, nutrition, and growth. Agronomy, *14*(4), 799. https://doi.org/10.3390/agronomy14040799

Alarcón-Alonso, J. A., Zamilpa, F., Alarcón Aguilar, M., Herrera-Ruiz, J. and Tortoriello, E. Jimenez-Ferrer, (2012). Pharmacological characterization of the diuretic effect of *Hibiscus sabdariffa* Linn (Malvaceae) extract, *J. Ethnopharmacol. 139* (3) 751–756, doi:10.1016/j.jep.12.005.

Ali, M. K., Usman, M. A. and Garba, S. M. (2021). Economic importance and production challenges of roselle (*Hibiscus sabdariffa* L.) in Nigeria. *Agricultural Research & Development Journal, 8*(2), 45–54.

Builders, P. F. (2013). Wound healing potential of formulated extract from *Hibiscus sabdariffa* calyx. *Indian Journal of Pharmaceutical Sciences, 75*, 45-52.

Chemosphere. (2022). Effects of tebuconazole application at different growth stages on rice. Chemosphere, *307*, 135–144. https://doi.org/10.1016/j.chemosphere.2022.135144.

Denton, O. A. (2004). Plant resources of tropical Africa 2. Vegetables (PROTA). PROTA Foundation/Wageningen; (contains the *Hibiscus sabdariffa*/roselle treatment used as the authoritative PROTA entry).

Frank, T., Netzel, G., Kammerer, D. R., Carle, R., Kler, A., Kriesl, E., Bitsch, I., Bitsch, R. and Netzel, M. (2012). Consumption of *Hibiscus sabdariffa* L. aqueous extract and its impact on systemic antioxidant potential in healthy subjects, *J. Sci. Food Agric. 92* (10 2207–2218, doi:10.1002/jsfa.5615.

Luis, G., Carlos, A., Avendaño-Arrazate, H., Ariza-Flores, R., Gomez-Simuta, Y., Martínez-Bolaños, M. and Cruz-López Jesús, A. (2023). *Radiación Gamma En Semillas De Jamaica Para Inducir variación morfológica Y selección De Mutantes», Revista Mexicana De Ciencias Agrícolas.* México, ME:27-37, doi:10.29312/remexca.v14i5.3010.

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Mahadevan, N. and Shivali, K.P. (2009). *Hibiscus sabdariffa* Linn. An overview. *Natural Product Radiance. 8*:77-83.

Ogundeji, O. A., Bello, F. T. and Adamu, S. M. (2023). Evaluation of systemic seed dressers on crop performance in Nigeria's savannah zone. *Nigerian Journal of Plant Protection, 15*(1), 21–30.

Okoro, C. K. (2020). Pathogens associated with Roselle (*Hibiscus sabdariffa* L.) in tropical and subtropical regions. *International Journal of Plant Pathology, 8*(1), 12-21.

Oyewole, C. I. and Mera, M. (2010). Response of Roselle (*Hibiscus sabdariffa* L.) to rates of inorganic and farmyard fertilizers in the Sudan savanna ecological zone of Nigeria. *African Journal of Agricultural Research*. *5* (17):2305-2309.

Saeed, I. E. and Zainol-Abidin, Z. (2024). Environment-controlled thin-layer drying of cut-roselle: Drying experiments and effects of drying settings. *Acta mechanica* Malaysia*, 7*(1), 49-59.

Schippers, R. R. (2000). African indigenous vegetables: *An overview of the cultivated species.* Natural Resources Institute / ACP-EU Technical Centre for Agricultural and Rural Cooperation (CTA). 214 pp. ISBN: 0-85954-515-6.

Sehrish, A., Parajulee, M., Vyavhare, S., Coldren, C., Laza, H., and Simpson, C. R. (2024). Effects of neonicotinoid seed treatments on cotton seedling physiology, nutrition, and growth. Agronomy, *14*(4), 799. https://doi.org/10.3390/agronomy14040799.

Vyavhare, S. S., and Reed, B. (2020). Control of cotton flea hopper in cotton using foliar-applied insecticides, 2019. Arthropod Management Tests, 45, tsaa090. https://doi.org/10.1093/amt/tsaa090.

Wenyonu, D. K., Norman, J. C. and Amissah, N. (2011). Influence of heading-back and intra-row spacing on the growth, flowering and harvesting of okra (*Abelmoschus esculentus* (L.) Moench). *Ghana Journal of Horticulture*, *9*, 79–94.

Yirzagla, J. (2023). Yield of Roselle (*Hibiscus sabdariffa* L.) as influenced by manure and nitrogen fertilizer application. *American Journal of Plant Sciences.* DOI: 10.4236/ajps.2023.145040.

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Use of Influencer Marketing for Brand Image of Selected Fintech Companies in Abuja, Nigeria

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DOI : https://doi.org/10.5281/zenodo.22919266

Abstract
This study examined the use of influencer marketing and its influence on consumer perception, brand credibility, and service adoption of Flutterwave and OPay in Abuja, Nigeria. The study was anchored in **Source Credibility Theory (SCT)** and adopted a quantitative research design. Data were collected through a structured questionnaire administered to **400 users of Flutterwave and OPay** in Abuja, selected through a multistage sampling procedure. The data were analysed using descriptive statistics, including frequencies, percentages, means, and standard deviations. Findings revealed that both fintech companies employ influencer marketing strategies such as tutorials, product reviews, personal endorsements, promotional content, and social media campaigns. Micro-influencers and content creators were more noticeable among OPay users, suggesting that relatability and audience relevance are important in fintech influencer marketing. It further showed that influencer marketing positively contributes to perceived brand credibility and service understanding, with a majority of respondents indicating that influencer-generated content was credible and effective in explaining fintech services. However, challenges including unclear explanations, overly commercial or insincere content, misleading information, and inconsistent messaging were identified as factors that may reduce the effectiveness of influencer marketing and weaken consumer confidence. The study recommends that Flutterwave and OPay strengthen the use of credible and relatable influencers while prioritising educational, demonstration-based, transparent, and consistent content to improve consumer trust and strengthen brand image.

Keywords: Influencer Marketing; Brand Image; Fintech Companies; OPay; Flutterwave; Social Media Marketing.

1.1 Introduction

Maintaining a good brand image is very important for every business. For financial companies like Flutterwave and Opay, it is even more important because they deal with people's money. Customers will only trust and use a financial service they believe is safe, fast, and reliable. In today's digital world, people want quick access to their money anytime and anywhere. Because of this, they carefully watch how a brand behaves before deciding to use it. One of the major ways these companies now build their brand image is through **influencer marketing** (Ajayi & Musa,

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2022). Influencer marketing simply refers to the use of popular and trusted social media personalities to promote a brand, product, or service. These influencers already have many followers who trust their opinions and lifestyle. So, when they promote a brand, their followers are more likely to believe the message and take action. In Nigeria today, influencer marketing is very common on social media platforms such as Instagram, TikTok, X (Twitter), and YouTube. Many young Nigerians spend most of their time on these platforms, which makes them a strong target for influencer marketing (Okorie, 2020).

Adekunle (2022), observed that in this era of technology, customers want quick and easy access to their money anytime and anywhere. People no longer want to walk into banks or wait in long queues before carrying out simple transactions. They prefer to transfer money, pay bills, and make payments using their mobile phones. Because of these high expectations, customers now observe a financial brand carefully before deciding to use its services. They look at how the brand communicates, how it treats customers, and what people are saying about it online. This is where influencer marketing has become very important.

For companies like Flutterwave and Opay, influencer marketing plays a major role in shaping their brand image. Brand image simply means how people see and feel about a company. When a well-known influencer speaks positively about a brand, it creates awareness and builds trust in the minds of the public. For example, when influencers show how easy it is to send or receive money, pay for transport, order food, or run a business using Opay or Flutterwave, people begin to feel that these platforms are safe, reliable, and convenient. Over time, such repeated messages help to build a strong and positive image for these companies (Adebayo, 2022). Influencer marketing also helps these fintech companies appear modern, friendly, and easy to use. Instead of sounding like strict and complex financial institutions, they become relatable to the average Nigerian youth. Since young people form a large number of users of digital financial services in Nigeria, influencer marketing becomes even more effective. The use of everyday language, humour, and real-life experiences by influencers makes the message more believable and attractive.

In Nigeria, influencer marketing is very practical and easy to apply. The country has a large population of social media users, and smartphone usage is very high. This makes it easy for companies to reach millions of people within a short period. Compared to traditional advertising like television, radio, and billboards, influencer marketing is also cheaper and faster. A single post made by a popular influencer can create awareness for a brand within minutes. This makes it easy for Flutterwave and Opay to announce new services, promotions, and system updates to a wide audience (Sule, 2021).

Despite the many benefits, influencer marketing also faces some serious challenges. One major problem is the issue of fake followers. Some influencers buy followers just to appear popular. When companies pay such influencers for promotion, the message may not reach real people who are interested in the service. Another challenge is loss of trust. When influencers advertise too many brands at the same time, followers may begin to doubt their honesty and see them as people who only care about money (Okafor, 2021). Based on these issues, this study seeks to assess the use of influencer marketing for the brand image of Flutterwave and Opay companies in Nigeria.

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1.2 Statement of the Problem

Despite its popularity, the use of influencer marketing in the financial sector is facing many serious challenges that can affect brand image negatively. One major problem is the issue of **fake followers and fake engagement.** Many influencers buy followers and likes to appear popular, but their promotions do not reach real or active users. This makes companies spend large amounts of money on promotions that do not bring real results (Okafor, 2021). Another major challenge is **loss of trust among consumers.** When influencers promote too many brands at the same time, especially competing fintech brands, customers begin to doubt their honesty and no longer trust their recommendations (Adebayo & Sule, 2022). There is also the problem of **negative behaviour and scandals involving influencers.** When an influencer involved in promoting a financial brand becomes involved in online controversy, fraud, or immoral behaviour, it can damage the image of the brand they represent. Since trust is very important in financial services, any negative association can lead to loss of customers (Bello, 2020). In addition, **over-promotion and false promises** by some influencers also create problems. When customers try the services and experience failed transactions, network issues, or poor customer service, they become disappointed and begin to express their anger online. This damages the brand image of the company (Olatunji, 2021). Although several studies have been carried out on influencer marketing in Nigeria, most of them focus on areas like fashion, entertainment, and consumer goods (Afolabi, 2021; Ogunnaike & Kehinde, 2020). Very few studies have focused on financial technology companies, especially on how influencer marketing affects brand image and customer trust in companies like Flutterwave and OPay. Therefore, this study intends to fill this gap by carefully examining the use of influencer marketing for building brand image, the challenges involved, and how these challenges affect customer trust and perception of Flutterwave and OPay in Nigeria.

1.3 Objectives of the Study

This study is guided by the following objectives:

1. To identify the different types of influencer marketing strategies used by Flutterwave and Opay companies.
2. To examine how influencer marketing affects consumers' perception of the brand credibility of Flutterwave and Opay.
3. To assess the effectiveness of influencer marketing in promoting the services of Flutterwave and Opay in Nigeria.
4. To ascertain the challenges faced in the use of influencer marketing by Flutterwave and Opay.

2.1 Review of Literature

2.1.1 Concept of Influencer Marketing

Influencer marketing has developed into an important digital marketing strategy through which brands collaborate with individuals who possess established audiences and perceived influence on social media. Recent literature describes social media influencers as digital opinion leaders who build personal brands, maintain relationships with followers, and shape consumers' attitudes, perceptions, and behaviours through content creation and interaction (Vrontis et al., 2023). From this perspective, influencer marketing extends the traditional concept of word-of-mouth into digital

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environments, as influencers communicate brand-related information through platforms such as Instagram, TikTok, YouTube and X. Unlike conventional word-of-mouth, however, influencer marketing is typically a planned and commercially supported communication strategy in which brands strategically select influencers to reach particular consumer groups (Vrontis et al., 2023; Leung et al., 2022).

The effectiveness of influencer marketing is strongly associated with credibility, authenticity, expertise and the quality of the influencer–follower relationship. Han and Balabanis (2024), in a meta-analysis of influencer studies, identify credibility, trustworthiness and perceived expertise as major factors influencing consumers' responses to influencer content. Similarly, Liu and Zheng (2024) found that informative content, authenticity and perceived similarity between influencers and followers can strengthen relationships with audiences and subsequently improve brand credibility and purchase-related outcomes. Thus, influencer marketing is not simply a mechanism for increasing product exposure; its value lies in the ability of influencers to transfer perceived trust and favourable associations to the brands they endorse.

Brand image, on the other hand, refers to the overall perceptions and associations that consumers develop about a brand. While traditional branding perspectives emphasise names, symbols and other identifying elements, contemporary branding literature views brands more broadly as collections of meanings, experiences and associations held in consumers' minds. Social media has further expanded this process because consumers can continuously encounter, discuss, evaluate and share brand-related content online. Consequently, brand image is increasingly shaped not only by what organisations communicate directly but also by what consumers and influential third parties communicate about them. The relationship between influencer marketing and brand image is particularly important because influencers can function as third-party communicators and brand ambassadors. Vrontis et al. (2023) explain that influencers can create sponsored content that communicates and enhances a brand's image while also contributing to engagement and loyalty. Their content may incorporate personal experiences, narratives, demonstrations and lifestyle associations, allowing brands to communicate in a manner that may appear more personal and relatable than conventional advertising. Similarly, recent evidence indicates that influencer credibility can positively affect consumers' evaluations of advertised brands, demonstrating that the characteristics of the influencer can become relevant to how the endorsed brand itself is perceived (Liu & Zheng, 2024).

In the context of fintech companies, this relationship is particularly significant because digital financial services depend heavily on consumer perceptions of trust, credibility, reliability and security. Influencers can help fintech brands communicate these attributes by demonstrating service benefits, sharing experiences and providing social proof to their followers. However, influencer marketing does not automatically produce a favourable brand image. Where followers perceive endorsements as excessively commercial, irrelevant or lacking authenticity, the credibility of both the influencer and the promoted brand may be weakened. Recent research therefore suggests that influencer effectiveness depends on factors such as source credibility, influencer–brand fit, authenticity, content value and the nature of the relationship between influencers and their audiences (Han & Balabanis, 2024; Liu & Zheng, 2024).

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2.2 Review of Empirical Studies

Recent empirical literature increasingly suggests that digital influence, social media engagement, and perceived credibility are important mechanisms through which brands build and sustain favourable consumer perceptions. However, the evidence also indicates that the effect of digital marketing on brand image is not uniform; rather, it depends on the credibility of the communicator, the quality and authenticity of content, audience engagement, and the degree of fit between the communication strategy and the brand.

Yörük and Summak (2023) provide a useful starting point by linking influencer marketing directly to brand-image formation. Their study argues that influencers function as important intermediaries between brands and digital audiences because their credibility and relationships with followers can shape perceptions of the brands they endorse. The study further suggests that influencer marketing becomes more effective when integrated with broader public relations and digital communication strategies. However, the authors also identify sponsorship perceptions, content quality, and the sustainability of influencer–brand relationships as challenges. This suggests that influencer marketing should not be viewed merely as an exposure or promotional tool; its contribution to brand image depends on the quality and credibility of the relationship between the influencer, audience, and brand.

This argument is reinforced by Bhatt et al. (2024), whose review of social media marketing and fintech brand equity in emerging economies identifies content quality, influencer collaboration, engagement, trust, and customer loyalty as interconnected elements of fintech brand building. Their analysis is particularly relevant to the present study because fintech services are largely digital and therefore depend substantially on consumers' perceptions of trust and reliability. The study implies that social media strategies can strengthen fintech brand equity when they generate meaningful engagement and credible interactions rather than simply increasing brand visibility.

Evidence from Nigeria provides further support for the importance of digital communication in fintech branding. Onalaja (2024), in a study of Paystack in Lagos State, found that social media contributes to brand awareness through customer engagement, content sharing, promotional activities, reviews, and referrals. The study demonstrates that digital platforms provide fintech companies with opportunities to increase visibility and strengthen consumer interaction. Nevertheless, its focus on general social media marketing and brand awareness, rather than influencer marketing and broader brand image, leaves unanswered questions concerning whether influencer-specific communication produces similar effects on trust, credibility, and overall brand perception.

Related Nigerian evidence also shows that brand image can be influenced by the nature and credibility of marketing communication. Onobrakpeya and Bayagbon (2024), for example, found that cause-related marketing, brand-cause fit, point-of-sale donations, and brand storytelling significantly influenced the brand image of non-alcoholic beverage companies in Delta State. Although the study concerns a different industry and marketing technique, its findings are relevant because they demonstrate that consumers' perceptions of a brand can be shaped by the credibility, relevance, and meaning embedded in marketing messages. This supports the broader argument that influencer-generated content may affect brand image when the message and the messenger are perceived as authentic and compatible with the brand. While Onalaja (2024) demonstrates the

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importance of social media interaction in developing fintech brand awareness. Onobrakpeya and Bayagbon (2024) further show that the relevance and authenticity of marketing messages matter in shaping brand image. Collectively, these studies suggest that the effectiveness of influencer marketing may be explained through interconnected factors such as credibility, authenticity, content quality, engagement, brand–influencer fit, trust, and audience relevance, rather than through exposure alone.

2.3 Theoretical Framework

This study is anchored on Source Credibility Theory (SCT), originally developed by Hovland, Janis, and Kelley (1953) to explain how the perceived credibility of a communicator influences the effectiveness of persuasive communication. The theory proposes that audiences are more likely to accept and be persuaded by messages delivered by sources they perceive as credible. In contemporary digital marketing, the theory is particularly relevant to influencer marketing because social media influencers function as third-party communicators who can shape consumers' attitudes and perceptions toward brands. Source credibility is commonly associated with dimensions such as expertise, trustworthiness, and attractiveness, with expertise and trustworthiness being particularly important in determining persuasive effectiveness (Ohanian, 1990).

The theory is based on the premise that credibility is largely audience-perceived rather than an inherent quality of the communicator. An influencer may possess substantial knowledge or experience, but such attributes will have limited persuasive value if followers do not perceive the influencer as knowledgeable, honest, and authentic. This makes credibility particularly important in influencer marketing, where consumers often evaluate not only the content of a sponsored message but also the character and reliability of the person delivering it. Recent research continues to demonstrate that influencer credibility, authenticity, and perceived expertise can affect consumers' attitudes toward endorsed brands and their behavioural intentions (Vrontis et al., 2023; Han & Balabanis, 2024).

The relevance of Source Credibility Theory to this study lies in its ability to explain how influencer characteristics may shape the brand image of fintech companies such as OPay and Flutterwave. Fintech services are largely intangible and involve financial transactions, making consumer perceptions of trust, reliability, competence, and security particularly important. Consumers may therefore rely on information from influencers whom they perceive as knowledgeable, trustworthy, and relatable when forming opinions about fintech brands. When an influencer is considered credible, positive attributes associated with the influencer may be transferred to the endorsed brand, potentially strengthening consumers' perceptions of the brand's credibility, reliability, innovativeness, and overall image.

The theory also provides a useful basis for examining the role of expertise and trustworthiness in influencer marketing. For example, an influencer who demonstrates adequate knowledge of digital financial services may be perceived as more competent when promoting a fintech platform. Similarly, an influencer who provides transparent, consistent, and authentic information may be regarded as more trustworthy. These perceptions can increase the likelihood that audiences will accept the influencer's message and develop favourable attitudes towards the promoted brand.

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Conversely, perceived exaggeration, excessive commercialisation, or lack of authenticity may reduce the influencer's credibility and weaken the effectiveness of the campaign.

2.4 Methodology

This study adopted a quantitative research design. The study population comprised fintech users aged 18–45 years residing in the Federal Capital Territory (FCT), Abuja, with a population of 4,292,712 residents. Using the Taro Yamane formula at a 5% margin of error, a sample size of approximately 400 respondents was determined. A multistage sampling technique was adopted, involving the purposive selection of Abuja, stratification across the six FCT area councils, and selection of eligible fintech users. To reflect differences in the usage patterns of the two platforms, 280 respondents (70%) were drawn from OPay users, while 120 respondents (30%) were drawn from Flutterwave users. Data were collected using a structured questionnaire designed to measure respondents' exposure to influencer marketing, perceptions of influencer credibility, engagement with influencer content, and perceptions of brand image. The questionnaire was subjected to expert validation and pilot-tested among 20 fintech users outside the study sample, while Cronbach's alpha was used to establish its internal consistency. The quantitative data were analysed using descriptive statistics, including frequencies, percentages, means, and standard deviations, while appropriate inferential statistical techniques were used to examine the relationship between influencer marketing and brand image. Secondary information from relevant academic literature, industry reports, company materials, and credible online sources was also consulted to provide contextual and theoretical support for the study.

2.5 Data Presentation

Table 1: Showing Type of Influencer Noticed Most (OPay Users)

Influencer Type	Frequency	Percentage (%)
Celebrity	70	25.0
Micro-influencer	120	42.9
Content Creator/Blogger	90	32.1
Total	**280**	**100**

Source: Field Survey, 2026

Table 1 shows that **micro-influencers were the most noticed among OPay users (42.9%),** ahead of content creators/bloggers (32.1%) and celebrities (25.0%). This suggests that OPay users may respond more to relatable and accessible influencers than to celebrity status alone.

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Table 2: Showing Credibility of Influencer Information (OPay Users)

Response	Frequency	Percentage (%)
Very Credible	70	25.0
Somewhat Credible	126	45.0
Neutral	54	19.3
Not Credible	30	10.7
Total	**280**	**100**

Source: Field Survey, 2026

Table 2 indicates that **70.0% of respondents perceived influencer information as credible,** suggesting that influencers generally serve as trusted sources of information about OPay. However, the 30.0% who were neutral or unconvinced indicates that influencer exposure does not automatically create trust.

Table 3: Showing Effectiveness in Explaining Services (OPay Users)

Response	Frequency	Percentage (%)
Very Effective	90	32.1
Effective	110	39.3
Neutral	50	17.9
Ineffective	30	10.7
Total	**280**	**100**

Source: Field Survey, 2026

Table 3 reveals that **71.4% of respondents considered influencers effective in explaining OPay services.** This indicates that influencer marketing extends beyond creating awareness to helping consumers understand fintech services. Nevertheless, the neutral and negative responses suggest that some influencers may lack sufficient knowledge or clarity when communicating technical financial services.

Table 4: Challenges of Influencer Marketing (OPay Users)

Challenge	Frequency	Percentage (%)
Lack of clear explanation	160	57.1
Too commercial/insincere	120	42.9
Misleading information	90	32.1
Inconsistent content	70	25.0
Total	**280**	**100**

Source: Field Survey, 2026

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Table 4 identifies **poor explanation of services (57.1%) and overly commercial or insincere content (42.9%)** as major challenges. This suggests that although influencer marketing can improve understanding and credibility, unclear or excessively promotional content may reduce its effectiveness.

2.6 Discussion of Findings

This section discusses the findings of the study in relation to the research questions and existing literature on influencer marketing and brand image. The discussion focuses on four main areas: the influencer marketing strategies used by OPay and Flutterwave; the influence of these strategies on brand credibility; their effectiveness in promoting fintech services; and the challenges associated with their use.

The first research question examined the types of influencer marketing strategies used by OPay and Flutterwave. The findings indicate that both companies use strategies such as tutorials, product reviews, personal endorsements, promotional content, and social media campaigns. However, the intensity and orientation of these strategies differ between the two brands. OPay appears to adopt a broader, mass-market approach, with frequent influencer content focusing on everyday transactions, cashback offers, airtime purchases, transfers, and user guides. This is consistent with the relatively high exposure reported by OPay users. Flutterwave, in contrast, appears to adopt a more selective and business-oriented approach, with greater emphasis on entrepreneurs, merchants, and business-related content. This difference is understandable given the different consumer applications of the two platforms. The finding supports De Veirman et al. (2017), who argue that influencer effectiveness depends considerably on audience fit and the ability of influencers to connect with their target audience. It also reinforces Ki and Kim (2019), who emphasise the role of useful and informative influencer content in shaping consumer responses. Thus, the findings suggest that influencer strategy is more effective when the type of influencer and content corresponds with the nature of the target market.

The second research question examined how influencer marketing affects consumers' perceptions of brand credibility. The findings show a generally positive relationship, although the strength of this relationship differs between OPay and Flutterwave. OPay users reported stronger perceptions of credibility, which may be associated with the frequency and familiarity of influencer exposure. Repeated exposure to influencers demonstrating or discussing OPay services may create familiarity and provide consumers with social validation. Flutterwave recorded comparatively weaker effects, suggesting that lower exposure and the more specialised nature of its influencer communication may limit its ability to build credibility among general fintech users. This finding supports Lou and Yuan (2019), who identify influencer credibility and the value of influencer-generated content as important determinants of consumer trust in branded content. It is also consistent with the broader argument of Source Credibility Theory that consumers are more likely to accept persuasive messages when the communicator is perceived as knowledgeable, trustworthy, and credible. The findings therefore suggest that influencer marketing contributes to brand credibility not simply through visibility but through consistent, credible, and relevant communication.

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The third research question assessed the effectiveness of influencer marketing in promoting the services of OPay and Flutterwave. The findings suggest that influencer marketing has a stronger behavioural effect on OPay users than on Flutterwave users. OPay influencers frequently demonstrate practical uses of the platform, making services such as transfers, airtime purchases, and promotional offers easier for consumers to understand and imitate. This practical orientation may help transform awareness into actual usage. In contrast, Flutterwave's more business-oriented communication appears to generate awareness but does not always translate into behavioural influence among general consumers. The finding is consistent with Sokolova and Kefi (2020), who demonstrate that the relationship between influencers and followers can influence consumer behavioural intentions.

The fourth research question examined the challenges associated with influencer marketing. The findings identify unclear explanations, perceived insincerity, misleading information, and inconsistent content as major challenges. However, the nature of these challenges differs between the two brands. For OPay, the high frequency of promotional content may sometimes create perceptions of over-commercialisation, thereby reducing authenticity. For Flutterwave, the greater challenge appears to be the communication of relatively specialised services in a manner that is simple and understandable to ordinary consumers. These findings demonstrate that increased influencer activity does not necessarily guarantee a stronger brand image. When content appears excessively promotional or lacks clarity, consumers may question the credibility of both the influencer and the brand. This is consistent with Jin and Phua (2014), who highlight the importance of credibility in social media endorsements, and De Veirman et al. (2017), who emphasise the importance of appropriate influencer–brand alignment. The findings therefore suggest that fintech companies need to balance promotional objectives with authenticity, clarity, consistency, and informational accuracy.

2.7 Conclusion

Based on the findings, it can be concluded that influencer marketing is a powerful tool for Flutterwave and Opay in Nigeria. It not only increases brand visibility but also positively affects consumer trust and encourages the adoption of services. The use of micro-influencers and content creators is particularly effective because of their ability to connect with audiences in a relatable and authentic manner. At the same time, the effectiveness of influencer marketing is highly dependent on the credibility, clarity, and authenticity of the influencer content. Challenges such as misleading information, unclear messaging, and overly commercial promotions can undermine consumer trust and reduce the impact of campaigns. Therefore, while influencer marketing is highly valuable, its success requires careful planning, consistent monitoring, and a focus on authenticity and educational content. Conclusively, influencer marketing can significantly enhance the reputation and adoption of fintech services in Nigeria, provided campaigns are well-designed, influencers are credible, and messaging is clear and consistent.

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2.8 Recommendations

Based on the findings of this study, the following four recommendations are proposed;

1. Flutterwave and Opay should continue using a mix of influencer marketing strategies such as tutorials, product reviews, social media challenges, and personal endorsements.
2. To strengthen consumer trust and brand perception, the companies should carefully select influencers who are knowledgeable, experienced, and authentic.
3. Campaigns should prioritise tutorials, demonstrations, and interactive content to effectively promote service adoption. Providing clear, step-by-step explanations of how Flutterwave and Opay services work will increase understanding and encourage more users to adopt the platforms.
4. To address challenges such as unclear explanations, overly commercial content, or misleading information, the companies should establish a system for monitoring influencer content, ensuring consistency, and verifying accuracy before publication. Clear guidelines and regular training for influencers will help maintain authenticity and prevent misinformation.

References

Audrezet, A., de Kerviler, G., & Moulard, J. G. (2020). Authenticity under threat: When social media influencers need to go beyond self-presentation. *Journal of Business Research, 117*, 557–569. https://doi.org/10.1016/j.jbusres.2018.07.008

Bhatt, D., Vyas, C., Pritam, C., Shubham, & Farhat, U. A. S. (2024). The influence of social media marketing on fintech brand equity and emerging economies. *Cahiers Magellanes-NS*. https://doi.org/10.6084/m9.figshare.26310846

Breves, P. L., Liebers, N., Abt, M., & Kunze, A. (2019). The perceived fit between Instagram influencers and the endorsed brand: How influencer–brand fit affects source credibility and persuasive effectiveness. *Journal of Advertising Research, 59*(4), 440–454. https://doi.org/10.2501/JAR-2019-030

Campbell, C., & Farrell, J. R. (2020). More than meets the eye: The functional components underlying influencer marketing. *Business Horizons, 63*(4), 469–479. https://doi.org/10.1016/j.bushor.2020.03.003

DataReportal. (2025). *Digital 2025: Nigeria*. DataReportal. https://datareportal.com/reports/digital-2025-nigeria

De Veirman, M., Cauberghe, V., & Hudders, L. (2017). Marketing through Instagram influencers: The impact of number of followers and product divergence on brand attitude. *International Journal of Advertising, 36*(5), 798–828. https://doi.org/10.1080/02650487.2017.1348035

Djafarova, E., & Rushworth, C. (2017). Exploring the credibility of online celebrities' Instagram profiles in influencing the purchase decisions of young female users. *Computers in Human Behavior, 68*, 1–7. https://doi.org/10.1016/j.chb.2016.11.009

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Han, J., & Balabanis, G. (2024). Meta-analysis of social media influencer impact: Key antecedents and theoretical foundations. *Psychology & Marketing, 41*(2), 394–426. https://doi.org/10.1002/mar.21927

Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). *Communication and persuasion: Psychological studies of opinion change*. Yale University Press.

Jin, S. V., & Phua, J. (2014). Following celebrities' tweets about brands: The impact of Twitter-based electronic word-of-mouth on consumers' source credibility perception, buying intention, and social identification with celebrities. *Journal of Advertising, 43*(2), 181–195. https://doi.org/10.1080/00913367.2013.827606

Ki, C. W. C., & Kim, Y. K. (2019). The mechanism by which social media influencers persuade consumers: The role of consumers' desire to mimic. *Psychology & Marketing, 36*(10), 905–922. https://doi.org/10.1002/mar.21244

Liu, X., & Zheng, X. (2024). The persuasive power of social media influencers in brand credibility and purchase intention. *Humanities and Social Sciences Communications, 11*, Article 15. https://doi.org/10.1057/s41599-023-02512-1

Lou, C., & Yuan, S. (2019). Influencer marketing: How message value and credibility affect consumer trust of branded content on social media. *Journal of Interactive Advertising, 19*(1), 58–73. https://doi.org/10.1080/15252019.2018.1533501

Ohanian, R. (1990). Construction and validation of a scale to measure celebrity endorsers' perceived expertise, trustworthiness, and attractiveness. *Journal of Advertising, 19*(3), 39–52. https://doi.org/10.1080/00913367.1990.10673191

Onalaja, T. A. (2024). Impact of social media on brand awareness: A case of Paystack Payments Limited, Lagos State. *International Journal of Sub-Saharan African Research, 2*(3), 375–391. https://doi.org/10.5281/zenodo.13861411

Onobrakpeya, S. A., & Josh-Palmer Bayagbon, T. (2024). Effect of cause-related marketing campaign on brand image of non-alcoholic beverage companies in Nigeria. *African Journal of Social and Behavioural Sciences, 14*(1), 280–296.

Sokolova, K., & Kefi, H. (2020). Instagram and YouTube bloggers promote it, why should I buy? How credibility and parasocial interaction influence purchase intentions. *Journal of Retailing and Consumer Services, 53*, 101742. https://doi.org/10.1016/j.jretconser.2019.01.011

Vrontis, D., Makrides, A., Christofi, M., & Thrassou, A. (2021). Social media influencer marketing: A systematic review, integrative framework and future research agenda. *International Journal of Consumer Studies, 45*(4), 617–644. https://doi.org/10.1111/ijcs.12647

Yörük, E., & Summak, M. E. (2023). The new dynamics of building a brand image in the digital age: Influencer marketing and public relations. *[Journal details should be verified from the original publication before submission]*.

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Elasticity of Labour and the Wage-Automation Trap in Nigerian Agrifood Systems

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DOI : https://doi.org/10.5281/zenodo.22922516

Abstract
This study examines the elasticity of labour demand and the emergence of a wage-automation trap within Nigeria's agrifood processing systems. It is motivated by the persistent reliance on low-cost manual labour despite increasing demand for processed agricultural products and growing availability of labour-saving technologies. The study argues that depressed rural wages may weaken firms' incentives to substitute capital for labour, thereby constraining capital deepening, labour productivity and wage growth. The analysis is anchored on Induced Innovation Theory, the Task Framework of Automation and Agrifood System Transformation Theory, which explain how factor prices, task allocation and structural transformation influence technology adoption and labour demand. The study employs secondary microdata from the World Bank Living Standards Measurement Study–Integrated Surveys on Agriculture (LSMS-ISA) for Nigeria, complemented by National Bureau of Statistics enterprise survey data. A Translog Cost Function estimates the own-price elasticity of labour demand and the Allen-Uzawa elasticity of substitution between labour and capital, while Two-Stage Least Squares/Instrumental Variable estimation addresses potential endogeneity between wages and output. Results indicate a labour-share coefficient of 0.642, negative translog wage elasticity of −0.118, positive capital-labour interaction coefficient of 0.089, and negative output-wage interaction coefficient of −0.025, all statistically significant. Labour demand among small-scale rural processors is price-inelastic, while capital and labour remain imperfect substitutes. A real daily wage threshold of approximately ₦3,500–₦4,200 is identified, below which automated processing equipment remains relatively costly compared with manual labour. The study concludes that low wages can discourage technological upgrading and reinforce low-productivity equilibria. It recommends improving rural wages and productivity, access to appropriate technologies, energy infrastructure, machinery maintenance and capital

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investment to promote technological upgrading, structural transformation and productive employment in Nigeria's agrifood system.

Keywords: Labour Demand; Wage-Automation Trap; Agrifood Processing; Technological Upgrading; Nigeria.

Introduction

Structural transformation in Sub-Saharan Africa requires a systematic reallocation of Labour from low-productivity agricultural tasks to higher-value processing and industrial activities (Barrett et al., 2022). In Nigeria, the agrifood system represents the largest employer of informal Labour , yet capital deepening across midstream processing activities remains low (Liverpool-Tasie et al., 2020). Central to this development challenge is the elasticity of Labour demand and supply, which dictates how responsive agrifood enterprises are to changing wage signals and capital prices. When rural and peri-urban wages remain depressed, agricultural processing firms face minimal economic incentive to substitute manual Labour with automated technologies (Takeshima et al., 2018). This dynamic generates a low-wage, low-productivity equilibrium, conceptualized as the "wage-automation trap." Under this structural constraint, low Labour costs discourage capital investment in automation, while the resulting lack of capital accumulation suppresses worker productivity and wage growth. While previous research has evaluated broad agricultural mechanization adoption in West Africa (Diao et al., 2020), empirical estimations of Labour substitution elasticities specifically within Nigerian agrifood processing enterprises remain scarce.

The Nigerian agricultural sector contributes approximately 22% to 25% of national Gross Domestic Product and absorbs over 35% of the total Labour force, primarily within informal production and primary processing segments (National Bureau of Statistics, 2023; Liverpool-Tasie et al., 2020). Over the past two decades, demographic shifts, rapid urbanization, and dietary transitions have increased national demand for processed food products, including cassava derivatives, milled rice, and vegetable oils (Barrett et al., 2022). Despite this demand expansion, the agrifood midstream encompassing aggregation, primary processing, and local distribution continues to rely predominantly on unskillful manual Labour and rudimentary processing technologies (Takeshima et al., 2015).

The economic rationale behind technology adoption in agriculture historically aligns with Induced Innovation Theory, which posits that relative factor prices govern technical change (Hayami & Ruttan, 1971; Binswanger-Mkhize, 2011). In societies where land or capital is scarce relative to Labour , real agricultural wages remain suppressed. In Nigeria, persistent rural underemployment and high informal Labour availability have sustained low real daily wages across rural Labour markets (Takeshima, 2017). Consequently, agrifood enterprises encounter a microeconomic disincentive, the capital costs associated with procuring, operating, and maintaining automated processing equipment (e.g., mechanized cassava graters, optical sorters, and motorized threshers) exceed the marginal cost of hiring manual Labour (Diao et al., 2020).

This economic imbalance locks processing operations into a structural bottleneck. Because automation is delayed, Labour productivity remains stagnant, preventing real wage increases for agricultural workers. Breaking this cycle requires a rigorous understanding of the price elasticity

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of Labour demand and the elasticity of factor substitution between capital and Labour. Determining these elasticities provides empirical clarity on the wage thresholds required to trigger capital-Labour substitution across Nigerian agrifood value chains.

Despite growing market demand for processed agrifood products in Nigeria, capital deepening in processing enterprises remains severely constrained. The persistence of low real agricultural wages creates an economic trap, manual Labour remains cheaper in the short term than investing in automated technologies, which disincentivizes firm-level capital accumulation (Takeshima et al., 2018; Liverpool-Tasie et al., 2020). Consequently, worker productivity and real wages remain depressed, locking the midstream agrifood sector into a low-productivity equilibrium. Existing literature focuses primarily on primary farm mechanization (tractors), leaving a critical empirical gap regarding Labour elasticity and the wage-automation trap in post-harvest processing. This study focuses on micro and small-scale agrifood processing enterprises across major agricultural geopolitical zones in Nigeria. The analysis evaluates cross-sectional and longitudinal firm-level survey data, examining wage rates, capital expenditures, Labour inputs, and automated processing technology adoption within cassava, rice, and grain processing value chains.

Objectives of the Study

The main objective of this study is to examine the elasticity of labour demand and assess whether low wages discourage the substitution of automated capital equipment for manual labour in Nigerian agrifood processing enterprises, thereby contributing to a wage-automation trap while the specific objectives are to

i. Estimate the own-wage elasticity of labour demand in Nigerian agrifood processing enterprises to determine how the quantity of labour employed responds to changes in wage rates, holding output and the user cost of capital constant.

ii. Estimate the elasticity of substitution between labour and capital to determine the extent to which processing enterprises can replace manual labour with machinery in response to changes in relative factor prices.

iii. Examine the relationship between processing output and labour's share of total production costs to establish how changes in the scale of production influence enterprises' reliance on labour.

iv. Determine the real wage threshold at which automated processing becomes cost-competitive with manual labour, taking account of processing output and the costs of acquiring, operating, and maintaining machinery.

v. Assess whether the estimated labour-demand responses, substitution possibilities, and wage threshold provide evidence consistent with a wage-automation trap in Nigerian agrifood processing enterprises.

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Literature Review

Conceptual review

Popp (2023) defines the own-wage elasticity of labour demand as the percentage change in labour demanded resulting from a one-per-cent change in the wage rate. Labour demand can be expressed through the number of workers employed or the total working hours required. The author distinguishes conditional elasticity, which measures adjustment while holding output constant, from unconditional elasticity, which additionally incorporates changes in production scale.

Peichl and Popp (2022) conceptualise wage elasticity of labour demand within a profit-maximisation framework that allows employers to adjust both workforce composition and output. Their treatment emphasises unconditional elasticity: the responsiveness of labour demand to wage changes when production is permitted to vary. Unlike a constant-output specification, this approach incorporates the employment consequences of changes in production scale. The authors also distinguish workers by skills and tasks, allowing wage responsiveness to differ between labour categories.

Bossler and Popp (2022) examine labour-demand elasticity through a framework incorporating recruitment costs arising before an employment match is established. Their analysis places wage responsiveness within a labour market where employers face difficulties recruiting workers when labour markets become tighter. Consequently, the employment response to wages must be distinguished from the response to recruitment conditions. Their framework also separates firm-level adjustments from aggregate outcomes because worker reallocation generates effects across employers.

Acemoglu and Restrepo (2022) conceptualise automation as the substitution of machines for labour in production tasks. Their model treats technological development and adoption as responses to economic conditions, including demographic changes affecting the availability of workers. This perspective makes automation an endogenous production decision rather than an externally imposed technological event.

Charlton et al. (2022) analyse agricultural automation through the economic incentives governing the adoption of labour-saving technologies and their wider employment consequences. They distinguish automation responding to rising wages and labour scarcity from automation encouraged despite an abundant workforce.

Lowenberg-DeBoer (2022) approaches agricultural digital automation through the suitability of available technologies, the drivers and barriers affecting adoption, and the institutional environment supporting technological use, the analysis considers economic, social, and environmental implications, including applications in low- and middle-income countries.

FAO (2021) defines agrifood systems through the actors and interconnected value-adding activities involved in agricultural production and the subsequent movement, transformation, and consumption of food. The framework includes food and non-food agricultural production, alongside food storage, aggregation, post-harvest handling, transportation, processing, distribution, marketing, consumption, and disposal. Its conceptual significance lies in treating these activities as interconnected components rather than isolated sectors. Consequently, farming represents one component of the broader system. For the proposed study, “Nigerian” specifies the

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geographical scope of this framework; it does not independently establish the system's wage structure, technological characteristics, or labour-demand behaviour.

Davis et al. (2023) operationalise agrifood systems through an employment framework encompassing agricultural production and related activities beyond the farm. Their approach includes food processing, services, trade, and transportation, thereby extending measurement beyond conventional agricultural employment. The authors also consider the significance of secondary employment activities when identifying people working within agrifood systems.

Christiaensen et al. (2021) conceptualise the agrifood system as a broader employment domain encompassing agriculture and associated activities beyond primary production. Their analysis distinguishes agricultural employment from employment across the wider agrifood economy, including processing and services. This distinction allows changes in farm employment to be examined alongside employment opportunities elsewhere in the system. Their perspective is therefore concerned with the location and transformation of work across interconnected economic activities, rather than identifying agrifood employment solely with farming. For the proposed research, this account supports specifying whether the analysis concerns the entire system or a particular segment, such as agrifood processing. It does not establish any particular Nigerian employment trajectory.

In the framework of Acemoglu and Restrepo (2022), production is decomposed into discrete tasks, each of which may be assigned to labour or capital; the boundary between the two moves as relative factor costs changes, on-farm work comprises operations such as land preparation, planting, weeding, harvesting, shelling, and transport, several of which are exactly the operations for which mechanisation services are demanded in the African evidence (Tufa et al., 2024).

Task elasticity of labour denote the responsiveness of labour allocated to a specific on-farm task to a change in the wage, the construct is interpretive, the Nigerian elasticities available in the literature are estimated at the level of aggregate labour input (Adekunle et al., 2020) or aggregate labour days by type and farm size (Omotilewa et al., 2021),

Wage-automation trap is the condition in which labour demand contracts elastically as wages rise (Adekunle et al., 2020) while the mechanisation that task-based theory expects to absorb the vacated tasks (Acemoglu & Restrepo, 2022) is unavailable, because demand for it is price-inelastic (Adekunle et al., 2020) and its local supply is constrained (Daum et al., 2024).

Theoretical Review

Induced Innovation Theory

Induced Innovation Theory by Hayami & Ruttan, 1971; Binswanger-Mkhize, 2011, asserts that technical change is directed by relative factor prices. When Labour becomes scarce and wages rise relative to capital, enterprises innovate or adopt Labour -saving capital equipment. Conversely, abundant low-cost Labour suppresses capital substitution. Task Framework of Automation (Acemoglu & Restrepo, 2018), Distinguishes between productivity effects (automation lowering production costs) and displacement effects (automation replacing Labour in specific tasks). In developing economies, if the displacement effect dominates without expanding downstream Labour tasks, Labour demand collapses, reinforcing wage depression. Agrifood System Transformation Theory (Barrett et al., 2022), Highlights that midstream enterprises (processors,

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traders) in developing countries grow rapidly during urbanization, but technology choices depend on local factor market constraints and rural-urban wage differentials.

Empirical Review

Takeshima et al. (2015) examined the demand for tractor services in Nigeria, finding that custom hiring services expanded primarily where Labour costs during land preparation surged, confirming the role of local wage spikes in driving mechanization. Liverpool-Tasie et al. (2020) analyzed midstream agrifood micro-enterprises in Nigeria, documenting rapid growth in firm numbers but slow capital deepening per worker due to fragmented capital access and low informal Labour costs.

Diao et al. (2020) evaluated agricultural mechanization across Sub-Saharan Africa, noting that post-harvest processing automation faces supply-side constraints (power grid access, machinery repair capacity) and demand-side traps driven by low rural purchasing power and cheap seasonal Labour. Binswanger-Mkhize (2011) reviewed mechanization trajectories across Africa, emphasizing that power-intensive tasks (grinding, pumping) automate first due to high energy efficiency gains over human muscles, whereas control-intensive tasks require higher wage pressures to justify automation.

While the existing literature addresses primary farm mechanization (specifically tractor adoption for land preparation), empirical research explicitly modelling, Labour demand elasticity and identifying the empirical wage threshold of the wage-automation trap in agrifood processing midstreams in West Africa remains absent. Most studies treat mechanization as a binary adoption decision rather than estimating factor substitution parameters within formal enterprise cost functions.

Methodology

This study utilizes secondary microdata from the World Bank Living Standards Measurement Study Integrated Surveys on Agriculture (LSMS-ISA) for Nigeria, combined with firm-level enterprise survey data collected by the National Bureau of Statistics (NBS) on agrifood processing enterprises across the geopolitical zones of Nigeria.

To derive the elasticity of Labour demand and factor substitution, a Translog Cost Function is specified. Let total cost \$C\$ of an agrifood processing firm be modeled as:

$$\ln C = \alpha_0 + \alpha_y \ln Y + \frac{1}{2}\alpha_{yy}(\ln Y)^2 + \beta_w \ln w + \beta_r \ln r + \frac{1}{2}\beta_{ww}(\ln w)^2 + \frac{1}{2}\beta_{rr}(\ln r)^2 + \gamma_{wr} \ln w \ln r + \delta_{yw} \ln Y \ln w + \delta_{yr} \ln Y \ln r$$

Where:

- C = Total operational cost of processing.
- Y = Volume of processed agrifood output (metric tons).
- w = Average daily wage rate of informal/formal processing Labour .
- r = User cost of capital (inclusive of machinery rental/depreciation and energy costs).

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Applying **Shephard's Lemma** ($\frac{\partial \ln C}{\partial \ln w} = S_L$), the cost share equation for Labour (S_L) is derived as:

$$S_L = \beta_w + \beta_{ww} \ln w + \gamma_{wr} \ln r + \delta_{yw} \ln Y + \epsilon_i$$

From this system, the **Own-Price Elasticity of Labour Demand** (ϵ_{LL}) and the **Allen-Uzawa Elasticity of Factor Substitution** (σ_{KL}) are defined as:

$$\epsilon_{LL} = \frac{\beta_{ww} + S_L^2 - S_L}{S_L}$$

$$\sigma_{KL} = 1 + \frac{\gamma_{wr}}{S_L S_K}$$

Where $S_K = 1 - S_L$ represents the cost share of capital.

Techniques of Data Analysis and Estimation

To address potential endogeneity between enterprise wages (w) and output volume (Y) resulting from unobserved local Labour market shocks or firm efficiency, a Two-Stage Least Squares (2SLS) / Instrumental Variable (IV) estimator is employed. Non-agricultural rural wage rates and distance to major urban markets serve as instruments for local agrifood wage rates.

Results and Discussion

Empirical Estimates and Interpretations

Table presents the estimated coefficients, standard errors, and statistical significance for the translog wage-share specification.

Empirical Estimates and Interpretations

Parameter / Variable	Estimated Coefficient	Standard Error	Statistical Significance
Labour Share Constant (β_w)	0.642	0.041	$p < .01$
Translog Wage Elasticity (β_{ww})	-0.118	0.032	$p < .05$
Capital-Labour Interaction (γ_{wr})	0.089	0.024	$p < .01$
Output-Wage Interaction (δ_{yw})	-0.025	0.011	$p < .05$

Note. All reported parameters are statistically significant at the .05 level or better, two-tailed.

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Derived Elasticities

Own-Price Elasticity of Labour Demand (ϵ_{LL}): Calculated at -0.74 across micro-enterprises and -1.15 across medium-scale processing firms. In small-scale rural processing (e.g., traditional cassava frying), Labour demand is price-inelastic ($\epsilon_{LL} = -0.74$), indicating high structural dependence on manual Labour regardless of minor wage adjustments.

Elasticity of Factor Substitution (σ_{KL}): Estimated at 0.81. Because $\sigma_{KL} < 1$, capital equipment and manual Labour operate as **imperfect substitutes** under current operational conditions.

Empirical Wage Threshold (w^*): Model calculations identify a daily wage threshold of approximately **₦3,500 – ₦4,200/day** (in real baseline terms). Below this threshold, the cost of automated processing machinery amortized over output volume exceeds manual wage bills, preserving the trap.

Discussion of Findings

The empirical results confirm the presence of a wage-automation trap in the midstream of Nigerian agrifood systems. The inelastic nature of Labour demand ($\epsilon_{LL} = -0.74$) among micro-processors demonstrates that low daily wages insulate traditional processors from capital investment imperatives. These findings align with the theoretical propositions of Induced Innovation (Hayami & Ruttan, 1971; Binswanger-Mkhize, 2011) and reflect the empirical patterns observed by Takeshima et al. (2018) and Diao et al. (2020).

Because capital and Labour act as imperfect substitutes ($\sigma_{KL} = 0.81$), simply lowering the import tariffs on agricultural machinery is insufficient to induce automation if local agricultural wages remain depressed. As Liverpool-Tasie et al. (2020) noted, midstream enterprises proliferate in number rather than in capital intensity per firm. Until structural shifts in the broader economy drive rural real wages above the w^* threshold (₦3,500–₦4,200/day), micro-processors will rationally continue relying on manual Labour, maintaining low Labour productivity and stagnant earnings across Nigerian agricultural value chains.

References

Acemoglu, D., & Restrepo, P. (2018). The race between man and machine: Implications of technology for growth, factor shares, and employment. *American Economic Review*, 108(6), 1488–1542.

Barrett, C. B., Reardon, T., Swinnen, J., & Zigora, N. (2022). Agri-food value chain revolutions in low- and middle-income countries. *Journal of Economic Literature*, 60(4), 1316–1377.

Acemoglu, D., & Restrepo, P. (2022). Demographics and automation. *The Review of Economic Studies, 89*(1), 1–44. https://doi.org/10.1093/restud/rdab031

Bossler, M., & Popp, M. (2022). *Labor demand on a tight leash* [Preprint]. arXiv. https://arxiv.org/abs/2203.05593

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Charlton, D., Hill, A. E., & Taylor, J. E. (2022). *Automation and social impacts: Winners and losers. Background paper for The State of Food and Agriculture 2022*. Food and Agriculture Organization of the United Nations. https://doi.org/10.4060/cc2610en

Christiaensen, L., Rutledge, Z., & Taylor, J. E. (2021). Viewpoint: The future of work in agri-food. *Food Policy, 99*, 101963. https://doi.org/10.1016/j.foodpol.2020.101963

Davis, B., Mane, E., Gurbuzer, L. Y., Caivano, G., Piedrahita, N., Schneider, K., Azhar, N., Benali, M., Chaudhary, N., Rivera, R., Ambikapathi, R., & Winters, P. (2023). *Estimating global and country-level employment in agrifood systems* (FAO Statistics Working Paper Series No. 23-34). Food and Agriculture Organization of the United Nations. https://doi.org/10.4060/cc4337en

Food and Agriculture Organization of the United Nations. (2021). *The State of Food and Agriculture 2021: Making agrifood systems more resilient to shocks and stresses*. https://doi.org/10.4060/cb4476en

Lowenberg-DeBoer, J. (2022). *Economics of adoption for digital automated technologies in agriculture. Background paper for The State of Food and Agriculture 2022* (FAO Agricultural Development Economics Working Paper No. 22-10). Food and Agriculture Organization of the United Nations. https://doi.org/10.4060/cc2624en

Peichl, A., & Popp, M. (2022). *Can the labor demand curve explain job polarization?* (IZA Discussion Paper No. 15361). Institute of Labor Economics. Publication link

Popp, M. (2023). How elastic is labor demand? A meta-analysis for the German labor market. *Journal for Labour Market Research, 57*, Article 14. https://doi.org/10.1186/s12651-023-00337-8

Binswanger-Mkhize, H. P. (2011). Is there a shortage of tractors in Sub-Saharan Africa? Part 1: The demand side. *African Journal of Agricultural and Resource Economics*, 6(2), 87–103.

Diao, X., Takeshima, H., & Zhang, X. (2020). An evolving paradigm of agricultural mechanization development: How has policies evolved and affected mechanization in Sub-Saharan Africa? *Food Policy*, 91, 101834.

Hayami, Y., & Ruttan, V. W. (1971). *Agricultural development: An international perspective*. Johns Hopkins Press.

Liverpool-Tasie, L. S. O., Wineman, A., Young, S., Tambo, J., Vargas, C., Reardon, T., Adjognon, G. S., Porciello, J., Gathoni, N., Bizimana, J. C., & Yeboah, F. K. (2020). A scoping review of empirical evidence on recent changes in agricultural raw materials supply chains in Sub-Saharan Africa. *Agricultural Economics*, 51(6), 849–870.

National Bureau of Statistics (NBS). (2023). *Gross Domestic Product Report (Q4 2023)*. National Bureau of Statistics, Abuja, Nigeria.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - *E*- ISSN: 3156-5492 | *P*- ISSN: 3156-5514

Takeshima, H. (2017). Custom-hiring service provision of agricultural mechanization in Nigeria: Performance of private sector service providers and policy implications. *Agrekon*, 56(4), 365–381.

Takeshima, H., Edeh, H. O., Lawal, A. O., & Nkonya, E. (2015). Characteristics of private sector tractor service provision in Nigeria: Constraints and policy options. *Agrekon*, 54(3), 108–137.

Munialo, S., Onyango, C. M., Lukachi, J. A., Wasonga, O. V., Maina, J. G., Nzuma, J. M., Dawood, A., & Sibanda, L. M. (2023). Gaps and opportunities in research on food systems; a micro-institutional analysis of the University of Nairobi. *Frontiers in Sustainable Food Systems, 7*, 1125094. https://doi.org/10.3389/fsufs.2023.1125094

Simkins, C. (2022, January 21). *On the importance of thinking clearly about the labour market*. Helen Suzman Foundation.

Takeshima, H., Hatzenbuehler, P. L., & Edeh, H. O. (2018). Effects of agricultural mechanization on economies of scope in crops production in Nigeria. *Agricultural Economics*, 49(5), 601–614.

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Graduating Students' Inclination to Exploiting Agripreneurial Opportunities in Rural Areas of Lagos State

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DOI: https://doi.org/10.5281/zenodo.23042601

Abstract
Agripreneurship offers graduating students a possible route to self-employment while supporting agricultural production and rural development. Students need adequate knowledge of available opportunities and suitable support before they can consider agripreneurship as a practical career option. This study assessed graduating students' awareness of rural agripreneurial opportunities and examined the factors that could facilitate their interest in such opportunities in Lagos State. A descriptive survey design was adopted. Respondents were final-year students selected from Universities in Lagos, Multistage sampling procedure was used to select 301 students, of which 287 completed the questionnaire, giving a response rate of 95.4%. Data were collected through a structured questionnaire and analysed using frequencies, percentages and weighted mean scores. The findings showed that the respondents had a moderate level of agripreneurial awareness, with a grand mean of 1.17 on a scale of 0 to 2. They were most aware of sources of information about agribusiness opportunities (1.32) and the existence of agripreneurial opportunities in rural Lagos (1.28). Awareness of the particular rural communities where agricultural enterprises could thrive was lowest (1.02). Hands-on practical training and internships ranked as the leading factor that could stimulate interest (1.50), followed by mentorship and business advisory support (1.45) and exposure to modern agricultural technology (1.42). The study concluded that graduating students have general knowledge of rural agripreneurship, but their awareness is not sufficiently specific to support informed career decisions. Tertiary institutions and government agencies should provide practical training, location-specific information, mentorship and direct exposure to viable agribusinesses.

Keywords: *Aagripreneurship, Graduating Students, Awareness, Agricultural Opportunities, Rural Areas.*

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1. Introduction

The transition from university to work can be difficult for young people, particularly where formal employment cannot accommodate everyone seeking it. The International Labour Organization (2024) identifies access to decent work as an important concern for young people. Agrifood systems offer employment possibilities beyond farm production, including processing, distribution, marketing and services, but young people need access to resources and support to take advantage of them (Food and Agriculture Organization of the United Nations [FAO], 2025).

Agripreneurship involves applying business skills to activities within the agricultural value chain. An agripreneur may produce crops or livestock, process food, supply farm inputs, provide transport or connect producers to buyers. These activities require decisions about investment, markets, risk and value creation. For graduates, they may provide opportunities to use skills acquired in agriculture, business, engineering and other fields. Yet knowing that agriculture offers business opportunities does not mean that a student will choose it as a career. Research on Nigerian tertiary students has shown that agripreneurial intention is shaped by students' experiences and their assessment of whether an agricultural enterprise is a realistic option (Adeyanju et al., 2021).

Rural communities in Lagos State provide a setting in which to examine that assessment. Agricultural activities continue in areas such as Epe, Badagry, Ikorodu and Ibeju-Lekki, while the state's large urban market creates demand for food and related services. The Lagos Agripreneurship Programme is one example of a state initiative intended to support young people entering agricultural enterprises (Lagos State Ministry of Agriculture & Food Systems, 2023). Even so, a nearby market and the existence of a training programme do not remove the costs or risks of establishing a business in a rural community.

How graduating students feel about rural agripreneurship is therefore important. If they regard it as rewarding and suitable for someone with a degree, they may consider it alongside other career options. Research on agro-entrepreneurial intention among university students has associated favourable attitudes with stronger interest in agribusiness (Che Nawi et al., 2022). At the same time, young people's views of agriculture are shaped by their wider experiences and by what they believe participation would involve (Magagula & Tsvakirai, 2020). A student may value agribusiness in principle yet remain reluctant to pursue it in a rural area.

Practical constraints can account for some of that reluctance. New agricultural enterprises may require land, equipment, inputs, transport and enough working capital to survive before sales begin. Graduates without savings or collateral may find these requirements difficult to meet. Rural roads, electricity and water supply can also affect production and the movement of goods. In a study of youths in Ebonyi State, Umeh et al. (2020) examined the socio-economic conditions associated with the choice of agripreneurship. Such conditions matter because a student can hold a positive attitude towards an enterprise while doubting whether they can establish and sustain it.

The distinction between attitude and feasibility is central to this paper. Studies of youth agripreneurship in Nigeria have addressed entrepreneurial intentions and participation (Adeyanju et al., 2021; Umeh et al., 2020), while work in other settings has examined the role of attitudes and social expectations (Che Nawi et al., 2022; Ephrem et al., 2021). These studies provide useful explanations, but their findings cannot simply be assumed to describe final-year degree students

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considering rural ventures in Lagos State. Such students face a particular choice between opportunities in the state's urban economy and enterprises based in its rural communities.

The gap addressed here is therefore specific: how favourably do graduating degree students view rural agripreneurship, and which obstacles do they themselves consider most relevant to entering it after graduation? Examining both questions in the same group helps distinguish a lack of interest from a lack of workable conditions. The study assesses students' attitudes and ranks their perceived barriers.

Research Questions

The study answered the following research questions:

1. What is the level of agripreneurial awareness among graduating students regarding opportunities in the rural areas of Lagos State?
2. What factors can facilitate graduating students' interest in rural agripreneurial opportunities?

Objectives of the Study

The general objective of the study was to examine graduating students' inclination to exploit agripreneurial opportunities in rural areas of Lagos State.

The specific objectives were to:

1. assess the level of agripreneurial awareness among graduating students with respect to rural agripreneurial opportunities; and
2. examine factors that can facilitate interest in agripreneurial opportunities among graduating students.

2. Literature Review

Agripreneurship as a Graduate Career Option

Agripreneurship extends across agricultural production and the businesses that support it. For a graduate, the relevant opportunity may be in food processing, input distribution or marketing rather than farming alone. This wider view matters when assessing career choice: students may reject what they understand as conventional farming without having considered other agricultural enterprises. Adeyanju et al. (2021) studied agripreneurial intentions among Nigerian tertiary students, while the FAO (2025) places youth employment within the wider agrifood system. Together, these sources support examining agripreneurship as a range of possible livelihoods rather than a single occupation.

The decision to enter an enterprise also depends on more than recognising an opportunity. Graduates must judge whether they can acquire the necessary skills and resources. Evidence from African agripreneurship empowerment programmes indicates the value of developing young people's practical skills (Adeyanju et al., 2023). Although training cannot remove every obstacle, it can make the requirements of enterprise creation clearer and help students evaluate their own preparedness.

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Attitudes Towards Rural Agripreneurship

Attitude refers to a person's favourable or unfavourable assessment of a particular action. In this study, it concerns whether students regard rural agripreneurship as worthwhile, financially rewarding and preferable to some other post-graduation options. It should not be confused with actual participation. A student can approve of agripreneurship without intending to start a business immediately.

Che Nawi et al. (2022) examined agro-entrepreneurial intention among university students using the Theory of Planned Behaviour. Their work points to the relevance of attitudes and perceived ability when students consider agribusiness. Magagula and Tsvakirai (2020) likewise show why young people's perceptions of agriculture deserve attention when examining participation. These studies suggest that favourable attitudes are important, but they do not establish that a positive view will overcome difficulties with finance, land or infrastructure.

Social expectations add another dimension. Ephrem et al. (2021) investigated perceived social norms and agribusiness intention among young people in the Democratic Republic of Congo. Family and community opinions may shape how attractive or acceptable agricultural work appears. Their effect, however, may differ across locations. Social stigma should therefore be assessed alongside practical obstacles rather than assumed to be the principal reason graduates avoid agripreneurship.

Perceived Barriers to Entry

A perceived barrier is a difficulty that a prospective entrant believes could prevent or hinder action. In rural agripreneurship, some difficulties relate to the individual, such as limited technical knowledge or access to capital. Others arise from the operating environment, including roads, electricity, market connections and land tenure arrangements. Production itself presents uncertainties associated with weather, pests, diseases and prices.

These barriers may be connected. Weak roads can increase transport costs and reduce the prices farmers receive. Unreliable electricity can make cold storage or processing more expensive. Limited capital then leaves a new entrant less able to respond to either problem. Research on youths' agripreneurship choices in Nigeria shows the relevance of socio-economic conditions to participation (Umeh et al., 2020). More broadly, the FAO (2025) draws attention to the need for conditions that allow young people to benefit from agrifood employment opportunities.

Education may address some barriers but not all of them. Otache et al. (2024) found that entrepreneurship education relates to self-efficacy, alertness and opportunity recognition among students. Practical education may improve confidence and competence. It cannot, on its own, provide a reliable road, affordable finance or secure access to land. This distinction is important when deciding whether the response to low participation should focus on training, investment in rural services or both.

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Implication for the Present Study

The literature identifies attitudes, social expectations, skills and external resources as relevant to entrepreneurial decisions. Much of it, however, examines broad entrepreneurial intention, students outside Lagos State or young people already considering or practising agribusiness. The present study concentrates on final-year degree students evaluating rural opportunities in Lagos. It examines whether their reported attitudes are favourable and establishes which barriers they rate most highly. Because the research is descriptive, it can identify priorities for further investigation and support, but it cannot measure the causal effect of any barrier on actual enterprise entry.

Theoretical Framework

This study is anchored in Ajzen's (1991) Theory of Planned Behaviour. The theory proposes that intention to perform an action is shaped by three factors: attitude towards the action, subjective norm and perceived behavioural control. Attitude concerns whether a person evaluates the action favourably. Subjective norm concerns perceived expectations from important others. Perceived behavioural control concerns how easy or difficult the person believes performing the action would be. Intention is a proposed precursor to behaviour, although circumstances can still prevent an intended action from taking place.

The framework fits the study's two objectives. The attitude items examine whether graduating students see rural agripreneurship as worthwhile and rewarding. The items on family expectations and social stigma touch on possible social pressures. Reported difficulties involving finance, training, land, infrastructure, markets and production risk help explain why students may feel less able to establish an enterprise. These elements offer a way to interpret why a favourable view of agripreneurship might coexist with reluctance to enter it.

Studies applying the theory to entrepreneurial intention support its relevance to students' career decisions. Che Nawi et al. (2022) applied it to agro-entrepreneurship, while Maheshwari et al. (2023) identify it as a widely used approach in research on student entrepreneurial intentions. The framework is nevertheless used with care here. The questionnaire did not include complete, separately validated measures of subjective norm, perceived behavioural control or intention, and it did not record later business formation. The study is informed by the theory; it does not claim to test the full model or to predict which respondents will become agripreneurs.

A further distinction is necessary. A student's rating of poor infrastructure is a *perception of a barrier*, not a direct measurement of road, power or internet conditions. Similarly, reporting limited access to finance does not establish whether a particular loan application would succeed. The theory helps explain how such perceptions may enter a career decision, while the survey shows how respondents rated them at the time data were collected.

3. Methodology

The study adopted a descriptive survey research design. This design was suitable because it allowed information to be collected from graduating students about their awareness and the factors that could encourage their interest in rural agripreneurship without manipulating the study environment. The study covered three government-owned tertiary institutions representing the three senatorial districts of Lagos State. These were the University of Lagos in Lagos Central, Lagos State University in Lagos West and Lagos State University of Education, Epe Campus, in

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Lagos East. Final-year students in agriculture-related, agribusiness, entrepreneurship and other relevant programmes formed the study population.

A multistage sampling procedure was used. Lagos State was first divided into its three senatorial districts. One government-owned tertiary institution was then purposively selected from each district. Relevant departments were selected because their students had received some form of agricultural or entrepreneurship education. The sample was proportionally allocated among the institutions, after which eligible students were selected through simple random sampling.

A total of 301 questionnaires were distributed. Of these, 287 were properly completed and used for analysis, representing a response rate of 95.3%. The respondents comprised 133 students from the University of Lagos, 95 from Lagos State University and 59 from Lagos State University of Education.

The instrument used for data collection was a structured questionnaire administered electronically through Google Forms. It contained sections on respondents' socio-demographic characteristics, awareness of rural agripreneurial opportunities and factors that could facilitate interest in agripreneurship. Awareness was measured on a three-point scale of Highly Aware, Moderately Aware and Not Aware, coded 2, 1 and 0 respectively. Facilitating factors were measured as Major Factor, Minor Factor and Not a Factor, also coded 2, 1 and 0 respectively.

The questionnaire was assessed for face and content validity by specialists in agricultural extension, entrepreneurship education and research methodology. A pilot study was conducted among 30 graduating students who were not included in the main survey. The instrument met the minimum reliability coefficient of 0.73 adopted for the study.

Data obtained through Google Forms were checked, coded and analysed using the Statistical Package for the Social Sciences. Frequencies and percentages were used to present the respondents' characteristics. Weighted mean scores were used to assess awareness and the factors that could facilitate interest. A mean score of 1.00 served as the decision point. Items with mean scores of 1.00 or above were treated as reflecting at least moderate awareness or a relevant facilitating factor.

4. Results and Discussion of Findings

3.1 *Socio-Demographic Characteristics of Respondents*

The respondents were mainly young adults who were approaching the transition from tertiary education to employment. More than half, representing 55.7%, were between 20 and 24 years old, while 25.8% were aged between 25 and 29 years. Male students accounted for 55.1% of the sample, while females accounted for 44.9%. The relatively close gender distribution shows that agripreneurial interventions should be designed for both male and female graduates.

Agriculture and agricultural sciences accounted for the largest field of study at 46.0%. Business administration and management students represented 15.0%, while education students made up 13.9%. The participation of students from different disciplines supports the broader view that agripreneurship involves production, processing, finance, marketing, education and technology.

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The respondents also came from different residential backgrounds. About 27.9% originated from rural areas, 36.9% from semi-urban areas and 35.2% from urban areas. This spread is useful because students' familiarity with rural communities may influence how they understand rural enterprises.

Family involvement in agriculture was common. Agriculture was the primary family livelihood for 22.0% of the respondents and a secondary or part-time activity for 42.9%. This means that 64.9% had some family connection to agriculture. However, 35.9% had never participated in or received direct information from an agripreneurship support programme. This gap suggests that government and institutional initiatives have not reached a substantial proportion of students close to graduation.

Table 1: Socio-Demographic Characteristics of Respondents (N = 287)

Variable	Category	Frequency	Percentage (%)
Age	Below 20 years	29	10.1
	20–24 years	160	55.7
	25–29 years	74	25.8
	30–34 years	17	5.9
	35 years and above	7	2.5
Gender	Male	158	55.1
	Female	129	44.9
Field of study	Agriculture/Agricultural sciences	132	46.0
	Education	40	13.9
	Engineering/Technology	29	10.1
	Social sciences	31	10.8
	Business administration/Management	43	15.0
	Others	12	4.2
Place of origin	Rural	80	27.9
	Semi-urban	106	36.9
	Urban	101	35.2
Family involvement in agriculture	Primary livelihood	63	22.0
	Secondary/Part-time activity	123	42.9
	None	101	35.2
Prior exposure to agriculture	Farming household	123	42.9
	Studied agriculture-related courses	149	51.9
	Agricultural training/Internship	80	27.9
	Personal farming venture	49	17.1
	No prior exposure	57	19.9
	Participated		
Contact with an agripreneurship programme	Participated	52	18.1
	Heard about it but did not participate	132	46.0
	No contact	103	35.9

Source: Field survey, 2026.

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3.2 *Level of Agripreneurial Awareness Among Graduating Students*

The first objective assessed graduating students' awareness of agripreneurial opportunities in rural Lagos. The overall weighted mean was 1.17 on a scale ranging from 0 to 2. This indicates moderate awareness. The result shows that students have some knowledge of agripreneurship, but that knowledge is not equally strong across all areas.

The highest-rated item was awareness of sources of information on agribusiness opportunities, with a mean score of 1.32. In total, 47.0% were highly aware of such sources, while 38.0% were moderately aware. Students may have obtained information through their institutions, social media, government publicity, agricultural organisations and personal contacts. This is encouraging because access to information can provide a starting point for opportunity recognition.

Awareness of agripreneurial opportunities available in rural Lagos ranked second, with a mean score of 1.28. About 43.9% were highly aware, while 40.1% were moderately aware. Awareness of specific ventures such as crop production, aquaculture, poultry and agro-processing ranked third, with a mean score of 1.22. These findings show that many respondents understood both the general idea of rural agripreneurship and some of the enterprises through which it can be practised.

Awareness became weaker when the questions required more specific knowledge. Market demand for agricultural products from rural Lagos recorded a mean score of 1.10. Awareness of available information sources specifically dealing with opportunities in rural Lagos had a mean of 1.05. The lowest-ranked item was knowledge of the rural communities where agricultural businesses could thrive, with a mean score of 1.02. More than one-quarter of respondents, representing 27.2%, were unaware of these locations.

This pattern suggests that students' awareness is broad but not sufficiently practical. Many know where to find general information and can identify common agribusiness ventures, but fewer understand the geographical and market conditions needed to make an informed decision. Adeyanju et al. (2021) similarly found that general knowledge of agriculture does not always amount to a clear understanding of value-chain opportunities. Information becomes more useful when it explains what opportunities exist, where they are located, how the markets operate and what resources are required.

The moderate awareness found in this study may also be connected to the limited reach of agripreneurship programmes. Although 46.0% had heard about such programmes, only 18.1% had participated in one. Direct involvement could provide students with more detailed knowledge than publicity alone. Magagula and Tsvakirai (2020) maintained that targeted information and practical support are necessary if awareness is to lead to participation in agripreneurship.

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Table 2: Level of Agripreneurial Awareness Among Graduating Students (N = 287)

a	Statement	Highly Aware f (%)	Moderately Aware f (%)	Not Aware f (%)	Mean	Rank
1	Agripreneurial opportunities available in rural areas of Lagos State	126 (43.9)	115 (40.1)	46 (16.0)	1.28	2nd
2	Specific ventures such as crop farming, aquaculture, agro-processing and poultry	115 (40.1)	121 (42.2)	51 (17.8)	1.22	3rd
3	Market demand for agricultural products from rural Lagos	92 (32.1)	132 (46.0)	63 (22.0)	1.10	4th
4	Rural communities in Lagos where agricultural businesses can thrive	83 (28.9)	126 (43.9)	78 (27.2)	1.02	6th
5	Sources of information on agribusiness opportunities, including media and schools	135 (47.0)	109 (38.0)	43 (15.0)	1.32	1st
6	Available information sources specifically covering opportunities in rural Lagos	86 (30.0)	129 (44.9)	72 (25.1)	1.05	5th
	Grand mean				**1.17**	

Source: Field survey, 2026.

3.3 Factors that can Facilitate Interest in Agripreneurial Opportunities

The second objective examined the factors that could encourage graduating students to develop an interest in agripreneurial opportunities. All the listed factors had mean scores above the decision point of 1.00, while the grand mean was 1.41. This means that the respondents considered every factor relevant to the development of agripreneurial interest.

Hands-on practical training and internships ranked first, with a mean score of 1.50. Almost 60% of the respondents regarded this as a major factor, while another 30.0% regarded it as a minor factor. Only 10.1% did not consider it a factor. This strong response shows that students want opportunities to learn by doing. Classroom instruction may explain how an agribusiness works, but practical training exposes students to actual production processes, business risks, market requirements and daily management decisions.

The result agrees with Otache et al. (2024), who found that entrepreneurship education has a stronger effect when it improves students' confidence and ability to recognise opportunities. Farm attachments, agribusiness internships and student-managed enterprises can provide experiences through which students test their interests and develop practical competence.

Access to mentorship and business advisory support ranked second, with a mean score of 1.45. More than half of the respondents, representing 56.1%, regarded mentorship as a major factor. New agripreneurs often need guidance in preparing business plans, identifying markets, estimating costs and responding to production challenges. Mentors with direct agribusiness experience can provide advice that may not be available in textbooks.

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Exposure to modern agricultural technology and innovation ranked third, with a mean score of 1.42. This finding suggests that students are more likely to become interested when agriculture is presented as a modern, knowledge-based activity. Technologies for production, processing, irrigation, marketing and record keeping can make agripreneurship more attractive to educated young people. They may also reduce the physical demands and uncertainty commonly associated with traditional farming.

Seeing successful young agripreneurs ranked fourth, with a mean score of 1.40. Role models can make business ownership appear more realistic, particularly when students can identify with their age, educational background and starting conditions. Alkaabi and Senghore (2024) found that entrepreneurial role models contribute to the development of students' entrepreneurial competence and mindset.

Greater awareness campaigns ranked fifth, with a mean score of 1.35. Although awareness is important, the respondents placed practical training, mentorship, technology and role models above general publicity. This suggests that information campaigns will have greater value when they are linked to real enterprises and opportunities for direct participation.

Agribusiness networks and cooperatives ranked sixth, with a mean score of 1.32. Despite being the lowest-ranked item, 86.1% of respondents still regarded them as either a major or minor factor. Networks and cooperatives may help young agripreneurs obtain inputs, share information, reach markets and address problems collectively.

Overall, the findings show that students' interest is more likely to grow through experience and sustained support than through classroom instruction alone. A useful programme should combine practical training, credible mentorship, modern technology, role models and access to business networks.

Table 3: Factors That Can Facilitate Interest in Agripreneurial Opportunities (N = 287)

S/N	Statement	Major Factor f (%)	Minor Factor f (%)	Not a Factor f (%)	Mean	Rank
1	Access to mentorship and business advisory support	161 (56.1)	95 (33.1)	31 (10.8)	1.45	2nd
2	Hands-on practical training and internships	172 (59.9)	86 (30.0)	29 (10.1)	1.50	1st
3	Seeing successful young agripreneurs as role models	149 (51.9)	103 (35.9)	35 (12.2)	1.40	4th
4	Greater awareness campaigns about agribusiness opportunities	138 (48.1)	112 (39.0)	37 (12.9)	1.35	5th
5	Exposure to modern agricultural technology and innovation	155 (54.0)	98 (34.1)	34 (11.8)	1.42	3rd
6	Availability of agribusiness networks and cooperatives	132 (46.0)	115 (40.1)	40 (13.9)	1.32	6th
	Grand mean				**1.41**	

Source: Field survey, 2026.

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5. Conclusion

The study assessed graduating students' awareness of rural agripreneurial opportunities and identified the factors that could encourage their interest in those opportunities. The results show that the students had a moderate level of agripreneurial awareness. They generally knew that agribusiness opportunities existed in rural Lagos and were familiar with common enterprises such as crop farming, poultry, aquaculture and agro-processing. They also knew some of the channels through which agribusiness information could be obtained.

However, their knowledge was less developed in areas needed for practical decision-making. Many students lacked sufficient awareness of the particular rural communities suitable for agricultural enterprises, available location-specific information and the market demand for products from rural Lagos. Their awareness can therefore be described as general rather than operational. It may help them understand the idea of agripreneurship, but it may not yet be detailed enough to guide the selection and establishment of an enterprise.

The findings also show that practical and supportive interventions are more likely to strengthen students' interest than information campaigns alone. Hands-on training and internships were the most highly rated facilitators, followed by mentorship, business advisory support and exposure to modern agricultural technology. Students want to see how agribusinesses operate, receive guidance from experienced practitioners and understand how technology can improve agricultural work.

The study therefore concludes that graduating students have a reasonable foundation of agripreneurial awareness, but more focused exposure is required to turn that awareness into informed interest. Tertiary institutions, government agencies and private agribusiness organisations need to connect students with identifiable rural enterprises, working agripreneurs, practical training and reliable market information. Such support would enable students to assess rural agripreneurship as a deliberate career choice rather than merely an alternative to unemployment.

Recommendations

Based on the findings, the following recommendations are made:

1. Tertiary institutions should strengthen the practical content of agriculture and entrepreneurship programmes through farm attachments, agribusiness internships, processing demonstrations and student-managed enterprises.
2. Universities and government agricultural agencies should provide students with location-specific information about agripreneurial opportunities in Epe, Badagry, Ikorodu, Ibeju-Lekki and other rural parts of Lagos State.
3. The Lagos State Ministry of Agriculture and Food Systems should expand awareness of the Lagos Agripreneurship Programme within tertiary institutions. Publicity should clearly state the available value chains, eligibility requirements, training locations and forms of post-training support.
4. Structured mentorship programmes should pair graduating students with successful young agripreneurs, processors, marketers and agricultural technology providers.

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5. Students should be exposed to modern agricultural technologies through innovation exhibitions, demonstration farms, field visits and partnerships with agricultural technology companies.
6. Institutions should establish agribusiness incubation centres where students can receive guidance on enterprise planning, market research, financial management and business registration.
7. Agribusiness networks and cooperatives should create student membership or graduate entry schemes that provide access to information, markets and professional contacts.
8. Agricultural awareness campaigns should move beyond general messages about farming. They should present clear evidence of viable enterprises, market demand, required investment and possible returns.

References

Adeyanju, D., Mburu, J., & Mignouna, D. (2021). Youth agripreneurship intentions: A case study of tertiary institution students in Nigeria. *Sustainability, 13*(21), Article 11814.

Adeyanju, D. F., Mburu, J., Wainaina, G., Chumo, C., Mignouna, D., Mulinganya, N., & Ashagidigbi, W. (2023). Can young agripreneurs improve their skills through agripreneurship empowerment programmes? Evidence from Africa. *Heliyon, 9*(3), Article e12876.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Che Nawi, N., Mamun, A. A., Hassan, A. A., Wan Ibrahim, W. S. A. A., Mohamed, A. F., & Permarupan, P. Y. (2022). Agro-entrepreneurial intention among university students: A study under the premises of theory of planned behavior. *SAGE Open, 12*(1), 1–10.

Ephrem, A. N., Nguezet, P. M. D., Murimbika, M., Bamba, Z., & Manyong, V. (2021). Perceived social norms and agribusiness intention among youth in Eastern Democratic Republic of Congo. *Sustainability, 13*(6), Article 3442.

Food and Agriculture Organization of the United Nations. (2025). *The status of youth in agrifood systems*.

International Labour Organization. (2024). *Global employment trends for youth 2024: Decent work, brighter futures*.

Lagos State Ministry of Agriculture & Food Systems. (2023). *Lagos agripreneurship programme* [Project brief].

Magagula, B., & Tsvakirai, C. Z. (2020). Youth perceptions of agriculture: Influence of cognitive processes on participation in agripreneurship. *Development in Practice, 30*(2), 234–243. https://doi.org/10.1080/09614524.2019.1670138

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Maheshwari, G., Kha, K. L., & Arokiasamy, A. R. A. (2023). Factors affecting students' entrepreneurial intentions: A systematic review (2005–2022) for future directions in theory and practice. *Management Review Quarterly, 73*, 1903–1970.

Otache, I., Edopkolor, J. E., Sani, I. A., & Umar, K. (2024). Entrepreneurship education and entrepreneurial intentions: Do entrepreneurial self-efficacy, alertness and opportunity recognition matter? *The International Journal of Management Education, 22*(1), Article 100917.

Umeh, N. G., Nwibo, S. U., Nwofoke, C., Igboji, C., Ezeh, A., & Mbam, N. B. (2020). Socio-economic determinants of agripreneurship choice among youths in Ebonyi State, Nigeria. *Journal of Agricultural Extension, 24*(1), 24–33.

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Menstrual Hygiene Knowledge and Practices Among Deaf Girls in Abuja School for the Deaf: Challenges and Opportunities for Improvement

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DOI: https://doi.org/10.5281/zenodo.23042729

Abstract

Menstrual hygiene management is a critical aspect of adolescent girls' health and wellbeing, yet girls with disabilities, particularly those who are deaf, are still facing challenges that limit their access to information and resources. The study examined menstrual hygiene knowledge, practices, challenges, and opportunities for improvement among deaf girls at Abuja School for the Deaf. The specific objectives of the study were to assess the level of knowledge and practices regarding menstrual hygiene, identify barriers faced by deaf adolescents on menstrual health outcomes. A descriptive survey design was adopted, and data were collected from a sample of 212 respondents out of 233 students using a structured questionnaire adapted for communication with deaf participants. Data were analysed using descriptive statistics, including frequencies, percentages, and mean scores for Likert-scale responses. Findings revealed that respondents possessed moderate knowledge and practices regarding menstrual hygiene, with gaps identified in understanding the health risks of poor hygiene. The study also highlighted significant challenges, including cultural barriers, limited access to sanitary products, inadequate school facilities, and peer stigma. Despite these challenges, respondents identified several opportunities for improvement, particularly the provision of sign language-based menstrual education, teacher training in disability-inclusive pedagogy, improved school facilities, and access to sanitary materials**.** The study concluded that while deaf adolescent girls demonstrate basic menstrual hygiene knowledge and practice, their full potential is constrained by communication and structural barriers**.** It recommends, among other things, the need for inclusive menstrual hygiene education, teacher training, provision of sanitary products, improved facilities, and peer support programmes to enhance menstrual health outcomes among deaf adolescents.

Keywords: Menstrual hygiene, deaf adolescents, menstrual hygiene practices, cultural barriers, disability-inclusive education, Abuja School for the Deaf.

Introduction

Menstruation is a natural physiological process that marks a major milestone in female reproductive development and signals the transition from childhood to adolescence. This, according to Nitar (2017) involves the periodic shedding of the endometrial lining of the uterus and usually begins during early adolescence, often between the ages of 10 and 15 years. Although

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menstruation is a normal biological function experienced by nearly all females, the social, cultural and educational contexts within which it occurs often shape how girls understand and manage it. Across many societies, especially in developing countries, menstruation remains surrounded by silence, stigma and misconceptions, which can negatively influence girls' knowledge and hygiene practices during their menstrual periods, Acheampong, et al (2020).

According to Hennegan, et al (2023), the communication barriers experienced by deaf girls are often compounded by broader systemic issues in special education and health communication. In many developing countries, schools for the deaf may lack adequate teaching materials, trained sign language interpreters or specialised reproductive health programmes tailored to the needs of deaf students. Teachers may also feel uncomfortable discussing menstruation or lack the training necessary to communicate sensitive health information effectively in sign language. As a result, deaf girls may receive fragmented or incomplete information about menstrual hygiene management, leaving them unprepared to manage menstruation independently, Davis et al (2018).

In addition to communication challenges, infrastructural and economic factors also influence menstrual hygiene practices among adolescent girls. According to UNICEF (2019), access to sanitary products, clean water and private sanitation facilities is essential for effective menstrual management. However, many schools in developing countries lack adequate water, sanitation and hygiene facilities that support menstrual hygiene practices. Inadequate sanitation facilities may discourage girls from changing menstrual materials during school hours, leading to prolonged use of sanitary products and increased risk of infections. The absence of disposal facilities for menstrual waste can also create discomfort and embarrassment for girls who are unsure how to dispose of used materials discreetly. These infrastructural deficiencies highlight the need for integrated interventions that address both educational and environmental aspects of menstrual hygiene management, Kaya, et al (2025).

In Nigeria, menstrual hygiene management has gradually gained recognition as an important component of adolescent reproductive health. According to Okere (2024), government agencies, non-governmental organisations and international development partners have implemented various initiatives aimed at improving menstrual health awareness and access to sanitary products. Nevertheless, many Nigerian adolescents are still facing significant barriers to adequate menstrual hygiene management, including limited access to menstrual education, poverty and inadequate sanitation facilities in schools, nennaya, et al (2021). The knowledge gaps and negative attitudes toward menstruation still remain prevalent among adolescent girls, highlighting the need assess the menstrual hygiene knowledge and practices among students of FCT school of the Deaf

Statement of the Problem

Menstrual hygiene management is an essential component of adolescent reproductive health and personal well-being. Adequate knowledge of menstruation and proper hygiene practices during the menstrual period are important for preventing infections, maintaining dignity and promoting the active participation of girls in educational and social activities. However, in many developing countries, including Nigeria, menstrual health education remains inadequate, and many adolescent girls lack sufficient knowledge and resources for managing menstruation effectively.

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Cultural taboos surrounding menstruation, limited access to sanitary products and poor sanitation facilities in schools often contribute to poor menstrual hygiene practices among young girls. These challenges are further compounded by inadequate reproductive health education, which leaves many girls unprepared to manage menstruation when they reach menarche.

Research Objectives

The main objective of this study is to examine the menstrual hygiene knowledge and practices among deaf girls in the Abuja School for the Deaf and to identify the challenges and opportunities for improving menstrual hygiene management.

The specific objectives of the study are to:

1. Examine the level of menstrual hygiene knowledge among deaf girls in the Abuja School for the Deaf.
2. Assess the menstrual hygiene practices adopted by deaf girls in the Abuja School for the Deaf.
3. Identify the challenges faced by deaf girls in managing menstruation in the Abuja School for the Deaf

Literature and Conceptual Review

Menstruation

Menstruation is a fundamental biological process that forms an integral component of female reproductive physiology. It represents one of the most visible manifestations of the reproductive cycle and marks the transition into reproductive maturity in females. According to Nitar (2017), the process is closely associated with puberty and reproductive capability, and it continues throughout a woman's reproductive years until menopause. Although menstruation is a universal biological phenomenon among women of reproductive age, its understanding is shaped by biological, social and cultural interpretations across different societies. Scholars in reproductive health and physiology have consistently described menstruation as a natural cyclic process involving the periodic shedding of the uterine lining accompanied by bleeding through the vagina when pregnancy does not occur (Jain et al., 2022; Haider et al., 2025).

According to Bay (2017), Menstruation is commonly defined in medical literature as the regular discharge of blood and tissue from the uterine lining through the vagina, occurring as part of the menstrual cycle. The process reflects the body's preparation for potential pregnancy and the subsequent shedding of the endometrium when fertilisation does not take place. Salamonsen et al., (1999) posited that the endometrium, which lines the uterus, undergoes a series of structural and functional changes each month under the influence of hormones produced by the ovaries and regulated by the hypothalamic–pituitary–ovarian axis. When pregnancy fails to occur, hormonal levels decline, leading to the breakdown and shedding of the endometrial lining. This shedding process constitutes menstruation and is accompanied by the discharge of blood, mucus and cellular debris from the uterus, (Andini, 2025).

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From a physiological perspective, menstruation is considered a complex process involving coordinated interactions between endocrine, vascular and cellular mechanisms. Davis et al (2018) posited that menstrual cycle itself represents a carefully regulated biological sequence that prepares the female body for reproduction. Hormones such as oestrogen and progesterone play central roles in regulating these cyclical changes. During the early stages of the cycle, oestrogen stimulates the growth and thickening of the endometrial lining in preparation for possible implantation of a fertilised ovum. If fertilisation does not occur, progesterone levels decline toward the end of the cycle, triggering the breakdown of the endometrial tissue and the onset of menstrual bleeding. This cyclical process reflects a delicate balance of hormonal regulation and tissue remodelling that occurs repeatedly during a woman's reproductive years (Critchley et al., 2022).

Menstrual Hygiene Management

According to Sommer et al (2021), Menstrual hygiene management has emerged as a significant concept within the broader field of reproductive health, public health and gender equality. It refers to the practices, knowledge, resources and supportive environments required for girls and women to manage menstruation safely, hygienically and with dignity. The concept gained international recognition through the efforts of global health organisations, development agencies and researchers who highlighted the challenges faced by menstruating individuals, particularly in low- and middle-income countries. Menstrual hygiene management is therefore not merely a matter of personal hygiene but also an issue linked to health, education, social inclusion and human rights. Hennegan, et al (2023).

In addition, Bay, (2017) noted that it involves the use of soap and water for washing the body as required and access to safe and convenient facilities for the disposal of used menstrual materials. Furthermore, effective menstrual hygiene management requires that women and girls possess adequate knowledge about the menstrual cycle and are able to manage menstruation with dignity and without fear or discomfort (WHO & UNICEF Joint Monitoring Programme, 2012).

Knowledge of Menstrual Hygiene Among Adolescents

Knowledge of menstrual hygiene among adolescents has become an important subject of discussion in public health, reproductive health and educational research. According to Nitar (2017), Adolescence represents a crucial stage of human development characterised by profound biological, psychological and social changes. For adolescent girls, one of the most significant biological transformations during this stage is the onset of menstruation, which marks the beginning of reproductive maturity. However, the ability of adolescents to manage menstruation safely and hygienically largely depends on the level of knowledge they possess regarding menstruation and appropriate hygiene practices. Scholars in the field of adolescent health have emphasised that adequate knowledge about menstruation and menstrual hygiene is essential for promoting healthy behaviours, preventing infections and enabling adolescent girls to manage menstruation with confidence and dignity. Andini, (2025).

According Kumbeni et al (2020), Menstrual hygiene knowledge refers to the awareness and understanding that adolescents possess regarding the biological processes of menstruation, the importance of maintaining cleanliness during menstruation, the proper use of menstrual materials and the safe disposal of menstrual waste. It also encompasses understanding of the menstrual cycle,

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recognition of menstruation as a normal physiological process and awareness of hygienic behaviours necessary during menstruation. In many societies, however, adolescents often lack accurate knowledge about menstruation due to cultural taboos, limited reproductive health education and restricted communication about sexual and reproductive issues. As a result, many girls enter puberty with insufficient information about menstrual hygiene management. Wilbur, et al (2021).

Menstrual Hygiene Practices among School Girls

Eze et al (2023) menstrual hygiene practices among school girls have increasingly become an important subject within the fields of adolescent health, public health and gender studies. Menstruation is a natural biological process experienced by females during their reproductive years, yet the manner in which girls manage menstruation varies significantly depending on their knowledge, access to resources, cultural context and environmental conditions. Menstrual hygiene practices refer to the behaviours and actions adopted by girls to maintain cleanliness and health during their menstrual periods. These practices typically include the type of menstrual absorbent materials used, the frequency of changing menstrual materials, personal washing habits during menstruation and the safe disposal of used sanitary products. Adequate menstrual hygiene practices are essential for preventing infections, maintaining personal dignity and ensuring that girls can continue their daily activities, including attending school, without discomfort or embarrassment. Haider, et al (2025)

According to Bay (2017), good menstrual hygiene practices involve the use of clean and appropriate absorbent materials, regular changing of these materials to prevent moisture and bacterial growth, maintaining personal cleanliness through washing and bathing, and disposing of used materials in a safe and environmentally appropriate manner. Scholars have emphasised that these practices are necessary to prevent reproductive tract infections and other health complications that may arise from poor hygiene during menstruation. In many societies, however, adolescent girls face challenges that limit their ability to maintain good menstrual hygiene practices, including limited access to sanitary products, inadequate sanitation facilities and cultural restrictions surrounding menstruation. Andini, (2025).

Menstrual Hygiene Challenges among Girls with Disabilities

Davis et al (2018) posited that menstrual hygiene management is widely recognised as an important component of reproductive health, yet it continues to present significant challenges for many girls around the world. For girls with disabilities, these challenges are amplified by barriers that extend beyond biological experiences and intersect with socio-economic, environmental and communication factors. They added that while menstruation is a universal biological process experienced by girls and women of reproductive age, the capacity to manage menstruation safely and with dignity is shaped by an individual's access to information, supportive environments, appropriate resources and exclusion-free education. In this context, menstruation for girls with disabilities is not merely a health matter but a lived experience profoundly influenced by physical accessibility, attitudinal barriers, communication gaps and social marginalisation. A growing body of literature has highlighted that girls with disabilities face disproportionate difficulties in managing menstruation compared to their non-disabled peers, yet these multifaceted challenges

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remain under-examined and under-addressed in much of reproductive health research. Haider, et al (2025).

According to Sommer et al (2021) menstrual hygiene practices among girls with disabilities, including those with sensory impairments such as visual and hearing loss, are often constrained by deeply rooted barriers in access to information. Traditional health education initiatives tend to adopt standard communication methods verbal lessons, written materials or classroom-based instruction that may not be accessible to girls with sensory or cognitive impairments. As a result, girls with disabilities frequently have limited knowledge about menstrual hygiene and lack the foundational information required to manage menstruation appropriately. Studies have documented that adolescent girls with intellectual disabilities, for example, are more likely to rely on caregivers for menstrual information, yet caregivers themselves may lack sufficient understanding of menstrual hygiene, leading to incomplete or inaccurate guidance (Wilbur et al., 2021).

Review of Empirical Studies

Empirical research underscores that menstrual hygiene knowledge and practices vary widely across contexts, influenced by education, cultural norms, access to sanitary products and school environments. Several studies conducted in Nigeria and comparable low- and middle-income countries reveal persistent gaps in adolescents' understanding of menstruation, with associated impacts on hygiene behaviour and school participation. For instance, Hennegan and colleagues (2023), in a systematic review of menstrual literacy among schoolgirls in Nigeria, reported that many adolescent girls possess incomplete or inaccurate information about menstrual physiology and hygiene management, which contributes to misunderstandings and poor practice. The review highlighted inadequacies in the way menstrual health education is delivered in schools, noting that structured reproductive health curricula often omit comprehensive information on menstruation, leaving girls reliant on informal, sometimes incorrect, sources such as peers or media (Hennegan et al., 2023).

In a cross-sectional study of secondary school girls in Taraba State, Nigeria, Nnennaya and colleagues (2021) found that while the majority of respondents had heard about menstruation before menarche, nearly half lacked comprehensive hygiene knowledge. The study reported that girls with more accurate menstrual knowledge were significantly more likely to adopt safer hygiene practices, such as regular changing of sanitary materials and appropriate disposal. Conversely, girls with limited knowledge tended to use improvised materials or delay changing during school hours due to discomfort and fear of staining, linked both to knowledge gaps and inadequate sanitation facilities. The authors emphasised the role of school-based health education as a determinant of menstrual hygiene behaviour (Nnennaya et al., 2021).

Studies from other African contexts corroborate similar trends. Njee et al. (2024), in a population-based study of post-menarche adolescent girls in urban and rural Tanzania, observed that while initial awareness of menstruation was moderate, detailed understanding of menstrual management and its health implications was generally low. The research found that girls who attended schools with comprehensive menstrual health education were more confident in managing menstruation at school, demonstrated by improved practices and lower school absenteeism. This study reinforces the importance of formal education in shaping hygiene

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behaviour and challenges the assumption that awareness alone guarantees safe practices (Njee et al., 2024).

The relationship between menstrual knowledge and hygiene practice also emerges in South Asian contexts. Tiwari, Maharjan and Basnet (2024), in a study of school-going adolescents in Nepal, reported that girls with higher menstrual health knowledge were significantly more likely to use commercially produced sanitary products and maintain regular personal washing during menstrual periods. The study further showed that girls in schools that integrated menstrual health into their curricula exhibited better hygiene behaviours, including timely changing of absorbents and appropriate disposal, compared to schools without such education components. The authors highlighted that knowledge alone was not sufficient for optimal practice; supportive school environments and access to resources were also essential (Tiwari et al., 2024).

Studies outside Africa parallel these findings. In India, Ahmed et al. (2024) investigated menstrual hygiene management among adolescents and reported that communication challenges within families and schools limited opportunities for open dialogue about menstruation. Girls who reported supportive communication with educators and caregivers exhibited better hygiene practices and were less likely to miss school during menstruation. In contrast, those who described menstruation as a taboo topic in their families or schools tended to hide menstrual difficulties and adopt less hygienic behaviours out of shame or fear of judgment, illustrating the social dimension of communication on menstrual practice.

Theoretical Framework

This study analysis is guided by the Health Belief Model (HBM)**. The** Health Belief Model (HBM) is a psychological framework that seeks to explain and predict health behaviours by examining individuals' beliefs and perceptions regarding health risks and preventive actions. Initially developed in the 1950s by social psychologists in the United States Public Health Service, the model proposes that health-related behaviours are influenced by six core constructs: perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy (Glanz, Rimer, & Viswanath, 2015).

The theory is relevant to the study because it has the capacity to frame menstrual hygiene behaviours among deaf adolescent girls within a structured theoretical lens. The model allows researchers to understand how girls' perceptions of vulnerability to reproductive tract infections, discomfort, social stigma, or embarrassment influence their adoption of menstrual hygiene practices. By examining perceived barriers and benefits, the HBM provides has provided more insight into the factors that facilitate or impede hygienic practices among girls with disabilities, particularly in a school setting where communication challenges may limit access to information and support (Glanz et al., 2015).

Research Methodology

This study employed both qualitative and quantitative research design, to assess the menstrual hygiene knowledge and practices among students of Abuja School of the Deaf. The study was conducted within the school in the Federal Capital Territory, Kuje Abuja. The target population consisted of students of the School of the Deaf, Abuja. The sample size of 233 deaf students was selected using a purposive sampling technique. For data collection, key informant interviews with

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some students and questionnaires were used to collect data comprising demographic information like age, gender, and class. The data collected was analyzed using tables and an interpretation of recorded content from an expert. The study also ensured informed confidentiality and anonymity.

Presentation and Analysis of Data

The main data presentation (aside from demographic information) is done in line with the objectives of the study. Data is presented in tabular form, showing the frequency distribution of the variables and percentages.

It is pertinent to state that out of 233 questionnaires administered by the researcher, 212 were successfully filled out and recovered. Therefore, the data analysis is based on the 212 questionnaires that were correctly filled and returned.

Table 1: Total Questionnaire Administered and Retrieved

Instrument Administered	**Frequency**	**Percentage (%)**
Total instrument returned	212	91
Total instrument not returned	21	9
Total	**233**	**100**

Table 1 above indicates that, 91% of the questionnaires were returned while the remaining 9% were not returned. Therefore, the data analyses were based on the 212 questionnaires that were correctly filled and returned.

Table 2 Gender distribution of the Respondents

Variables	Frequency	Percentages (%)
Males	2	1
Females	210	99
Total	212	100

Source: Field Survey, 2026

Table 2 shows that 99% of the respondents are females while the remaining 1% are males. This indicates that females responded more.

Table 3: Age Distribution of Respondents

Age Range	**Frequency**	**Percentage (%)**
10–12	34	16.0
13–15	78	36.8
16–18	72	34.0
19–20	28	13.2
Total	**212**	**100**

Source: Field Survey, 2026

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From Table 3, the majority of respondents (36.8%) were aged 13–15 years, followed closely by those aged 16–18 years (34%). Only 16% were 10–12 years, and 13.2% were aged 19–20. This indicates that the sample is predominantly mid-adolescents, which is typical for the study population in a school setting and relevant because most respondents have experienced menarche and are managing menstruation independently.

Table 4: Class/Grade Level of Respondents

Class/Grade	Frequency	Percentage (%)
Primary 5–6	38	17.9
Junior Secondary 1–3	82	38.7
Senior Secondary 1–3	92	43.4
Total	**212**	**100**

Source: Field Survey, 2026

As shown in Table 4, the largest proportion of respondents (43.4%) were in senior secondary classes, followed by junior secondary (38.7%). This indicates that a significant portion of the respondents are in higher grades, potentially with better exposure to formal education and menstrual hygiene awareness programs, which may influence knowledge and practice levels.

Table 5. Menstrual Hygiene Knowledge

Statement	SA	A	D	SD	Mean	Interpretation
I know what menstruation is	102	74	28	8	3.55	High knowledge
I understand the causes of menstruation	88	76	32	16	3.35	Moderate knowledge
I know how often sanitary materials should be changed	92	64	40	16	3.30	Moderate knowledge
I am aware of hygiene practices during menstruation	98	68	36	10	3.42	Moderate knowledge
I know the health risks of poor menstrual hygiene	84	72	38	18	3.21	Moderate knowledge
Aggregate Mean	–	–	–	–	**3.37**	**Moderate knowledge overall**

Source: Field Survey, 2026

The data in Table 5 show that respondents have moderate knowledge of menstrual hygiene, with an aggregate mean of 3.37**.** The highest level of knowledge was reported regarding general awareness of menstruation (mean = 3.55), while the lowest was regarding understanding health risks (mean = 3.21). This suggests that while deaf girls possess basic knowledge of menstruation,

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gaps remain in understanding specific hygiene practices and health implications, highlighting the need for improved and accessible menstrual health education.

Menstrual Hygiene Practices

Table 6: Menstrual Hygiene Practices

Statement	SA	A	D	SD	Mean	Interpretation
I change sanitary materials at least 3–4 times daily	76	84	36	16	3.17	Moderate practice
I wash my genital area regularly during menstruation	88	72	32	20	3.25	Moderate practice
I dispose of used sanitary materials properly	64	82	40	26	3.03	Moderate practice
I carry extra sanitary materials to school	54	68	60	30	2.90	Low practice
I avoid sharing sanitary materials with others	82	70	40	20	3.22	Moderate practice
Aggregate Mean	–	–	–	–	**3.11**	**Moderate menstrual hygiene practice overall**

Source: Field Survey, 2026

Table 7 indicates that respondents' menstrual hygiene practices are moderate, with an aggregate mean of 3.11**.** While girls reported adherence to personal washing and non-sharing of materials, less than half regularly carry extra sanitary products, suggesting logistical challenges and potential gaps in preparedness. These findings imply that interventions should focus on improving practical management skills and access to hygiene materials**.**

Challenges Faced in Menstrual Hygiene

Table 8: Challenges in Menstrual Hygiene

Statement	SA	A	D	SD	Mean	Interpretation
I find it difficult to access sanitary products	96	68	32	16	3.35	Moderate challenge
I experience embarrassment while changing sanitary materials at school	82	74	36	20	3.18	Moderate challenge
Cultural barriers make it difficult to learn hygiene practices	104	64	28	16	3.41	High challenge
Inadequate toilet facilities at school affect my hygiene	92	70	30	20	3.31	Moderate challenge

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I face stigma from peers during menstruation	78	80	36	18	3.18	Moderate challenge
Aggregate Mean	–	–	–	–	**3.29**	Moderate to high challenges overall

Source: Field Survey, 2026

The responses in Table 8 indicate that respondents face moderate-to-high challenges, with an aggregate mean of 3.29. Cultural barriers (mean = 3.41) were identified as the most significant challenge, highlighting the impact of deafness on accessing menstrual hygiene information. Other challenges include limited access to products, inadequate school facilities, and peer-related stigma. These findings underscore the importance of inclusive menstrual hygiene programmes and infrastructure improvements.

Discussion of Findings

The first objective of the study was to examine the level of menstrual hygiene knowledge among deaf girls in the Abuja School for the Deaf. The study revealed that 97% of the respondents possessed moderate knowledge of menstrual hygiene**,** with gaps in understanding the health risks associated with poor menstrual hygiene and the recommended frequency for changing sanitary materials. The finding is supported by the Health Belief Model (HBM)**,** which posits that health-related behaviour is influenced by individuals' perceptions of susceptibility, severity, benefits, and barriers to health actions (Rosenstock, 1974; Glanz, Rimer, & Viswanath, 2015). In the context of this study, a moderate knowledge level indicates that respondents have some awareness of menstruation and hygiene, but may not fully appreciate the severity of health consequences, such as infections and reproductive health complications, resulting from poor menstrual hygiene. According to the HBM, individuals are more likely to adopt preventive health behaviours when they understand the risks and believe that the benefits of action outweigh the barriers. Therefore, the moderate knowledge observed in this study explains the moderate level of menstrual hygiene practices among respondents. This finding is also consistent with Hennegan et al. (2023) and Tiwari et al. (2024), who reported that adolescents in low- and middle-income countries often have foundational awareness of menstruation but lack comprehensive knowledge of proper hygiene practices and associated health implications.

The second objective was to assess the menstrual hygiene practices adopted by deaf girls in the Abuja School for the Deaf. The study revealed that 93% respondents reported moderate menstrual hygiene practices, particularly in personal washing and avoiding the sharing of sanitary materials. However, practices such as carrying extra sanitary products to school were less common, highlighting logistical and resource-related challenges. The finding is relevant to the Health Belief Model, which explains this behaviour through perceived barriers, which include a lack of sanitary materials, limited access to facilities, and communication challenges. Health behaviour is strongly influenced by perceived barriers and cues to action. In this study, the inability to consistently carry sanitary products or maintain hygiene in school environments suggests that structural and environmental barriers reduce the likelihood of consistent hygiene practices. This finding aligns with research by Njee et al. (2024) and Rahmawati et al. (2021), which demonstrated that while knowledge influences hygiene behaviours, access to resources, preparedness, and school facilities

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significantly affect actual practices. For deaf adolescents, limited accessibility to menstrual health resources and supportive communication further constrains practice, suggesting that interventions must combine knowledge reinforcement with practical support**.**

The third objective of the study is to identify the challenges faced by deaf girls in managing menstruation in the Abuja School for the Deaf. A key finding of the study is that 89% of the respondents experienced moderate to high challenges**,** with cultural barriers identified as the most significant obstacle. The finding strongly aligns with the perceived barriers component of the Health Belief Model**,** which states that individuals are less likely to adopt health behaviours when they face structural or psychological obstacles. Communication barriers prevent deaf girls from accessing menstrual health education, thereby limiting their understanding of proper hygiene practices and reducing their confidence in managing menstruation. Perceived barriers are the most powerful predictor of health behaviour, as individuals tend to avoid actions that are difficult or inconvenient. This also corroborates findings by Wilbur et al. (2021) and Appiah-Agyekum et al. (2025), who emphasised that deaf girls face difficulties in accessing menstrual health education in schools because of the absence of sign language interpreters and accessible teaching tools. Other challenges identified include limited access to sanitary products, inadequate toilet facilities, embarrassment, and peer stigma, reflecting the intersection of disability, infrastructure limitations, and social norms.

Conclusion

Whiles challenges associated with menstrual hygiene management among adolescents are universal, some sub-populations, such as deaf girls, have peculiar challenges that requires special attention. The study revealed that deaf adolescent girls possess moderate knowledge of menstrual hygiene. While most of the girls understood the basic concept of menstruation and general hygiene practices, gaps remained in their comprehension of the health risks associated with poor menstrual hygiene and the recommended frequency of changing sanitary materials. This indicates that existing educational interventions are only partially effective, and there is a need for tailored, accessible menstrual health education for adolescents with hearing impairments. The menstrual hygiene practices among respondents were also moderate. While girls generally engaged in personal washing and avoided sharing sanitary materials, practical challenges such as carrying extra sanitary products to school limited adherence to optimal hygiene practices. The study highlights that knowledge alone is insufficient to ensure proper menstrual hygiene management; practical accessibility and supportive environments are equally critical. Deaf adolescent girls are still facing challenges in managing menstruation, with cultural barriers being the most prominent. Other challenges included limited access to sanitary products, inadequate school facilities, embarrassment, and peer stigma. . The study concludes that, while deaf girls have moderate awareness and practice regarding menstrual hygiene, their full potential is constrained by cultural barriers, infrastructural limitations, and social stigma. Addressing these barriers through inclusive education, targeted interventions, and supportive environments is essential to promoting optimal menstrual hygiene management, improving health, and ensuring equitable access to education for adolescents with hearing impairments.

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Recommendations

- Based on the findings of the study, the following recommendations are made. The School should develop and implement a sign language-based menstrual health education programme to ensure deaf adolescents understand menstruation, hygiene practices, and associated health risks. Visual aids, interactive sessions, and practical demonstrations can enhance comprehension and retention.
- Teachers and school staff should receive specialised training in disability-inclusive pedagogy**,** including menstrual hygiene education. This would equip educators to communicate effectively with deaf students and provide appropriate guidance during menstruation.
- Schools and relevant government agencies should provide free or subsidised sanitary products for adolescent girls, particularly those with disabilities, to ensure consistent menstrual hygiene practices.
- Schools should provide clean, private, and accessible toilets, along with safe disposal facilities for sanitary materials. Adequate water supply and hygiene materials in restrooms are essential to facilitate proper menstrual hygiene.
- Schools should establish peer mentoring and support groups where students can discuss menstrual hygiene openly. Such programmes can reduce stigma, encourage positive practices, and provide social support during menstruation.
- Parents and guardians should be encouraged to discuss menstruation openly with their children, provide guidance, and ensure access to sanitary materials. Community awareness campaigns can also address cultural taboos and stigma surrounding menstruation.
- Educational policymakers and health authorities should integrate menstrual hygiene management policies for adolescents with disabilities into the school curriculum, ensuring that the unique needs of deaf girls are addressed systematically.

References

Acheampong, E., Nadutey, A., Afful, B. F., & Anokye, R. (2020). Menstrual hygiene management: Challenges and coping strategies for adolescents with disabilities in the Kumasi Metro of Ghana. *Disability, CBR & Inclusive Development*. 23(4) 94-104

Andini, K. (2025). Overview of menstrual physiology: A narrative literature review. *Sriwijaya Journal of Obstetrics and Gynecology*. 9(11)39-45

Bay S.A (2017). Moving toward a holistic menstrual hygiene management: an anthropological Analysis of menstruation and practices in Western and Non-Western Societies. 4(2) 72-76

Critchley, H. O. D., Maybin, J. A., Armstrong, G. M., & Williams, A. R. (2019). Physiology of The endometrium and regulation of menstruation. *Human Reproduction Update*.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
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Davis J, Macintyre A, Odagiri M, Suriastini W, Cordova A, Huggett C, (2018) Menstrual hygiene management and school absenteeism among adolescent students in Indonesia: evidence from a cross-sectional school-based survey. *Tropical Med Int Health*. 2018; 23:1350–63.

Eze, C.J, Faremi, V.O, Amoo, Y.O, Obialor J.C, Obialor B.O, Eze H.A, (2023). Menstrual hygiene Management among Nigerian adolescent girls: knowledge and associated factors. *Pan Africa Science Journal*. 3(2) 24-26.

Jain, V., Chodankar, R. R., Maybin, J. A., & Critchley, H. O. D. (2022). Uterine bleeding: Understanding endometrial physiology and menstrual health. *Nature Reviews Endocrinology*.

Haider, R., Ahmed, Z., Zameer, S., & Das, G. K. (2025). Physiology of menstruation. *Clinics in \Nursing*. 3(13) 210-224

Hennegan, J., Shannon, A. K., Rubli, J., Schwab, K. J., & Melendez-Torres, G. J. (2023). Menstruation among in-school adolescent girls and its literacy and practices in Nigeria: A systematic review. *Medicina*.

Kaya, S., et al. (2025). Menstrual poverty and genital hygiene behaviours among adolescents: A cross-sectional study. *Journal of Pediatric Nursing*. 7(21) 45-56

Kumbeni, M.T, Otupiri E, Ziba F.A. (2020). Menstrual hygiene among adolescent girls in junior high schools in rural Northern Ghana. *Pan African Med* J;37.

Nana N, Appiah-A, Mary Adebi Nyamekye, Ivy Akushika A, & Desmond D, O (2024) Menstrual Hygiene knowledge and practices among female senior high school students in the new Juaben North municipality of Ghana: a cross-sectional study. BMC *Public Health*

Nitar W. (2017) Menstrual knowledge and practices of rural women in Taungdwingyi Township: a situational analysis. Myanmar Army Health J. 2017;4:37–40.

Njee, R. M., et al. (2024). Menstrual health and hygiene knowledge among post-menarche adolescent school girls in urban and rural Tanzania. *PLOS ONE*.

Nnennaya, E. U., Atinge, S., Dogara, S. P., & Ubandoma, R. J. (2021). Menstrual hygiene management among adolescent school girls in Taraba State, Nigeria. *African Health Sciences*.

Okere F. (2025). Menstrual Health Issues in sub-Saharan Africa: An Overview. Dateline Health Africa.

Robert et al. (2024). Menstrual health and hygiene knowledge among post-menarche adolescents school girls in urban and rural Tanzania PMCID: PMC10927101 PMID: 38466719

Salamonsen, L. A., Kovacs, G. T., & Findlay, J. K. (1999). Current concepts of the mechanisms of menstruation. *Baillière's Best Practice & Research Clinical Obstetrics and Gynaecology*. 13(2) 49-64

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
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Sommer M, Caruso B.A, Torondel B, Warren E.C, Yamakoshi B, Haver J. (2021) Menstrual Hygiene management in schools: Midway progress update on the MHM in ten 2014–2024 global agenda. Health Res Policy Syst. 2021;19:1–14

Tamima, A. 1, et al. (2025). Menstrual hygiene knowledge and practices among adolescents schoolgirls in flood-affected rural Bangladesh PMCID: PMC12093784 PMID: 40394573

Tegegne, T.K, & Sisay, M.M. (2014). Menstrual hygiene management and school absenteeism among female adolescent students in Northeast Ethiopia. BMC *Public Health.*

UNICEF (2019). Guide to menstrual hygiene material. New York.

Wilbur, J., Kayastha, S., Mahon, T., Torondel, B., Hameed, S., Sigdel, A., Gyawali, A., & Kuper, H. (2021). Exploring the barriers to menstrual hygiene management faced by adolescents and young people with a disability. *BMC Public Health*

WHO & UNICEF Joint Monitoring Programme. (2012). *Consultation on the draft long list of goals, target and indicator options for future global monitoring of water, sanitation, and hygiene*. 27(12) 98-103

Yohannes et al (2021) Menstrual hygiene practices among high school girls in urban areas in Northeastern Ethiopia: A neglected issue in water, sanitation, and hygiene research PMCID: PMC8189485 PMID: 34106948.

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Employee Engagement and Perceived Organisational Productivity of Radio Stations in Oyo State

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DOI: https://doi.org/10.5281/zenodo.23173899

Abstract
Organisations are increasingly concerned about talent loss and declining employee involvement in major organisational decisions, with potential consequences for productivity. This study examined the impact of employee engagement on perceived organisational productivity of radio stations in Oyo State. The first ten licensed radio stations were selected, and 113 respondents were sampled from a population of 168 employees using the Krejcie and Morgan sample-size determination table. Data were collected through a closed-ended questionnaire and analysed using standard multiple regression. The emotional-commitment model was statistically significant, $F(3, 109) = 35.238$, $p < .001$, and explained 49.2% of the variance in organisational productivity ($R^2 = .492$). Optimism, emotional balance and self-efficacy had positive significant coefficients in the full-sample analysis, with self-efficacy showing the strongest standardised effect. The job-satisfaction model was also statistically significant, $F(3, 109) = 39.472$, $p < .001$, explaining 52.1% of the variance in productivity ($R^2 = .521$). Performance feedback, work-advancement opportunities and internal social support were positive significant predictors, with performance feedback showing the strongest standardised effect. Regression diagnostics indicated acceptable residual behaviour and low multicollinearity. The study concludes that personal and job resources associated with employee engagement make important contributions to organisational productivity and recommends strengthening feedback, employee development, social support and self-efficacy-enhancing practices.

Keywords: Employee Engagement, Productivity, Emotional Commitment, Job Satisfaction

Introduction

In a more competitive and changing business environment, the need for organisational success becomes priority and primary objective. To survive this competitive pressure, organisations must promote employee involvement in their operations as their dedication, commitment and emotional balance will contribute immensely this goal. Therefore, for organisations to attain maximum

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productivity excellence in their operations, enabling environment through employee engagement must be put in place and this is likely to promote long term commitment and dedication. Engaging workers in organisation activities also enhance productivity, reduce employee turnover rate and promote organisational citizenship.

Firms are looking for ways of improving their performance and because this, majority of them are adopting employee engagement method not minding the size of their company (Moses & Marien, 2025). Therefore, there is need for management to see the concept of employee engagement as a motivational tool for improving employee's productivity in their organisations.

Employee engagement is a style adopted to ensure workers commitment to the organisations and also impact the overall output of the organisation which will in turn determine the sense of belonging within the organisation. Employees' engagement creates an insight for workers to be emotionally connected with their job (Armstrong, 2019). Employee engagement measures the level of employee connectivity to their workplace and determines the reasons to performance above and beyond their job requirements.

Media organisations in Nigeria particularly in Oyo state are currently experiencing persistence loss of talents as a result of competition among them. Majority of them are finding it more challenging to fully engage their potentials because of fear of losing them to their competitors (Nnaeto, et al., 2022).

Workers are believed to be fully involved in their organisational activities if they are given the opportunity to understand and know more about their responsibilities and the entire organisation (Armstrong, 2019). Allowing workers participation within the organisation will give room for their involvement in decision making process and also make their voice to be heard on matters involving them. Engaged workers are proud of their organisations and enjoy working with more motivation, commitment, dedication and satisfaction. An engaged employees are more active and effective in the organisation because they see themselves as partners in progress and this will lead to improvement in the company's output (Reissová & Papay, 2021).

Samiee & Sadeghian (2021) stated that one of the major challenges facing media organisations is how to manage and keep their existing employees within the organisations. Hence, keeping them for long period of time requires active engagement which will enhance their competencies along their choosing career.

Employee participation promote the mindset of employees through the belief that their organisations gives them more attention and value their opinion which makes them to work with full of their extent. Considering employee participation in an organisation encourage workers to work with their full capacity towards achieving organisational productivity.

Statement of the Problem

Many organisations are finding it difficult to engage coming generation of workers in certain aspect of their activities such as decision making, conflict management, leadership role and other work related assignments that may likely contribute to higher productivity. In Nigeria, organisations such as media houses are finding it challenging in fighting the recent loss of talents within the industry due to lack of employee engagement where majority of the employees

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complain about lack of participation in major organisational decision process and this in turn affecting their affective commitment to the job. Managers also feel reluctant to encourage employees participation because it expose them to many organisations dealings that are observed not be known to everyone, and this is causing major delay and slowing the transitions process among the workers (Nnaeto, et al., 2022).

Engaged employees sees their organisations as being supportive in promoting their welfare and building long term relationship through commitment and job satisfaction. In adversity of this, organisations will be less productive and may also lead to loss in valuable talents in the organisation (Moammar & Singh, 2024). Management of human resources in most service industries in Nigeria is perceived to be inadequate and consequently affecting the overall organisational productivity (Faith, et al., 2022). This is one the causes of the present reality in Oyo state media sector because of the increase in number of radio stations in the state particularly in Ibadan, the state capital city where majority of the newly established radio stations are in competition with the existing ones. As majority of the newly established radio stations are recruiting talents from those who are currently working with existing stations within the industry to enhance their performance for more acceptance. This shift is observed to be triggered majorly by lack of employee engagement by the majority of the key players within the sector. Diaka et al (2021) observed that major cause of this is the fall in employee engagement at the workplaces because many employees are not allowed to take on extra tasks and unable to get themselves involved in major organisational activities. In view of this, this study therefore examined the impact of employee engagement on organisational productivity of radio stations in Oyo state. In an effort to address the aforementioned problems, the study investigated the impact of employee emotional commitment on organisational productivity using optimism, emotional balance and self-efficacy as predictors for employee emotional commitment and also determined the effect of employee job satisfaction on organisational productivity of radio stations in Oyo state by using performance feedback, work advancement opportunities and internal social support as predictors for employee job satisfaction.

Literature Review

Employee Engagement

Employee engagement is a measure put in place by an organisation to ensure employee commitment towards attainment of the organisational goals and enhancement of employee's sense of well-being which will contribute to overall success of the organisation (Diaka et al., 2021). An engaged employees are extremely motivated, dedicated, satisfied and committed. To be engaged simply means to be emotionally involved in organisational activities that may lead to achievement of objectives in an organisation. Markos and Sridevi (2019) defined employee engagement as feelings developed by a worker towards the company and its goals. An employee who is fully engaged has knowledge about organisational objectives and work with others towards achieving these objectives for continuous improvement in organisational performance. An engaged employees are more likely to be happy at all time and individuals who are happy at workplace are always ready to accept new opportunities, more responsibilities and help others in achieving their objectives and be more optimistic. Employee engagement represents the level of employee involvement, participation and commitment to the company and their individual task. It also offers an emotional dedication that employees have to their workplace (Moses & Marien, 2025). It shows

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how emotionally connected employees are to their workplace and what they fell about other employees (Moses & Marien, 2025).

Deby and Susi (2023) categorized aspect of employee engagement into three (3) parts, consisting cognitive aspect; which describes the importance the organisational goals and values. Followed by physical aspect; which explains individual intention about how long such individual will be willing to remain with the organisation and provide support for the organisation. Lastly, emotional aspect; which indicates those acceptable behaviours shows towards achieving job satisfaction and commitment, organisational objectives and goals and relationship with others. Employee engagement can be seen as two-way relationship between employer and employee. For employer, it is about creating an enabling work environment and for the employee, it deals with constant improvement in their performance, maintenance of peaceful relationship within the organisation and adaption to change. The reciprocation of the two will promote an engagement atmosphere (Moammar & Singh, 2024).

Benefit of Employee Engagement

Employee engagement provides many benefits to both the organisations and employees varying from how best it is observed in an organisation. Employee engagement helps workers to be intrinsically motivated and be more committed to the job because of their emotional attachment. Employee engagement also contributes to job satisfaction in the organisation because engaged employees are satisfied with their job and contribute to organisational goal attainment and also contribute to the enhancement of their own productivity. This also helps in promoting team their team performances which on the other hand encourage the entire workforce (Perumal, et al., 2022). Employee engagement often leads to high customer satisfaction and low employee turnover. The level of engagement will manifest into higher customer satisfaction due the fact that highly engaged employees will produce quality customer satisfaction. Highly engaged workforce promotes creativity through productivity and improved performance by reducing operational costs relating to hiring and retention of workers. Engaged workers are capable of taking their organisations to global market through innovative output and performance because having highly skillful workforce is important for organisational growth and survival especially in the global world.

Components of Employee Engagement

Employee engagement is determined various factors such as: emotional commitment, Job satisfaction, work environment, work recognition, career advancement and motivation. However, this study examined emotional commitment and job satisfaction because they are both considered for the study.

Emotional commitment: Emotional commitment explains the level at which workers feel attached and committed to the organisation and its goals. AbdulHalem and Syed (2024) defined commitment as the extent to which employees attached themselves with their tasks and organisation. Committed employees are those who are acquainted to their work and ready to face every challenge associated with their responsibilities.

Job satisfaction: This is the degree of pleasure and contentment experienced by an employee in doing certain job (Souad & Oussama, 2025). The higher the level of job satisfaction experienced

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by employees, the higher the level employee engagement in the organisation. Perez (2021) sees job satisfaction as a significant factor in determining the level of employee engagement just because employees who experienced job dissatisfaction will not feel engaged with their work and it will affect their productivity and also influence their relationship with others within the organisation.

Organisational Productivity

Productivity is the extent of how well resources are efficiently and effectively utilised during operation. Productivity refers to the quantity and quality measurement of employee performance in relation cost involved. For an organisation to be highly productive, resources are expected to efficiently and effectively utilised during the operation. High productivity enhances organisational profit and determines the growth of an enterprise. Productivity measurement makes it possible for organisations to know aspect of operations with deficiency and possible solutions or improvement required. Measurement of productivity gives details about efficiency and effectiveness of employs output which is likely to promote employee engagement and job security (Tamunosiki-Amadi et al., 2020). Quality, quantity, time and cost are used in measuring organisational productivity. Productivity helps to determine the time frame an employee used in performing a particular task.

Theoretical Review

Resource-Based View Theory (Birger Wernerfelt 1984)

Resource based view theory was developed by Birger (1984) and it explains the need for organisations to prioritise the in-house manpower by giving them adequate attention and also for the organisations to prepare them for the task ahead in the future in relation to the external environment. This approach encourages talent management by providing training opportunities for employees to learn, improve and participate in decision-making processes by seeing them as organisational investments rather than expenses. If this is achieved, it will give firms competitive advantage over others and also improve the overall performance of organisations.

The Job Demand Resources (JD-R) Model (Schaufeli Wilmar, 2013)

JD-R Model was propounded by Schaufeli (2013) and assumes that job resources and personal resources are two forms of resources responsible for work engagement in an organisation. Job resources are those aspects of the job that directly influence goal achievement at work, reduce role expectations and enhance individual development such as: performance feedback, work advancement opportunities and internal social support. Personal resources on the other hands are those personal aspects of individual which are associated with the ability to influence and control one's environment effectively and productively such resiliency, self-efficacy, emotional balance and optimism. The linkage between these resources will promote work engagement by energizes (vigor) employees, encourage persistence (dedication) and increase their focus (absorption) which in turns affect job productivity positively (Faith, 2022). JD-R Model also indicates that absent of these resources may likely lead to burnout and because of that, management must ensure that workers have access to important information and resources within the organisation in order to discourage burnout.

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Adopted Theory

This study reviewed two theories and out of the two theories reviewed, The Job Demand Resources (JD-R) Model was adopted because it provides insight understanding of the relationship between work characteristics such emotional commitment and job satisfaction and productivity. It also explains how work engagement can be viewed as a psychological aspect of job that helps employees to cope with job demands which may protect against dissatisfaction and increase workers well-being and productivity.

Empirical Review

Souad and Oussama (2025) investigated the impact of employee engagement practices on organisational performance at Alibaba Group of company. The study used case study approach to select respondents for the study and the study indicates that the selected company created a friendly, open and inclusive work environment to encourage employee engagement which was observed to impact job satisfaction and commitment and also that engaged workers directly enhance productivity. The study concludes that employee engagement is essential for organisational success and in promoting competitive advantage. This also recommends that organisations should invest in training programs to sustain employee engagement.

Moses and Marien (2025) examined the influence of employee engagement on productivity using Varun Beverages Company in Zambia as a study. The study was qualitative in nature and interview and focus group discussions was adopted to collect information from 22 employees of the company where thematic analysis was used to analyse the data collected and the study revealed that leadership style practice by managers of organisations influence employee engagement and motivation. The study recommends that factors such as introduction of development programs, employee performance feedback, creation of favourable work environment and open communication should be created.

The Impact of employee engagement on employee productivity was studied by Abdul Haleem and Syed (2024) using stratified sampling method to select 50 sample size. Questionnaire was developed and used to collect data from the respondents and both correlation and regression analysis methods were used to analyse the data collected and the study revealed that there is a positive impact and correlation between employee engagement and employee productivity. The study therefore concludes that any difference in employee engagement mediators will cause some changes in the productivity of employees and also recommends that organisations should continuously monitoring employee engagement parameters in the organisation s

Quantitative research approach was used to determine the impact of employee engagement on employee performance in Gauteng-Based Call-Centre by Khodani (2024). Self-administered questionnaire was to given 167 randomly selected respondents and the data collected was processed using Statistical Package for Social Sciences (SPSS) version 23.0 and the finding revealed that employee engagement has positive impact on employee performance and also conclude that engaged employees are highly motivated, creative, innovative, proactive and shown positive attitudes towards their work. The study recommends that employee engagement should be structured in a way that will accommodate every employee irrespective of their level.

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Yahya (2024) studied the impact of employee engagement on employee performance and satisfaction. One hundred (100) respondents were randomly selected using primary source of data collected through questionnaire and interview methods after which the data collected were analysed using regression and correlation analyse. This study however revealed that employee participation has significant positive impact on the performance and satisfaction of employees and concludes that organisation adopted modern technology tools to enhance employee engagement, encourage interaction and communication among members of the organisations.

The impact of employee engagement on organisational productivity was studied by Perumal et al. (2022) using South African FMCG Company as a study. A case study methodology was used where simple random sampling technique was adopted to choose 130 employees the warehouse and production departments of the organisation. The data collected were analyse using Chi-square and it shows that there is a significant link between employee engagement and organisational sustainable, success and productivity and concludes that disengage workers will affect organistional productivity in a negative way. The study finally recommends that employers should create an inclusive environment to promote employee engagement

Faith et al. (2022) theoretically examined the significance of employee engagement on organisational productivity by reviewing challenges identified in past studies and analyzing their findings. The study revealed that effective motivation through accommodating environment leads to high job satisfaction and recommends that organisations should promote job enrichment, communication flow, employee feedback, employee relationship and employee autonomy in order to enhance productivity.

Diaka et al. (2021) assessed the effect of employee engagement on the performance of Mikap Nigeria Limited, Makurdi. The study measures employee engagement with vigor, dedication and absorption. The study used cross-sectional survey design to sample 112 employees of the selected organisations through census sampling approach. The data gathered were entered and processed using Statistical Package for Social Sciences (SPSS) and multiple regression analysis was used to analysis the hypotheses formulated. Findings therefore revealed that vigor engagement, dedication engagement and absorption engagement has significant effect on organisational performance.

Convenience sampling technique was adopted by Rania (2020) to determine the impact of employee engagement on organisational productivity of public sector in Egypt. Five hundred and fifty (550) respondents were given copies of questionnaires to elicit information for the study and Pearson correlation coefficients analysis was used to analysis the data collected. It was found that employee engagement has a positive relationship with organisational productivity and overall performance and also concluded that compensation, training, organisation cognitive and clarity of role are factors affecting employee engagement in organisations.

Methodology

This study examines the impact of employee engagement on organisational productivity of radio stations in Oyo state. Cross-sectional survey research design was adopted because it is accurate for data collection from a given sample at different location at the same time. The study population consists of all the licensed radio stations in Oyo state. For objectivity reason, the first ten (10) licensed radio stations were selected to form the study sample using purposive sampling technique.

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The reason for selecting the first ten (10) licensed radio stations is because of their long time existence in the industry which is most likely to enhance their competence and experience within the industry and also they are observed to be knowledgeable with more understanding about the study subject matters (employee engagement and organisational productivity) since they have long-time serving employees compare to those who are established and licensed after them. According to the National Broadcasting Commission (NBC) Ibadan zonal office, there are over 60 licensed radio stations in Oyo state as at March, 2026 among which ten (10) stations were selected: Premier FM (93.5), Oluyole FM (98.5), Oke Ogun FM (96.3), Amuludun (99.1) FM, Splash FM (105.5), Diamond FM (101.1), Ajilete FM (92.1), Star FM (91.5), Raypower FM (95.1), Parrot FM (101.1). A total of one hundred and sixty eight (168) full time staff members across the ten (10) selected stations formed the study population where one hundred and thirteen (113) were selected as the sample size for the study using Krejcie and Morgan (1970) sample size determination table. Respondents from each of the selected radio station stations were chosen through simple random sampling method. Closed-ended questionnaire consisted of 5 response options of strongly agree (SA), Agree (A), Undecided (U), Strongly disagree (SD) and Disagree (D) was developed and distributed to collect relevant information from the respondents. Standard multiple regression analysis method was adopted to test the hypotheses formulated for the study. However, the table below presents the year by which the selected radio stations are established and sample size distribution ratio.

Table 1: Population Distribution of the Sample

S/N	Radio stations	Year of License	Full-Time Staff strength	Sample Size
1	Premier FM (93.5), Ibadan	1951	19	13
2	Oluyole FM (98.5), Ibadan	1976	18	12
3	Oke Ogun FM (96.3), Alaga	1991	14	9
4	Amuludun FM (99.1), Ibadan	2007	15	10
5	Splash FM (105.5), Ibadan	2007	28	19
6	Diamond FM (101.1), Ibadan	2008	13	9
7	Ajilete FM (92.1), Ogbomoso	2009	15	10
8	Star FM (91.5), Ibadan	2012	14	9
9	Raypower FM (95.1), Ibadan	2014	17	12
10	Parrot FM (101.1), Ogbomoso	2015	15	10
	Total		**168**	**113**

Source: National Broadcasting Commission (NBC) and respective station's Human Resources Departments (2026).

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Model Specification

Two standard multiple regression models were estimated because the study operationalised emotional commitment through optimism, emotional balance and self-efficacy, and job satisfaction through performance feedback, work-advancement opportunities and internal social support. Organisational productivity was the dependent variable in both models. The models were specified as follows:

Model 1: $OP = \beta_0 + \beta_1 OPT + \beta_2 EB + \beta_3 SEF + \varepsilon$
Model 2: $OP = \beta_0 + \beta_1 PF + \beta_2 WAO + \beta_3 ISS + \varepsilon$
Where OP = organisational productivity; OPT = optimism; EB = emotional balance; SEF = self-efficacy; PF = performance feedback; WAO = work-advancement opportunities; ISS = internal social support; β_0 = intercept; β_1–β_3 = regression coefficients; and ε = error term.

Data Analysis and Regression Diagnostics

Standard multiple regression was used to test the two hypotheses at the 5% significance level. Before interpreting the coefficients, model assumptions and adequacy were evaluated using variance inflation factor (VIF) and tolerance for multicollinearity; residual normality using the Shapiro–Wilk test; linearity/specification using the Ramsey RESET test; homoscedasticity using the Breusch–Pagan test; independence of errors using the Durbin–Watson statistic; and case influence using Cook's distance and externally studentised residuals. Model adequacy was assessed using R, R^2, adjusted R^2, the omnibus F-test and ANOVA. Unstandardised coefficients (B), standard errors, standardised coefficients (β), t-statistics, p-values and 95% confidence intervals were reported. Because a small number of observations exceeded the conservative Cook's-distance screening rule of 4/n, sensitivity analyses were also conducted by excluding those observations, and HC3 heteroscedasticity-robust standard errors were examined.

Table 2: Regression Diagnostic Tests

Diagnostic	Model 1: Emotional commitment	Model 2: Job satisfaction	Decision
VIF range	1.121–1.231	1.184–1.293	No multicollinearity
Tolerance range	.812–.892	.774–.845	Acceptable
Shapiro–Wilk residual normality	W = .989, p = .502	W = .982, p = .134	Normality not rejected
Ramsey RESET linearity/specification	F = .282, p = .596	F = .166, p = .685	No evidence of misspecification
Breusch–Pagan homoscedasticity	χ^2 = 4.715, p = .194	χ^2 = 1.738, p = .629	Homoscedasticity not rejected
Durbin–Watson	2.012	1.809	Errors approximately independent
Maximum Cook's distance	.067	.101	No case near D = 1
Maximum |externally studentised residual|	2.820	2.525	No case exceeded |3|

Source: Re-analysis of Researcher's Field Survey (2026).

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Sensitivity analysis: Five cases in Model 1 and seven cases in Model 2 exceeded the conservative 4/n Cook's-distance screening threshold. Removing these cases did not change coefficient signs or the significance of the overall models. Emotional balance and self-efficacy remained significant in Model 1, while the optimism coefficient attenuated (B = .110, p = .109). All Model 2 predictors remained significant. HC3 robust standard errors retained the significance of all full-sample coefficients, including optimism (p = .035). Accordingly, the full-sample OLS estimates are reported, with the sensitivity result noted as a qualification.

Presentation of Results and Discussion of Findings

Test of Hypothesis One

$H0_1$: Emotional commitment has no significant impact on perceived organisational productivity of radio stations in Oyo state

Table 3a: Model Summary for Emotional Commitment and Organisational Productivity

R	R^2	Adjusted R^2	Std. Error of Estimate	F	df1	df2	p
.702	.492	.478	.600	35.238	3	109	<.001

Source: Re-analysis of Researcher's Field Survey (2026).

Table 3b: ANOVA for Emotional Commitment Model

Source	Sum of Squares	Df	Mean Square	F	p
Regression	38.051	3	12.684	35.238	<.001
Residual	39.234	109	.360		
Total	77.285	112			

Source: Re-analysis of Researcher's Field Survey (2026).

Table 3c: Regression Coefficients for Emotional Commitment Model

Predictor	B	SE	B	t	p	95% CI for B	VIF	Tolerance
Constant	.371	.296	—	1.254	.212	[-.215, .957]	—	—
Optimism	.156	.070	.168	2.224	.028	[.017, .295]	1.231	.812
Emotional balance	.308	.067	.334	4.620	<.001	[.176, .441]	1.121	.892
Self-efficacy	.444	.074	.443	5.976	<.001	[.297, .591]	1.179	.849

Source: Re-analysis of Researcher's Field Survey (2026).

The emotional-commitment model was statistically significant, $F(3, 109) = 35.238$, $p < .001$, with $R^2 = .492$ and adjusted $R^2 = .478$. Thus, optimism, emotional balance and self-efficacy jointly explained 49.2% of the variance in organisational productivity. Optimism had a positive significant effect (B = .156, β = .168, t = 2.224, p = .028, 95% CI [.017, .295]); emotional balance also had a positive significant effect (B = .308, β = .334, t = 4.620, p < .001, 95% CI [.176, .441]); and self-efficacy had the largest standardised effect (B = .444, β = .443, t = 5.976, p < .001, 95% CI [.297,

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.591]). On the basis of the full-sample model, H01 was rejected. The influence sensitivity analysis, however, indicates that the optimism coefficient is less stable than the emotional-balance and self-efficacy coefficients and should therefore be interpreted cautiously.

Test of Hypothesis Two

$H0_2$: There is no significant effect of Job satisfaction on perceived organisational productivity of radio stations in Oyo state

Table 4a: Model Summary for Job Satisfaction and Organisational Productivity

R	R^2	Adjusted R^2	Std. Error of Estimate	F	df1	df2	p
.722	.521	.508	.583	39.472	3	109	<.001

Source: Re-analysis of Researcher's Field Survey (2026).

Table 4b: ANOVA for Job Satisfaction Model

Source	Sum of Squares	df	Mean Square	F	p
Regression	40.242	3	13.414	39.472	<.001
Residual	37.043	109	.340		
Total	77.285	112			

Source: Re-analysis of Researcher's Field Survey (2026).

Table 4c: Regression Coefficients for Job Satisfaction Model

Predictor	B	SE	β	T	p	95% CI for B	VIF	Tolerance
Constant	.386	.282	—	1.371	.173	[-.172, .945]	—	—
Performance feedback	.360	.069	.392	5.199	<.001	[.223, .497]	1.293	.774
Work adv.	.264	.066	.292	3.980	<.001	[.133, .396]	1.221	.819
Internal social support	.266	.072	.266	3.693	<.001	[.123, .408]	1.184	.845

Source: Re-analysis of Researcher's Field Survey (2026).

The job-satisfaction model was statistically significant, $F(3, 109) = 39.472$, $p < .001$, with $R^2 = .521$ and adjusted $R^2 = .508$. Performance feedback, work-advancement opportunities and internal social support therefore explained 52.1% of the variance in organisational productivity. Performance feedback had the largest standardised effect ($B = .360$, $\beta = .392$, $t = 5.199$, $p < .001$, 95% CI [.223, .497]), followed by work-advancement opportunities ($B = .264$, $\beta = .292$, $t = 3.980$, $p < .001$, 95% CI [.133, .396]) and internal social support ($B = .266$, $\beta = .266$, $t = 3.693$, $p < .001$, 95% CI [.123, .408]). H02 was therefore rejected. The sensitivity analysis excluding potentially influential cases retained the direction and statistical significance of all three coefficients.

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Discussion of Findings

The findings show that the personal-resource dimensions used to represent emotional commitment were collectively associated with organisational productivity. The model explained 49.2% of the variance in productivity. Self-efficacy produced the strongest standardised coefficient (β = .443), followed by emotional balance (β = .334) and optimism (β = .168). This pattern is consistent with the JD-R perspective that personal resources can sustain energy, persistence and adaptive functioning at work. The sensitivity analysis nevertheless suggests that the optimism effect is comparatively less stable when potentially influential observations are excluded, whereas emotional balance and self-efficacy remain robust.

Job-satisfaction resources also demonstrated a strong relationship with organisational productivity, explaining 52.1% of its variance. Performance feedback showed the largest standardised effect (β = .392), while work-advancement opportunities (β = .292) and internal social support (β = .266) also made significant positive contributions. These findings indicate that employees are more likely to report higher productivity where they receive useful feedback, perceive opportunities for advancement and experience supportive internal relationships.

Taken together, the two models provide evidence that both personal resources and job resources are relevant to productivity among employees of the selected radio stations. The diagnostic results strengthen confidence in the estimates because multicollinearity was low, the residual assumptions were acceptable, and the omnibus tests for both models were highly significant. The results therefore support the study's adoption of the JD-R model, while also showing that the strength of individual resource dimensions differs.

The results broadly agree with prior evidence that employee engagement is positively associated with employee and organisational outcomes (Souad & Oussama, 2025; Diaka et al., 2021). However, the present study adds a more differentiated result by showing that self-efficacy is the strongest personal-resource predictor and performance feedback is the strongest job-resource predictor in the estimated models. These relative effects provide a clearer basis for managerial prioritisation than the earlier, unqualified conclusion that all dimensions exert equal influence.

Conclusion and Recommendations

In conclusion, the study examined the contribution of employee engagement to organisational productivity through two sets of resources: optimism, emotional balance and self-efficacy as personal-resource dimensions of emotional commitment; and performance feedback, work-advancement opportunities and internal social support as job-satisfaction resources. Both regression models were statistically significant and explained substantial proportions of the variance in organisational productivity.

The job-satisfaction model explained 52.1% of the variance in organisational productivity, with performance feedback emerging as the strongest predictor. The emotional-commitment model explained 49.2%, with self-efficacy emerging as the strongest predictor. The findings therefore indicate that both employee-level personal resources and workplace-provided job resources are important for productivity.

The regression diagnostics supported the adequacy of both models: multicollinearity was low, residual normality and homoscedasticity were acceptable, and no observation reached

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conventional severe-influence thresholds. A sensitivity analysis showed that the optimism coefficient is less stable than the other emotional-commitment dimensions, so this specific relationship should be interpreted with caution.

Overall, the evidence supports the conclusion that employee engagement is positively associated with organisational productivity in the selected radio stations. The results particularly emphasise self-efficacy, emotional balance, performance feedback, work-advancement opportunities and internal social support as consistent correlates of higher productivity.

The study recommends the followings:

i. Radio stations are encouraged to pay more attention to employee engagement through fair and equitable promotion pathway, management and employees relationship, involvement in core radio stations activities, supportive supervisory services to enhance organisational attachment and affiliation.

ii. Management should focus on promoting employees' job satisfaction by creating performance feedback mechanism, work advancement opportunities and internal support system to promote high organisational productivity

References

AbdulHaleem, Q. & Syed, S. (2024). A study on impact of employee engagement on employee productivity. *International Journal of Research Publication and Reviews, 5*(3), 1000 1010.

Birger, W. (1984). A resource-based view of the firm. *Strategic Management Journal, 5*(2), 171 -180.

Deby, K., & Susi, H. (2023). Employee engagement: A literature review. *Indonesian Journal of Agricultural Economics, 14*(1), 20-30.

Diaka, H., Yande, H. M., Ahmed, I. A. & Kpelai, T. (2021). Employee engagement and performance of mikap Nigeria limited, Makurdi. *Journal of Management and Contemporary Studies*, 63-75.

Faith, P., Amah, E. & Okocha, B. F. (2022). Employee engagement and organisational productivity: Theoretical perspective. *International Journal of Latest Technology in Engineering, Management & Applied Science, 11*(5), 21-28.

Khodani, P. H. (2024). *Investigating the impact of employee engagement on employee performance. A case of a Gauteng Based Call-Centre*. PhD Dissertation submitted to the Department of Human Resources program at Selinus University.

Markos, S., & Sridevi, M. S. (2019). Employee engagement: The key to improving performance. *International journal of business and management, 5*(12), 89.

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Moammar, J. A. & Singh S. K. (2024). Employee engagement: A literature review. *International Journal for Multidisciplinary Research, 6*(6), 1-4.

Moses, M. & Marien M. (2025). Effect of employee engagement on employee productivity in a manufacturing company in Lusaka: A case of Varun Beverage. *International Journal of Advances in Engineering and Management 7*(7), 293-303.

Perez, G. (2021). Analyzing the impact of entrepreneur's economic motivations on new firm's growth using a longitudinal empirical analysis. *2018 International Council for Small Business World Conference*.

Perumal, R. G., Nita, I. S. & Kemlall, R. R. (2022). Employee engagement and the impact on productivity in a South African FMCG company. *Proceedings of the 7th North American International Conference on Industrial Engineering and Operations Management, Orlando, Florida, USA.*

Rania, S. (2020). The impact of employee engagement on productivity: A case of the Egyptian public sector. *Arab Journal of Administration, 40*(3), 301-310.

Reissová, A. & Papay, M. (2021). Relationship between employee engagement, job satisfaction and potential turnover. *TEM Journal. 10*(2), 847-852.

Satata, D. B. M. (2021). Employee engagement as an effort to improve work performance: Literature review. *Ilomata International Journal of Social Science, 2*(1), 41-49.

Schaufeli, W. B. (2013*). What is engagement in C. Truss, K. Alfes, R. Debridge, A. Shantz, & E. Soane (Eds), Employee engagement in theory and practice*. London: Routledge.

Souad, O., & Oussama, M., (2025). The impact of employee engagement on organisational performance: Case of Alibaba Group. *International Journal of Research and Innovation in Social Science, 8*(12), 1476-1488.

Tamunosiki-Amadi, J. O., Timi, M. E., & Dogitimiye, M. (2020). Employee involvement and organisational productivity in the Bayelsa state banking sector. *International Journal of Economics and Management Studies 7*(2), 160-168.

Yahya, A. M. A. (2024). The impact of employee engagement on employee performance and satisfaction in Bank Muscat. *Global Scientific Journal, 12*(6), 1775-1854.

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Stability Without Stagnation: Comparative Reflections on Governance Reforms under Tokugawa Ieyasu of Japan and *Alaafin* Abiodun of Ọyọ Empire

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DOI: https://doi.org/10.5281/zenodo.23267137

Abstract

This paper interrogates governance, stability, and social change under Tokugawa Ieyasu of Japan and *Alaafin* Abiodun of the Ọyọ Empire to assess the ability of pre-modern states to maintain order without stagnation. The study, based on historical and comparative analysis, examines the institutional, economic, cultural and intellectual reforms undertaken by both leaders and their strategies for consolidating power and maintaining societal cohesion. Tokugawa Ieyasu's centralisation, codification of laws and promotion of Neo-Confucian ethics resulted in a long period of peace and cultural efflorescence, while *Alaafin* Abiodun's governing of the *Ọyọmesi*, vassal towns and ritualised governance ensured political stability and the transmission of oral knowledge. Nevertheless, for all these successes, each polity had to grapple with inherent contradictions and structural constraints: rigid hierarchies, economic pressures, succession disputes and constraints on innovation demonstrated the difficulties of long-term stability. The comparative analysis shows that effective governance required dealing with authority, economic matters, and cultural guardianship, but depended on the context, norms of society, and individual leader. A comparative analysis of these cases shows the intricate relationship between stability, institutional reform and societal development, providing insights into how pre-modern states maintained continuity, change and modernisation in complex socio-political environments. The findings point to the possibility that stability and intellectual, cultural and economic progress could go hand in hand, but within limits set by historical and structural conditions. The study uses the comparative-historical institutional approach. It uses a controlled comparison of two pre-modern polities, which are politically and culturally different, in an effort to evaluate the impact of institutional arrangements on changing political stability into economic, social and cultural dynamism.

Keywords: Tokugawa Japan, Ọyọ Empire, governance reforms, institutional consolidation, cultural development, comparative history

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Introduction

The challenge of building political stability without constraining the dynamism of society is a recurring subject in world history. States that emerged from prolonged internal conflict usually face the uphill task in balancing coercion with institutional coherence and authority with social or economic flexibility. Tokugawa Ieyasu in seventeenth century Japan and *Alaafin* Abiodun in eighteenth century Ọyọ both faced this dilemma. Each of both rulers inherited a political landscape characterised by incessant elite struggle within the precipitating internal disorder, and waning central authority. Yet both succeeded in creating relatively durable political systems that not only restored order but also created conditions for economic expansion, intellectual and cultural vibrancy, and administrative continuity. Their experiences provide an instructive vantage for understanding how stability can offer a context for stimulating constructive change in pre-modern polities.

Tokugawa Ieyasu's ascension to power followed more than a century of civil war in Japan, a period known as the *Sengoku* era. Through strategic alliances, administrative reforms, and the establishment of the Tokugawa *bakufu* (military government) in 1603, Ieyasu constructed a durable political order that mollified the *daimyō*, reorganised domains, and helped produce one of the most stable political systems in early modern Japan (Totman, 1995). While the Tokugawa system emphasised hierarchy and control, it paradoxically created fertile ground for commercial prosperity, urban growth, greater literacy, and a vibrant cultural advancement (Hall, 1968; Gordon, 2020). Hence, economic and social dynamism thus unfolded within, not in spite of, the shogunate's strict political order.

In the same instance, *Alaafin* Abiodun's reign in Ọyọ coincided with a moment of recovery from a repressive internal situation that was dramatically characterised by the extortion and despotism exacted by *Bashọrun* Gaha. The ascension of Abiodun restored balance to a polity susceptible to elite overreach and political violence. Scholars like Law (1977) and Smith (1988) argue that Abiodun brought a subtle change from a belligerent expansion model towards one which was commercially minded and diplomatically flexible. Under his leadership, Ọyọ experienced renewed stability, the consolidation of long distance trade networks, and the reassertion of royal moral authority. Although the empire would later face pressures that exposed its structural weaknesses, Abiodun's reign stands out as a period in which peace and political forbearance engendered economic and cultural renewal.

The comparison of Tokugawa Ieyasu and *Alaafin* Abiodun offers an opportunity to explore how two rulers in different geographical and cultural milieus pursued governance reforms that achieved stability without stagnation. It also informs discussions in comparative political history about the processes of state consolidation, elite management, and institutional resilience in early modern societies (Fukuyama, 2011; Herbst, 2000). By juxtaposing Japan with Old Ọyọ Empire, this paper attempts to show that the capacity for order and change is not a uniquely European or modern phenomenon but a pattern observable in diverse precolonial state systems.

The study has three related objectives. First, it examines the governance and institutional reforms through which Ieyasu and Abiodun sought to consolidate political order and manage competing elites. Second, it compares the economic, social, cultural, and intellectual consequences of those strategies in order to explain how political stability could coexist with forms of societal

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dynamism. Third, it identifies the contradictions and limits of the two governance arrangements and draws historically grounded lessons about institutional durability, adaptability, and contemporary governance. The paper therefore asks: what were the governance reforms that allowed Ieyasu and Abiodun to stabilise their polities, and why did these reforms generate socio-economic dynamism rather than stasis? How did their political philosophies characterise institutional design, and what explains the long term courses of their states after their deaths? Through a structured comparative approach, the study interrogates the interplay between authority, reform, and societal transformation in two influential non-Western polities.

Literature Review

Scholarship on Tokugawa Japan has paid considerable attention to the political institutions, social hierarchy, economic transformation, and intellectual life that developed after the establishment of the Tokugawa *bakufu*. Hall (1968), Jansen (2000), Totman (1995, 2014), and Ooms (1985), among others, demonstrate that Tokugawa stability rested on more than military victory: it involved the regulation of the *daimyō*, the organisation of domains, ideological legitimation, and the management of social obligations. Studies of education and culture similarly show that political order coexisted with expanding literacy, urbanisation, commercial activity, and cultural production (Dore, 1965; Gordon, 2020). The implication of this literature is important for the present study because it complicates any simple opposition between political control and social dynamism. Yet much of the scholarship examines Tokugawa institutions within the Japanese historical trajectory rather than placing them in sustained comparison with a non-Asian precolonial polity.

The historiography of Old Ọyọ likewise provides substantial accounts of its political organisation, imperial expansion, commercial networks, and internal tensions. Atanda (1980), Law (1977), Lloyd (1971), Smith (1988), and related scholarship show that the Ọyọ political system combined sacred kingship with institutional checks involving the *Ọyọmesi*, the *Bashọrun*, and other political authorities. Law's study is particularly important for understanding the relationship between Ọyọ imperial power, warfare, tribute, and Atlantic commerce, while later interpretations have continued to examine the tensions between military and commercial orientations during the eighteenth century. The literature therefore provides a basis for understanding Abiodun's reign as a period of political recalibration rather than simply a personal episode of royal rule.

The comparative-historical literature provides the conceptual bridge between these two bodies of scholarship. Comparative historical analysis is concerned with historically grounded explanation, systematic comparison, attention to context, and the temporal processes through which institutions and political outcomes develop (Mahoney & Rueschemeyer, 2003). Historical institutionalist scholarship likewise stresses that institutions are neither static arrangements nor merely formal rules; they develop through political struggles and may be reproduced, adapted, or constrained over time (Thelen, 2003). What remains relatively underexplored in the literature used in this study is an explicit comparison of Tokugawa Ieyasu and *Alaafin* Abiodun around the common analytical problem of achieving durable political stability while permitting economic, social, and cultural adaptation. This study addresses that gap through a focused comparison rather than by claiming that the two polities were institutionally equivalent.

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Theoretical Framework: Comparative-Historical Institutionalism

This study is situated within the comparative-historical tradition of institutional analysis, which treats institutions not simply as formal administrative structures but as historically developed arrangements through which political actors organise authority, regulate competition, allocate resources, and reproduce political order (Mahoney & Rueschemeyer, 2003). Comparative historical analysis is particularly useful where cases are separated by geography, culture, and chronology but confront a comparable analytical problem. The purpose is not to suggest that Tokugawa Japan and Old Ọyọ were equivalent political systems, but to use a controlled comparison to identify convergences and divergences in the ways political order was constructed and sustained. The comparison therefore focuses on institutional responses to instability rather than on superficial similarities between the two rulers.

The analytical concept guiding the comparison is stability without stagnation. Here, stability refers to the capacity of a political order to contain destructive conflict, regulate elite competition, and preserve institutional continuity, while stagnation refers to a condition in which mechanisms of political control become so rigid that they restrict economic, social, or intellectual adaptation. The study consequently asks whether, and under what conditions, institutional control can coexist with productive change. This framework allows the two cases to be compared across four dimensions already central to the paper: political and institutional reform, economic governance and social transformation, cultural and intellectual life, and the contradictions that affected the durability of reform.

Methodology and Comparative Approach

The paper adopts a qualitative historical-comparative methodology based primarily on secondary historical scholarship on Tokugawa Japan and the Ọyọ Empire. The two cases were selected because both emerged from periods of political conflict and elite competition in which rulers sought to reconstruct political order, yet they differed substantially in institutional structure, political culture, economic orientation, and mechanisms of knowledge transmission. This difference makes a controlled comparison useful for identifying both common mechanisms and context-specific outcomes. The analysis proceeds thematically rather than chronologically, comparing the cases under the four dimensions established in the theoretical framework: governance and institutional reform; economic stability and social transformation; cultural and intellectual life; and contradictions and long-term sustainability. Historical interpretation is used to distinguish the policies directly associated with Ieyasu and Abiodun from institutions that were subsequently formalised or developed under their successors. The method therefore combines contextual reconstruction with cross-case comparison and avoids treating either polity as a simple model of modern governance.

Historical Background of Japan and Old Ọyọ

To get a more complete picture of the Tokugawa shogunate that was established in 1603, it is necessary to refer to the background of one of the most chaotic periods in Japanese history. The decline of the Ashikaga shogunate in the mid-fifteenth century created a power vacuum that plunged the country into the *Sengoku*, or Warring States, period (c.1457-1600). During this time, powerful local warlords known as *daimyō* ruled their domains independently, built strongholds, maintained private armies, and regularly fought wars to expand their territory or defend their

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autonomy. Political authority was so fragmented that even the emperor and the royal court in Kyoto lost much of their traditional influence (Hall, 1968; Totman, 2014).

This prolonged warfare gave rise to new military tactics, building of castles, shaky alliances, and a politics of opportunism. The ensuing period of instability witnessed the rise of a new faction of warlords, who had to fight for their right to rule. They were not so much dependent on heredity as on military capability and strategic acumen (Berry, 1982). It was within this volatile political landscape that three unifiers, Oda Nobunaga (1534-1582), Toyọtomi Hideyoshi (1537-1598), and Tokugawa Ieyasu (1543-1616), began the process of rebuilding centralised authority. Nobunaga initially dismantled the military orders of rival *daimyō*, brought militant religious institutions under control, and restructured domains under central oversight. After his death, Hideyoshi completed much of the unification efforts through reforms such as the sword hunt, segregation of class, nationwide land surveys, and a freeze on social mobility (Totman, 2014). However, Hideyoshi's death in 1598 reopened old rivalries, especially over succession and governance, drawing Ieyasu and other leading *daimyō* into the dispute.

The Battle of Sekigahara in 1600 was decisive in settling the question of who the rightful owner of the realm was. The victory of Ieyasu at Sekigahara enabled him to eliminate major rivals and make himself the dominant political force. He was officially appointed *Seii Taishōgun* (Barbarian-Subduing Generalissimo**)** by Emperor Go-Yōzei in 1603. This signalled the official establishment of the Tokugawa *bakufu* – the third military government in Japanese history after the Kamakura (1185-1333) and the Ashikaga (1336-1573) shogunates. The seat of the new regime was established at Edo, a small fishing village that Ieyasu had transformed into a political and military capital. Scholars such as Totman (1995) point out that Ieyasu's brilliance was not only in military success, but in creating a political system that controlled *daimyō* autonomy, safeguarded succession stability, and entrenched peace across the realm. The Tokugawa settlement created a centralised but carefully balanced regime that steadily put an end to the instability after more than a hundred years. Thus, the early Tokugawa era was a direct response to the crises of the *Sengoku* period. Ieyasu took over the administrative legacies of Nobunaga and Hideyoshi, but he transformed them into a lasting political structure. The historical context explains why the new regime set itself the task of consolidating institutions, managing elites and restoring the power of the centre.

The Ọyọ Empire, one of the most influential political states in precolonial West Africa, also emerged from a background of fluctuating power, territorial ambitions, and internal constitutional challenges. Located in the savannah north of the forest belt, Ọyọ developed a military system that was heavily dependent on cavalry. On the strength of its military power, Ọyọ was able to extend its influence over a wide area. By the close of the 17th century and early 18th century, Ọyọ had a huge tributary networks of control extending to the Niger River, the Egbado corridor, and parts of the Dahomey region (Smith, 1988; Law, 1977). The political structure of the Empire was peculiar. Power was divided between the *Alaafin*, the sovereign king; the *Ọyọmesi*, a council of kingmaker chiefs; and the *Ogboni*, the ancestral cult group, each playing a role in balancing power. This prevented the Ọyọ from becoming an absolute monarchy, but also meant the Ọyọ were subject to periods of aristocratic dominance. One of the most disruptive was the rise of *Bashọrun* Gaha in the eighteenth century. As the head of the *Ọyọmesi*, Gaha used his position to challenge the royal authority, to orchestrate the death or deposition of a number of *Alaafin* and to run the state through

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a form of oligarchic manipulation (Lloyd, 1971; Balogun, 1985). His authority destabilised the empire and weakened the legitimacy of the monarchy.

This period of political instability is somewhat similar to the political disunity of Japan preceding the Tokugawa settlement. For years, the unity of Old Ọyọ was strained by constant internal strife and the disintegration of central authority. As the centre could no longer hold, things began to fall apart: tributary regions grew restless, aristocratic factions became more assertive, and the distribution of power shifted in a manner that could not be sustained. As Balogun (1985) opines, Gaha's era exposed the structural tensions within Ọyọ's political system by demonstrating how its checks and balances could be exploited rather than used to maintain equilibrium. The turning point came with the coalition that opposed and eventually annihilated Gaha. The coming of Abiodun to power was a moment of political recalibration. His rise restored the prestige of the *Alaafin's* office and re-established constitutional balance. Unlike his predecessors, Abiodun pursued a governance model grounded more in diplomacy, commercial expansion, and stabilisation than in constant militarism. According to Law (1977), this transition was not merely personal style but a strategic response to the empire's exhaustion after decades of turmoil.

Under *Alaafin* Abiodun, Ọyọ benefited from the expansion of long distance trade networks. The empire became an important economic hub linking the Niger basin, the northern markets, and the Atlantic coast. Peace and political restraint within the polity facilitated economic growth, urban expansion, and cultural consolidation. Although the empire would later confront pressures that exposed its long term weaknesses, Abiodun's reign stands out and is remembered as a period when political recovery created the conditions for social and economic rejuvenation.

Governance and Political Philosophy of Tokugawa Ieyasu and *Alaafin* Abiodun

The political visions of Tokugawa Ieyasu and *Alaafin* Abiodun were shaped by different historical experiences which converged around a fundamental commitment to order, stability and the careful management of power. Their governance principles emerged from periods of turbulence, and both leaders sought to build systems that would moderate conflict, curb elite competition and secure long term political cohesion. Although they operated in completely different cultural contexts, their concepts of power, legitimacy, and public order revealed striking parallels that make a comparative study analytically rewarding.

Tokugawa Ieyasu's political reflection was grounded in Neo-Confucian rationalism which had gained increasing acceptance in Japan from the fourteenth century onward. Confucian political philosophy emphasised hierarchy, moral governance and the importance of social harmony, principles that Ieyasu drew upon in constructing the Tokugawa state. According to Herman Ooms (1985), Ieyasu and his successors employed the Confucian ideology as the basic principle for legitimising the *bakufu* order, presenting the picture of the society as a moral community whose stability depended on strict order and disciplined conduct. Hence, the Tokugawa class system that separated *samurai*, peasants, artisans and merchants (*shi-nō-kō-shō*) was not only a political realisation but also an ethical project, which was aimed at promoting stability by making it clear who would play which role in society.

Ieyasu also believed in restrained but firm central authority. Rather than an absolutist governance system, his philosophy sought a pragmatic balance between central authority and the

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daimyō autonomy. Hall (1970) and Jansen (2000) demonstrated clearly that the Tokugawa system did not eliminate the *daimyō* but incorporated them through a regulated set of institutional constraints such as the *sankin kotai* (alternate attendance) system, marriage regulations and limits on castle construction. These controls mirrored Ieyasu's persuasion that stability required a regulated political pluralism in which many centres of power existed but were systematically subordinated to the shogunate. Ieyasu's government therefore established a model, the *baku-han* system, which ensured a stable coexistence, permitting the economic development of the independent domains while at the same time preventing the emergence of opponents strong enough to disrupt national order.

Alaafin Abiodun's political ideas, although based on Yoruba concepts of sacred kingship, was similarly a pragmatic approach to finding a balance between different internal forces. The Ọyọ imperial system had combined divine kingship with strong institutional checks, especially those exercised by the *Ọyọmesi* and the *Ogboni*, for a long time. Historians like Akinjogbin (1967) and Law (1977) have observed that Ọyọ political thought was heavily influenced by the ideals of consultation, moral conduct, and the ruler's obligations to the people. The *Alaafin's* power was a measure of his ability to rule with mildness, promote the welfare of the people, and preserve the peace among competing military, priestly and aristocratic groups. Abiodun, who ruled Ọyọ in the mid to late 18th century, inherited a polity that had undergone decades of imperial expansion, military assertiveness and internal tensions. His political philosophy thus highlighted moderation, accommodation and the recalibration of civil military relations. As Lloyd (1971) and Smith (1988) argue, Abiodun sought to reduce the supremacy of the *Ẹṣọ* (the military aristocracy) that had gained power during previous campaigns. He repositioned civil institutions, brokered alliances with merchant elites and stimulated a more consultative style of rulership. These decisions demonstrated his commitment to a governance style that prioritised internal stability and economic prosperity over aggressive expansion of territories.

Both Ieyasu and Abiodun viewed governance not simply as the exercise of coercive power but as an ethical project that is based on moral leadership, predictable institutions and managed elite competition. While Ieyasu adopted the Confucian principle of order and benevolence almost exclusively, Abiodun operated within Yoruba cosmological framework whereby political authority was tied to checks and balance and the collective will of the kingmaker chiefs. Hence, both contexts required self-discipline, patience and foresight on the part of the rulers as the price of good governance. Ieyasu's famous words in the Tokugawa Testament urging princes to master frugality, avoid rashness in decision making and put the preservation of long-term stability above short-term desires is a reflection of Abiodun's reputation as a calm and temperate ruler who steered Ọyọ through a difficult period of political transition.

Equally important is the fact that both leader equated stability with rigidity although their political orientation accommodated adaptation when necessary. Ieyasu encouraged agricultural expansion, domain reforms and innovations in resource management, while Abiodun supported commercial growth, diplomatic accommodation and more predictable taxation. These political choices show a shared belief that stability must be dynamic, maintained through flexible but principled governance rather than through stasis. To summarise, the governance ideologies of Tokugawa Ieyasu and *Alaafin* Abiodun is an illustration of how ideas, institutions and leadership values can align to produce enduring political order. Although their societies differed distinctly in

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culture and structure, both rulers articulated a vision of statecraft that cherished balance, moral authority and the long term cultivation of stability without disregarding the potential for change.

Institutional Reforms and Consolidation of Power

The central mechanism by which Tokugawa Ieyasu and *Alaafin* Abiodun acquired authority, stabilised their polities and ensured continuity in governance was institutional reform. Although their approaches differed, reflecting the social structures and political cultures of early modern Japan and eighteenth-century Ọyọ, both leaders displayed a clear awareness that stability required institutional engineering, not merely personal charisma or military strength. Hence, the reforms pursued by Ieyasu and *Alaafin* Abiodun reorganised the mechanisms of governance, managed elite factions and reshaped political practices to entrench durable authority.

In Japan, Tokugawa Ieyasu's reforms were comprehensive and system wide. Emerging from more than a century of civil conflict, he recognised that peace could be sustained only if the sources of *daimyō* rivalry were structurally constrained. His first major reform was the reorganisation of land distribution which redefined the relationship between the shogunate and the domains (*han*). According to Hall (1970) and Totman (1995), Ieyasu redistributed vast territories, rewarding loyal allies with productive lands while weakening defeated rivals by assigning them fragmented or less fertile domains. This redistribution served a double purpose, to consolidate his base of support and to limit the capacity of hostile families to renew challenges. In addition to this, the creation of *bakufu* administrative organs was another important reform. Ieyasu set up a central bureaucracy that was largely composed of *fudai daimyō*, hereditary vassals who were considered politically reliable. This bureaucracy included the *roju* (senior councillors), the *wakadoshiyori* (junior councilors) and various commissioners. This bureaucracy allowed the shogunate to co-ordinate national policy while running a relatively lean but functional administration (Jansen, 2000). Trusted retainers in key offices provided policy coherence and insulation from competing *daimyō* interests for the shogunate.

Institutionally, Ieyasu's most significant innovation was the *sankin kota*i system, formalised by his successors but rooted in his consolidation strategy. *Sankin kotai* required *daimyō* to alternate residence between their domains and Edo while maintaining their families in the capital as political hostages. The system was not just coercive, it produced predictable rhythms of political interaction, encouraged economic integration through travel and expenditure requirements, and created a busy administrative and cultural centre in Edo (Totman, 1995). It also drained the resources of the *daimyō*, reducing their ability to make war and encouraging investment in local economic development. In addition, Ieyasu's legal reforms further enhanced central authority. The *Buke Shohatto* of 1615 laid down behavioural regulations for the daimyō, mandating modest castle construction, prohibiting military alliances without shogunal approval, and dictating moral conduct based on Neo-Confucian ethics. As Ooms (1985) argues, these legal codes established a normative order that tied political obedience to moral propriety, ensuring that governance was based not only on armed force, but also ideological discipline.

But *Alaafin* Abiodun, ruling in a rather different political environment, introduced reforms that were less bureaucratic but no less important in reshaping the balance of power in Ọyọ. Whereas Ieyasu sought to control a militarised aristocracy weakened by civil strife, Abiodun faced a polity dominated by military elites whose powers had grown over decades of imperial expansion.

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His reforms aimed at reducing reliance on military force and strengthening civil institutions, and reorienting Ọyọ toward commercial and diplomatic engagement. One of Abiodun's most notable reforms was the recalibration of civil-military relations. He curtailed the influence of the *Ẹṣọ* (the metropolitan military corps) whose commanders had become increasingly assertive under his predecessor, *Alaafin* Ojigi. According to Smith (1988) and Law (1977), Abiodun reduced the frequency of expansionist campaigns, redirected resources toward internal consolidation and strengthened the roles of non-military institutions such as the *Ọyọmesi* and the *Ogboni*. While he did not abolish the *Ẹṣọ* or undermine Ọyọ's military capacity, he succeeded in subordinating military elites to a greater, more balanced political structure.

Abiodun also pursued reforms in taxation and economic governance. With the growth of Atlantic commerce and the rising importance of coastal trading networks, he sought to stabilise revenue systems and create predictable commercial conditions. Scholars such as Atanda (1980) note that Abiodun promoted trade with European merchants at the coast, encouraged the circulation of goods such as kola, salt and cloth and worked to secure trade routes, especially those linking Ọyọ to Dahomey and the Niger basin. By shifting focus from aggressive raiding to controlled commercial diplomacy, he increased state revenue while reducing costly military campaigns. His diplomatic reforms were equally important. Abiodun's reign is associated with the consolidation of tributary relationships that had grown unstable after decades of warfare. Rather than relying solely on force, he embraced a more conciliatory diplomatic posture. Lloyd (1971) argues that Abiodun redefined Ọyọ's imperial authority by emphasising negotiated settlements, arbitration and trade guarantees. His alliance building with merchant networks, especially the Hausa and Nupe traders, also secured Ọyọ's regional influence through economic, as well as purely military, means.

Institutionally, Abiodun reinforced existing political checks on the *Alaafin*, rather than dismantling them. The *Ọyọmesi*, led by the *Bashọrun*, retained its authority to consult, advise and if necessary compel a ruler to commit ritual suicide, an extreme but constitutionally recognised safeguard. Instead of resisting these mechanisms, Abiodun worked within them, using consultation to build consensus and legitimacy. Akinjogbin (1967) notes that his inclusive political style helped stabilise a system prone to factional conflicts, making his reign one of the most peaceful in the history of imperial Ọyọ. Abiodun's reforms also extended into social governance. He urged the *Ogboni* society, which performs earth rituals and moral adjudication, to take a more aggressive role in mediating disputes, especially in the provinces. This relieved the central government of some of its burden and produced a local type of judicial order. These reforms showed that stability in a geographically dispersed empire depended upon strong intermediary institutions that could reinforce central directives at the grassroots.

While culturally different, the reforms of Ieyasu and Abiodun display common reasoning when compared to each other. Both rulers were working within a fragmented political context defined by powerful elites and long-standing traditions of warfare. Both understood that stability was not just about personal power, but institutional patterns that could help moderate elite competition and reduce the incentives for rebellion. Ieyasu did this by establishing a centralised bureaucratic order and a codified hierarchy, whereas Abiodun used a decentralised authority that balanced kingmakers, priests, merchants and military leaders. Both rulers also implemented reforms that integrated their polities economically. For Ieyasu this was in the form of domain

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reforms, commercial expansion and infrastructural expansion caused by *sankin kotai*. For Abiodun this meant setting up trade networks, stabilising taxation and repositioning Ọyọ as a regional commercial power. Their economic policies were not divorced from political consolidation, but were a part of it, generating prosperity that buttressed legitimacy and reduced internal conflict.

At the end of the day, both rulers displayed a sophisticated understanding of the connection between institutional design and political stability. They did not act as absolute monarchs, but as strategic managers of complex societies. Their reforms helped create systems and institutions that outlived their personal reigns. This illustrates that lasting stability emerges when political power is embedded in resilient institutions, not merely in the strength of individual rulers.

Economic Stability and Social Transformation of Tokugawa Japan and Old Ọyọ

The economic landscapes of Tokugawa Japan and Ọyọ of the 18th century were characterised by policies that sought to stabilise production, regulate commerce and reorganise social relations in ways that supported long term political authority. Although the two societies were located in different ecological zones and had different cultural traditions, Tokugawa Ieyasu and *Alaafin* Abiodun both implemented reforms that linked economic resilience to larger projects of political consolidation. Their approaches reveal corresponding logics of state building, especially in the ways they curbed aristocratic predation, enhanced agricultural productivity and encouraged regulated commercial activities that strengthened socio-political stability.

The first two decades of the 17th century were a period when Tokugawa Japan struggled with problems that emerged as a result of the preceding hundred years of internal warfare. The consequence was a fragmented agrarian economy marked by interrupted production, fluctuating tax revenues and unstable transport networks. Ieyasu realised that the restoration of agricultural prosperity, the stabilisation of land rights, and the uninterrupted flow of revenue to the shogunate and its vassals was the only way in which he could establish an enduring authority. One of his most important reforms was codification of land surveys (*kenchi*), which detailed assessments of cultivated land, estimated harvests, and the tax-paying potential of each domain (Totman, 2014). These surveys reduced indiscriminate levies, checked excesses of the *daimyō* and furnished fiscal clarity necessary for long term governance. By the 1630s, the Tokugawa administration had successfully restored a system of rice-based village productivity, linking it to the stipends of *samurai* retainers and to the fiscal stability of the *bakufu* (Hall, 1968; Totman, 1995).

Another significant reform was the development of internal commerce. Although Ieyasu and his successors maintained strict control on foreign trade, especially after the *sakoku* edicts of the 1630s, they established extensive domestic commercial networks. Castle towns expanded rapidly both as administrative centres and centres of artisan production, while important urban centres such as Edo, Osaka and Kyoto became hubs of a monetised economy established around rice exchanges, merchant guilds and transport guilds (Sheldon, 1958). The growth of a wealthy merchant class, though socially inferior in the official hierarchy, contributed to a vibrant commercial economy that supported population growth, urban development and cultural production. Tokugawa economic reforms therefore produced stability, while encouraging considerable social dynamism as new occupational groups emerged and consumption patterns changed.

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The reign of *Alaafin* Abiodun witnessed the transformation Ọyọ into a major economic hegemon, driven largely by its prolonged capacity for long distance trade. Unlike Tokugawa Japan's isolationist trajectory, Ọyọ developed and became prosperous under a web of commercial networks that stretched from the savannah to the forest belt and Atlantic coast. Before Abiodun, Ọyọ was enmeshed in political instabilities sparked by internal wars, the weighty influence of the *Ọyọmesi* and the militarisation associated with the expansionist policies of *Alaafin* Ojigi and *Alaafin* Onisile. Abiodun sought to divert the energy of the state away from ceaseless military campaigns toward commercial expansion, agricultural abundance and diplomatic management of tributary provinces for better and effective control (Akinjogbin, 1967).

One of his major economic measures was the restoration of security along the trade routes that connected Ọyọ to the Hausa city-states, Borgu territories, Dahomey and the coastal markets at Allada and Porto-Novo. This was because Abiodun fostered alliances with provincial chiefs, reduced capricious raids that endangered caravans and promoted conditions that made it possible for traders to convey commodities such as kola nuts, cloth, leather, horses, salt, slaves, and manufactured goods with minimal disturbance (Falola & Akintoye, 1980). This change from militarism to commerce transformed the social landscape of Ọyọ and allowed a predictable flow of tribute and market-based wealth that stabilised Ọyọ's political system and enriched its aristocracy.

Abiodun also gave special consideration to agriculture. Although the *Alaafin* did not introduce any formal land survey comparable to Tokugawa Japan, he supported the expansion of farming villages, encouraged the clearing of new lands in frontier areas for agricultural production, and reduced excessive levies that had previously discouraged production. These measures, combined with the growth of rural markets, enabled Ọyọ farmers to supply the expanding urban centres of Ọyọ-Ile, Igbeti and other provincial towns. The increased flow of goods strengthened the kingdom's financial base and reduced the risk of food crisis that had previously destabilised earlier regimes (Smith, 1988).

Both Ieyasu and Abiodun influenced social structures through their economic reforms. In Japan, the Tokugawa regime institutionalised a rigid class hierarchies into the well-known four-tier class system of samurai-peasant-artisan-merchant. Yet these classes were far more dynamic in practice. The growth of wealth gained from commerce empowered town-dwelling merchants, encouraged new forms of cultural expression such as *kabuki* theatre and woodblock printmaking, and engendered an increase in literacy and many new skills among urban dwellers. Rural communities also experienced transformation as growing population and improved agricultural practices encouraged some form of self-governance through village councils and communal labour arrangements (Befu, 1968). While the shogunate intended to preserve social order, the economic dynamism of the period produced significant changes in identity, occupational mobility and consumption.

Similarly, economic transformation of Ọyọ during the reign of Abiodun altered the balance of power among elites. With the relegation of militarism, the political influence of the *Ẹṣọ* warriors was reduced in favour of that of market-oriented chiefs and merchant groups, many of whom were involved in or had connections with the trans-Saharan and Atlantic commercial worlds. This created secondary (satellite) markets around the provincial centres and led to the emergence of

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powerful trading families whose wealth rivalled those of some aristocratic lineages. Likewise, the intensification of long-distance trade created greater cultural interaction and, by extension, the diffusion of material goods and the circulation of new ideas, including Islamic scholarship from the North. These developments restructured social identities in Ọyọ, increasing the possibilities for non-aristocratic groups to accumulate wealth and prestige (Ojo, 1999).

In both societies, economic stability were crucial to larger social transformation. Ieyasu's reforms reduced the possibility of reversion to civil warfare while enabling tremendous urban and cultural development. Abiodun's policies stabilised Ọyọ after decades of internal strife, promoted commercialisation and fostered new forms of social mobility. Although the two leaders operated under different constraints and worldviews, their economic policies complied with a common logic that postulated that a stable and predictable economy was indispensable for political consolidation and long term social vitality. The legacies of the two leaders are good proof that sustained governance depends not only on military authority or ritual legitimacy, but also on deliberate and proactive shaping of economic forces and structures towards broader objectives of the state.

Stability, Culture, and Intellectual Life of Tokugawa Japan and Old Ọyọ

The Tokugawa shogunate and the Ọyọ Empire under *Alaafin* Abiodun illustrate that political stability is not in any way incompatible with cultural vibrancy and intellectual progress. In their respective realms, the consolidation of power and social order could coexist with, and even foster, cultural and intellectual development, albeit under the shadows of their respective political ideologies and social structures. Tokugawa Ieyasu, having emerged from the anarchy of the *Sengoku* period, eventually institutionalised peace through mechanisms that were intent not only ensured societal control but also encourage cultural growth. Likewise, the reign of *Alaafin* Abiodun, which historians characteristically viewed through the prism of internal political and economic reforms, was marked by the maintenance of cultural fabric of Ọyọ, the patronage of local arts and craft, and the sustenance of traditional intellectual practices.

The prolonged period of peace in Tokugawa Japan, known as the *Pax Tokugawa* created conditions for the growth of education, literature, and the arts. The shogunate adopted Neo-Confucian thought, which provided a philosophical validation for the hierarchical social order and moral governance of the Tokugawa period (Jansen, 2000). Neo-Confucianism emphasised loyalty, filial piety, and social harmony, the very ideals propagated in the education of the *samurai* class and later at *terakoya* schools that educated commoners (Totman, 1995). This structured and formal system of knowledge created an educated populace, who were aware and enthusiastic about civil affairs, establishing that stability could be used to produce intellectual dynamism. Often condemned for its rigid structure of social hierarchy, Tokugawa Japan also promoted regularised patterns of social relationships that aided the organised patronage of culture. The watchful eye of the shogunate did not deter a cultured engagement with aesthetic and literary norms, in which k*abuki* theatre, wood-block printing (*ukiyo-e*), and *haiku* poetry thrived (Varley, 2000).

In the same way, *Alaafin* Abiodun presided over a period in Ọyọ where political centralisation and institutional reforms deepened social cohesion, which in turn enabled cultural and intellectual expressions. Abiodun ensured that the *Ọyọmesi*, the council of state, and subordinate chiefs operated within clearly defined roles, curtailing the incidence of internal factionalism, while resources were wisely appropriated to cultural practices (Law, 1977). Yoruba

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intellectual life was profoundly entrenched in oral traditions, encompassing history, philosophy, and moral instruction. The stability provided by Abiodun's leadership enabled the formalisation, standardisation, and preservation of these oral forms through poets (such as the *arokin*) and griot-like figures, who served as custodians of communal memory (Peel, 2003). Festivals, religious observances, and court-sanctioned rituals, apart from being the kernel of social homogeneity, equally served as vehicles for the transference of knowledge, ethics and collective identity.

Another important parallel between Tokugawa Japan and Ọyọ Empire under *Alaafin* Abiodun is the manner with which governance and culture intersect in both polities. In Japan, Ieyasu and his descendants used the promotion of Confucian morality and cultural pursuits to legitimise their rule and strengthen social order (Totman, 1995). The arts served a purpose beyond mere aesthetic presentation and were intimately connected to state ideology, demonstrating a sophisticated understanding that culture could strengthen political stability. Similarly, The Ọyọ Empire of *Alaafin* Abiodun offers another instance of how institutional authority can create a context for the growth and expression of culture and intellectual endeavour. The spectacle of the ritual and ceremonial obligations of the court, including the annual festivals and periodic judicial proceedings, were laced with ethical and philosophical maxims serving as instruments of social instruction and entertainment (Law, 1977).

Another dimension of intellectual life in both polities was the role of literacy and scholarly pursuits in consolidating authority. While Tokugawa Japan experienced an intellectual life embedded in the codification of laws, written records, and the proliferation of printed texts, the Ọyọ Empire, in contrast, designed literacy and learning around systematised cults and archiving of memory in order to preserve the knowledge orally and through discourses, demonstrating that intellectual sophistication need not rely exclusively on written culture (Peel, 2003). Stability in both cases facilitated the accumulation and transmission of knowledge, though through different machineries: formal education and print in Japan, oral pedagogy and ritualised knowledge in Old Ọyọ. This demonstrates the flexibility of human societies to embed intellectual life within different political and technological contexts.

One profound example of the complexity of stability is the role of culture, religion and governance. In Tokugawa Japan, Shinto and Buddhism were approved for the purpose of ideological conformity, while Confucian ethics guided bureaucratic practice, creating a triad of spiritual, cultural, and political stability (Jansen, 2000). In Ọyọ, traditional Yoruba religion, with its pantheon of deities and ritual practices, strengthened communal norms, mediated conflicts, and legitimised the authority of the *Alaafin* (Peel, 2003). Both contexts suggest that culture and intellectual life were not peripheral to governance but were central to the maintenance of social order.

Finally, these illustrations demonstrate that stability under both Ieyasu and Abiodun was not tantamount to intellectual stagnation. The flowering of culture, the persistence of philosophical inquiry, and the consolidation of knowledge systems imply that effective governance can create conditions for societal creativity and reflection. The Tokugawa shogunate's meticulous regulation of the social classes and deliberate support of the arts and cultural works allowed for the emergence of a sophisticated literary and urban culture in Japan. In Ọyọ, the machinery of courtly ceremonies

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and rituals preserved a sense of historical consciousness, religious observances, and moral values during the time of Abiodun.

Contradictions and Constraints of Reforms in Tokugawa Japan and Old Ọyọ

Tokugawa Ieyasu and Alaafin Abiodun both introduced reforms in governance and institutions intended for stability and modernisation, but these reforms had their own contradictions and limitations. Both leaders sought to centralise and control society in a manner that ensured order but also created tensions and structural constraints. This therefore shows the difficulties inherent in attempts at consolidation of power in pre-modern states. These contradictions demonstrate the limitations of reform and show that political stability often coexisted with underlying social, economic and political pressures that could not be solved by administrative measures alone.

The Tokugawa shogunate's policies in Japan strengthened social hierarchies and restricted mobility in ways that both enhanced stability and constrained innovation. There was a rigid social hierarchy of *samurai*, farmers, artisans and merchants which constrained social mobility and reinforced social status (Totman, 2014). Such divisions guaranteed a predictable governance and social order but also stifled certain types of social and economic dynamism. For example, merchant classes became wealthy and powerful despite being nominally at the bottom of the social ladder, creating tensions between economic power and social status. This contradiction exposed the limits of the Tokugawa shogunate's reforms, as regulations could not completely bridge the gap between legal status and economic capacity. Likewise, the practice of *sakoku* or national isolation was aimed at preventing foreign intervention and maintaining social cohesion, but limited Japan's access to external ideas and technologies that would have sped rapid modernisation (Jansen, 2000). Insularity also stifled innovation and international exchange, sapping the cultural dynamism of the period and exposing the inherent tension between stability and adaptive progress.

Similarly, Alaafin Abiodun's reforms in the Ọyọ Empire maintained a delicate balance between centralisation and internal elite competition. The consolidation of power by Abiodun, including the management of the *Ọyọmesi* and subordinate chiefs, enhanced political cohesion, but was not able to remove the underlying currents of contestations within the aristocracy (Law, 1977). The authority of the *Alaafin* relied on a balance of ritual legitimacy and institutional control, but disputes over succession and rivalries between the chiefs sometimes undermined governance. These reforms, although consolidating the office of the *Alaafin*, also revealed the limitations of hierarchical governance in the effective repression of elite struggles and political competition. In addition, the use of oral traditions and ritualised authority, although effective in fostering cohesion in cultural and ethical terms, rendered *Alaafin* and the Empire susceptible to historical amnesia and selective memory, thereby eroding the ability to effect systematic transfer of knowledge and administrative continuity across generations (Peel, 2003).

Another notable contradiction in Tokugawa Japan and Ọyọ Empire under *Alaafin* Abiodun was the tension between economic policies and social stability. In Tokugawa Japan, the emphasis on agricultural productivity and tax collection provided a stable revenue sources for the shogunate, but it imposed much sufferings on peasant populations, causing periodic uprisings and local unrest (White, 1988). On the other hand, Abiodun's Ọyọ Empire, while benefiting from trade in kola, ivory, and agricultural produce, was confronted by internal tensions over resource allocation and tribute obligations from vassal towns. The concentration of economic power reinforced political

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authority but also created pockets of dissatisfaction and raised questions of the success of reforms. The examples illustrate the way the search for stability had unintended social and economic consequences.

Both reform movements have contradictory cultural and intellectual components. Japan's emphasis on Neo-Confucian ethics and formal learning helped preserve social order but suppressed alternative intellectual trends and worldviews (Totman, 2014). The adoption of codified knowledge system served state purposes but limited the capacity for critical or subversive scholarship, reflecting a tension between cultural blossom and intellectual conformity. Ọyọ, on the other hand, inculcated these knowledge practices within the perpetuated moral and social frameworks accompanying rituals and courtly education. In Ọyọ, oral transmission of knowledge bound intellect to the retention of institutional memory, thereby impeding any chance for more formal sharing of knowledge that could have spurred broader administrative growth.

Another limitation common to both leaders was the sustainability of their reforms in the long term. Although the Tokugawa shogunate's policies successfully maintained political order for over two and a half centuries, the very mechanisms that preserved stability, such as rigid hierarchy, isolationism, and control over the *samurai* class, eventually contributed to systemic stagnation and susceptibility to external pressures in the mid-19th century (Jansen, 2000). Similarly, the Ọyọ Empire's centralised structures under Abiodun could not prevent eventual political fragmentation and decline in the 19th century, as pressures from internal rivals and changes in external trade challenged the cohesion of the state (Law, 1977). In both cases, the limits of reform highlight a fundamental tension between short-term stability and long-term adaptability.

In addition, the personalised nature of authority in both polities underscores another constraint. Ieyasu created a strong, centralised shogunate that implemented his vision and much of the system's effectiveness relied on the loyalty and competence of successors. In Ọyọ, the *Alaafin's* authority was similarly mediated by ritual, moral, and personal legitimacy, attributing governance to the business of individual leadership. While such concentration of power meant an easily implementable and coherent reform system; it would leave both polities open to leadership crises or successional disputes, which, in turn, would exemplify the structural constraints on reform dependent on individual agency.

Finally, the governance reforms of Tokugawa Ieyasu and *Alaafin* Abiodun, while fostering stability and societal consolidation, were characterised by notable contradictions and limitations. In both contexts, the interplay between hierarchy and mobility, centralisation and factionalism, economic regulation and social welfare, as well as cultural codification and intellectual freedom, revealed the inherent tensions of state-building in pre-modern societies. These cases suggest the partial and bounded nature of stability and modernisation as much a function of constraints on human and institutional capacity as of conscious policy. Understanding these contradictions provides a more complete view of pre-modern government. It illustrates how reforms, however effective in maintaining order, were always subject to the influence of a complex web of social, political and economic forces which constrained their absolute effectiveness.

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Comparative Analysis and Lessons

A comparative study of Japan under Tokugawa Ieyasu and Ọyọ Empire under Alaafin Abiodun can provide useful insights on how political leadership can promote stability and manage societal transformation at the same time. Despite vast differences in their geographical contexts, political cultures and historical circumstances, the leaders showed that good governance requires a delicate balance of central authority, institutional innovation and cultural stewardship. A number of similarities and differences emerge from their respective approaches which shed light on broader lessons for understanding pre-modern governance and the dynamics of social coherence.

One of the major similarities arises from their reliance in reforming institutions for the purpose of consolidating power. Both Ieyasu and Abiodun set up hierarchical system to concentrate power in order to minimise internal dissension. In Japan, the Tokugawa shogunate created a rigid system of social relations and responsibilities for the people, by means of the *bakuhan* system, which balanced centralised authority with local domain independence (Totman, 2014). Likewise, Abiodun's Ọyọ deployed the *Ọyọmesi* and other political councils to regulate the power of local chiefs, to create a clear command structure and to maintain cohesion across vassal territories (Law, 1977). These structures, although culturally and operationally different, show the strategic deployment of institutional configurations to ensure stability and facilitate reformist governance.

Yet there are important differences in the modes of cultural and intellectual expression. Through formal education, literacy, and printed media, Tokugawa Japan encouraged the growth of the arts and literature, civic discipline, and the spread of Neo-Confucian values (Dore, 1965; Jansen, 2000). On the contrary, the intellectual and cultural life of Ọyọ under Abiodun was dominated largely by oral traditions, ritual practices and performance arts, with emphasis on communal memory and ethical instruction rather than codified scholarship (Peel, 2003). This divergence is indicative of how different modalities of intellectual expression could be conceived in the governance-societal development nexus. The adaptability of leadership strategies to the local context and resources is clear.

Another dimension for comparative analysis concerns the management of economic and social stability. For both polities, reforms were introduced in ways that enhanced the collection of revenue and regulation of social obligations while minimising conflict. Through the focus on agricultural productivity and taxation, Japan reinforced the economic base of the shogunate, but also imposed social restrictions, while Ọyọ's regulation of tribute and trade under Abiodun provided the court with resources and the vassal towns with coherence (Law, 1977; Totman, 2014). In both cases economic management was linked with political authority. Thus, stability was guaranteed by a mixture of coercive mechanisms and the judicious alignment of economic, social and administrative policies.

The limits of reform in each case also contribute to the comparative analysis. Both leaders' approaches, whether through social rigidity, centralised control, or dependence on personal authority, showed weaknesses that would become evident in later times. The isolationism and social stratification of Tokugawa Japan stifled innovation and led to systemic stagnation, whereas Ọyọ's reliance on oral and ritual authority opened the polity to internal disintegration and succession struggles (Law, 1977; Jansen, 2000). These examples demonstrate that governance

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reforms, however successful in the short run, are dependent on wider structural, social and temporal factors, indicating the inherent tension between stability and adaptability.

From these comparisons, a number of lessons emerge for governance and societal transformation research. First, political stability is a necessary but not a sufficient condition for modernisation. The cases of Ieyasu and Abiodun show that prudence in institution-building, cultural engineering and economic regulation can secure order, but they do not eliminate underlying social or economic pressures altogether. Secondly, the mode of transmission of knowledge, literacy versus oral tradition, formal versus ritualised instruction, determines the range and permanence of intellectual and cultural achievements. Lastly, the personal agency of leadership is crucial: both polities relied on the vision, legitimacy and skill of a central figure to deliver reforms, highlighting that good governance is often a blend of institutional capacity and personal commitment.

To summarise, this comparative study of Tokugawa Japan and Abiodun's Ọyọ Empire demonstrates that pre-modern societies could achieve considerable stability without being static. They were both masters of institutional innovation, cultural stewardship, and strategic economic management in consolidating authority, maintaining social cohesion and fostering the flowering of intellectual and artistic life. But the contradictions and limitations of their reforms remind us that governance is always conditional, context-dependent and subject to both internal and external pressures. Through a comparative study of both cases, historians and political theorists gain a greater understanding of the complex interactions of stability, reform and social change, providing insights that transcend the geographical and political specifics of time and place.

Conclusion

The comparative analysis of Tokugawa Ieyasu's Japan and Alaafin Abiodun's Ọyọ Empire establishes that political stability and social change can coexist. Both leaders sustained elaborate governance reforms that essentially consolidated power, maintained social unity, and created circumstances for cultural and intellectual development. Both provide a useful reference point to illustrate that stability in pre-modern polities can provide the structural and ideological foundation necessary for societal progress, enabling the flourishing of arts, ritual practices, and knowledge systems even within hierarchical structures. The study, therefore, acknowledges the determining importance of institutional innovation and strategic leadership in creating an enduring legacy of governance, culture, and intellectual life.

Although their reforms were successful, they were also fraught with deep contradictions and structural constraints that Ieyasu and Abiodun could not overcome. Japan's rigid social order and restrictive external-relations regime constrained mobility and some forms of innovation, while Ọyọ's dependence on negotiated political authority, ritual institutions, and succession conventions did not eliminate the possibility of elite conflict and internal division. Both episodes demonstrate the tension between the need for stability and the need for flexibility. The intersection of order and constraint points to the implications of utilising reforms in the consolidation of power, but also to the fact that they are never absolute in their ability to manage social dynamics or forestall future challenges.

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The comparative study of Tokugawa Ieyasu and Alaafin Abiodun provides significant lessons in understanding governance, culture, and societal development. Both polities illustrate that effective leadership is forged from the fusion of institutional reform, economic management and cultural stewardship in the pursuit of sustainable stability. But the constraints and contradictions of their styles also remind us at the same time that governance is inherently context-dependent, mediated through social structures, cultural norms and individual agency. Grasping these dynamics deepens our understanding of pre-modern statecraft, while also offering enduring perspectives on the connections between stability, reform, and social progress.

The comparison undertaken in this study has implications for contemporary governance. First, leaders should emphasise institutions and rules that will survive individual office holders, for the longevity of reform depends on institutionalisation, not personal authority alone. Second, mechanisms for managing elite competition should combine authority with consultation and predictable procedures, thereby reducing the likelihood that political rivalry becomes destabilising. Third, political stability should be linked to productive economic governance through predictable taxation, secure commercial environments, infrastructure, and policies that widen rather than narrow opportunities for legitimate economic participation. Fourth, the protection of cultural and knowledge institutions should be maintained, but with a willingness to adapt, as systems that impose order by reducing intellectual and institutional flexibility may eventually impose their own capacity to respond to changing circumstances. Finally, stability needs to be understood as a political achievement that requires adaptation rather than a permanent condition. Institutions need to be continuously adapted to changing economic, social and political pressures to be able to be effective in governance. In that sense, Tokugawa Japan and Ọyọ do not offer ready-made models for contemporary states, but they do offer historically grounded lessons about the need to combine institutional continuity with the capacity for adaptation.

References

1. Akinjogbin, I. A. (1967). *Dahomey and its neighbours, 1708–1818*. Cambridge University Press.
2. Atanda, J. A. (1980). *An introduction to Yoruba history*. University of Ibadan Press.
3. Balogun, K. (1985). *Government in Old Ọyọ Empire*. Lagos: African Publishers and Co.
4. Befu, H. (1968). Village autonomy and articulation with the State. In Hall, J. W. and Jansen, M. B. (eds.), *Studies in the institutional history of early modern Japan*, 301-314, Princeton University Press. https://doi.org/10.1515/9781400868957-017
5. Berry, M. E. (1982). *Hideyoshi*. Harvard University Press.
6. Dore, R. P. (1965). *Education in Tokugawa Japan*. University of California Press. https://doi.org/10.2307/jj.7968110
7. Falola, T., & Akintoye, S. A. (1980). *History of the Yoruba People*. Longman.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

8. Fukuyama, F. (2011). *The origins of political order: From prehuman times to the French Revolution*. Farrar, Straus and Giroux.

9. Gordon, A. (2020). *A modern history of Japan: From Tokugawa times to the present*. Oxford University Press. PDF available online for download at http://ngc.digitallibrary.co.in/bitstream/123456789/235/1/A%20Modern%20History%20of%20Japan%20From%20Tokugawa%20Times%20to%20the%20Present.pdf

10. Hall, J. W. (1968). From Tokugawa to Meiji in Japan local administration. In Hall, J. W. and Jansen, M. B. (eds.), *Studies in the institutional history of early modern Japan*, 375-386, Princeton University Press. https://doi.org/10.1515/9781400868957-022

11. Hall, J. W. (1970). *Japan: from prehistory to modern times*. University of Michigan Press. https://doi.org/10.3998/mpub.18741

12. Herbst, J. (2000). *States and power in Africa: Comparative lessons in authority and control*. Princeton University Press. https://doi.org/10.23943/princeton/9780691164137.003.0010

13. Jansen, M. B. (2000). *The making of modern Japan*. Harvard University Press.

14. Law, R. (1977). *The Ọyọ Empire c.1600–1836: A West African Imperialism in the Era of the Atlantic Slave Trade*. Clarendon Press.

15. Lloyd, P. C. (1971). *The political development of Yoruba kingdoms in the 18th and 19th centuries*. Royal Anthropological Institute of Great Britain and Ireland, London.

16. Mahoney, J. & Rueschemeyer, D. (Eds.). (2003). *Comparative historical analysis in the social sciences*. Cambridge University Press. https://doi.org/10.1017/CBO9780511803963.007

17. McClain, J. (2001). *Japan: A modern history*. W.W. Norton and Co Inc.

18. Ojo, G. J. A. (1966). *Yoruba culture: A geographical analysis*. University of Ife Press.

19. Ooms, H. (1985). *Tokugawa Ideology: Early Constructs, 1570–1680*. Princeton University Press.

20. Peel, J. D. Y. (2003). *Religious encounter and the making of the Yoruba*. Indiana University Press. https://doi.org/10.2979/3465.0

21. Sheldon, C. D. (1958). *The rise of the merchant class in Tokugawa Japan, 1600-1686*. Augustin.

22. Smith, R. S. (1988). *Kingdoms of the Yoruba*. University of Wisconsin Press.

23. Thelen, K. (2003). How institutions evolve: Insights from comparative historical analysis. In J. Mahoney & D. Rueschemeyer (Eds.), *Comparative historical analysis in the social sciences* (pp. 208–240). Cambridge University Press. https://doi.org/10.1017/CBO9780511803963.007

24. Totman, C. (1995). *Early modern Japan*. University of California Press.

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - *E*- ISSN: 3156-5492 | *P*- ISSN: 3156-5514

25. Totman, C. (2014). *A history of Japan* (Second Edition). Wiley.

26. Varley, P. (2000). *Japanese culture*. Honolulu: University of Hawaii Press.

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Forms and Platform Ecologies of Digital Christian Education in Selected Churches in Ibadan Metropolis, Nigeria: A Source-Based Exploratory Account

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DOI : https://doi.org/10.5281/zenodo.23559300

Abstract
Digital Christian education is reshaping how churches teach Scripture, sustain discipleship, and extend spiritual formation beyond physical gatherings. Yet empirical evidence regarding the specific platform ecologies and pedagogical configurations of this transition in Nigerian urban contexts remains fragmented. This article provides a conceptual and exploratory analysis of digital educational practices in selected churches within Ibadan Metropolis, Oyo State, Nigeria. Drawing on a secondary synthesis of the quantitative survey strand from an exploratory study (N=200 valid responses from church leaders, Christian educators, and active members), the paper evaluates how digital media intersect with traditional church instruction. Rather than presenting unverified statistical distributions, the study analyzes qualitative relative patterns documented in the primary thesis record. Findings indicate four principal forms of engagement: online Bible-study groups, livestreamed worship and teaching, digital devotional distribution, and social-media-based discipleship. WhatsApp emerged as the most widely used medium for group communication and coordination, while Facebook and YouTube supported broadcast teaching, and Zoom and Google Meet facilitated structured synchronous classes. The dominant operational pattern was hybrid, wherein digital platforms extended inter-gathering continuity without replacing face-to-face fellowship. Interpreted through an integrated theoretical framework combining the Technology Acceptance Model (TAM), the Theory of Planned Behaviour (TPB), and Media Ecology Theory, the paper argues that platform choice is a pedagogical and theological decision governed by user familiarity, data affordability, leadership support, and institutional purpose. The article concludes with a framework for platform audits, low-bandwidth design, and pastoral governance in urban African churches.

Keywords: Digital Christian education, digital religion, platform ecology, hybrid learning, church education, Technology Acceptance Model

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1. Introduction

Christian education involves more than the routine transmission of religious information. It encompasses the intentional formation of biblical understanding, spiritual identity, ethical conduct, devotional practice, and communal participation within a faith community. Historically, churches have pursued these educational mandates through established settings such as Sunday school classes, weekly Bible studies, catechism sessions, pulpit preaching, small-group discipleship, and formal theological training. The rapid proliferation of digital information and communication technologies (ICTs) has not supplanted these core educational functions; rather, it has reconfigured the communication environments through which Christian teaching is delivered, encountered, discussed, and internalized.

Digital religion scholarship emphasizes that online religious practices are deeply interwoven with offline institutional structures, cultural norms, and physical gatherings (Campbell, 2013; Campbell & Evolvi, 2020). Within this broader field, digital Christian education represents a specific pedagogical domain: the intentional utilization of internet-enabled digital media for biblical instruction, theological education, discipleship, devotional guidance, and ministry training. Its contemporary expressions include instant-messaging Bible study groups, livestreamed sermons, downloadable devotional guides, social media discussion forums, virtual prayer cells, and video-conferencing classes.

The specific media platform through which Christian education occurs is not pedagogically neutral. Instant-messaging platforms like WhatsApp are structured around mobile group messaging and asymmetrical notifications; video-sharing platforms like YouTube prioritize searchable, asynchronous video archiving; social networking services like Facebook combine real-time broadcasting with social feed circulation; and video-conferencing tools like Zoom or Google Meet emphasize synchronous, multi-point audio-visual interaction. Each platform possesses technical affordances that encourage certain modes of learning while constraining others. A livestreamed service expands geographical reach but positions the participant primarily as a passive viewer; a messaging group fosters continuous dialogue but risks message overload and unstructured discussion. Consequently, the central analytical concern is not merely whether churches adopt digital tools, but how distinct platform properties align with specific educational and theological objectives.

While existing research in Ibadan, Nigeria, has established that churches extensively utilize ICTs and social media for general religious communication, public relations, and sermon broadcasting (Ogunsola & Raji, 2021; Omotayo, 2017), less attention has been directed toward the platform ecologies supporting structured Christian education. This article addresses this empirical and conceptual gap by addressing three core research questions:

1. What principal forms of digital Christian education are utilized by selected churches in Ibadan Metropolis?
2. What platform ecologies support these educational forms, and what factors shape user platform preferences?
3. What pattern of online-offline integration characterizes digital Christian education in this urban Nigerian setting?

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This paper makes a distinct conceptual contribution by separating general platform presence from structured educational use. It synthesizes data from a primary thesis record (Bamigbola, 2024) through an integrated theoretical framework, arguing that platform selection must be evaluated against criteria of interactive engagement, infrastructural accessibility, pedagogical continuity, theological accountability, and embodied fellowship.

2. Literature Review and Analytical Framework

2.1 Digital Religion and Christian Education

Digital religion is best conceptualized as a negotiated space where traditional religious practices intersect with digital media environments (Campbell, 2013; Helland, 2005). Rather than creating a detached 'virtual religion,' digital tools are typically embedded within pre-existing offline religious institutions and social networks (Campbell & Evolvi, 2020; Hutchings, 2017).

An analytical distinction must be maintained between digital religious communication and digital Christian education. General religious communication includes publicity announcements, promotional posts, and broadcast sermons intended for broad public outreach. In contrast, Christian education requires structured learning design, incorporating defined educational objectives, facilitated interaction, systematic biblical interpretation, participant feedback, and intentional pastoral application. Merely streaming a worship service or posting a scriptural quote on social media does not automatically constitute an educational process.

Furthermore, scholarship cautions against binary views that pit online learning against physical gathering (Hutchings, 2017). In urban African contexts, digital media often operate as supplements to, rather than substitutes for, face-to-face congregational life. While digital channels provide flexibility for members facing urban commute challenges or irregular work schedules, physical gatherings remain central for mentoring, sacral participation, mutual accountability, and embodied community.

2.2 Contextual Realities of Urban Nigeria

Applying digital education frameworks in Ibadan Metropolis requires attention to local infrastructure and socio-economic dynamics. While mobile smartphone penetration in urban Nigeria is high, participation in digital education is mediated by material constraints: high costs of mobile internet data, network bandwidth instability, frequent electricity outages, and the reliance on shared household devices (GSMA, 2023; World Bank, 2022). Moreover, African Christian pedagogy has historically emphasized relational, oral, and communal modes of learning. Digital tools can democratize access to teaching materials, but high data demands can inadvertently exclude lower-income members. Therefore, platform selection in urban Nigerian churches is constrained by data efficiency and network accessibility.

2.3 Integrated Theoretical Framework

To interpret platform choice and educational integration, this study synthesizes three complementary theoretical models: the Technology Acceptance Model (TAM), the Theory of Planned Behaviour (TPB), and Media Ecology Theory.

1. Technology Acceptance Model (TAM): Formulated by Davis (1989), TAM posits that technology adoption is determined by Perceived Usefulness (PU) and Perceived Ease of Use

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(PEOU). In this study, TAM serves as an ex-post qualitative interpretive lens. Perceived usefulness reflects how church leaders and members evaluate a platform's capacity to enhance teaching reach and continuity. Perceived ease of use encompasses user familiarity, minimal technical complexity, and low data consumption.

2. Theory of Planned Behaviour (TPB): Ajzen's (1991) model adds subjective norms and perceived behavioural control. Church participation is socially organized; leadership approval and congregational expectations (subjective norms) grant spiritual legitimacy to digital channels. Perceived behavioural control accounts for individual digital literacy, device availability, and internet access.

3. Media Ecology Theory: Drawing on McLuhan (1964) and Postman (1992), Media Ecology examines how media environments structure human perception, interaction, and authority. While TAM and TPB explain why a platform is adopted, Media Ecology analyzes how the adopted medium reshapes the educational process, turning broadcast channels into passive viewing spaces and messaging groups into conversational networks.

3. Methodology, Scope, and Research Ethics

3.1 Study Setting and Target Population

The empirical domain of this study is restricted to selected churches within Ibadan Metropolis, Oyo State, Nigeria. Ibadan represents a major South-Western urban center characterized by a diverse religious landscape, encompassing historical mainline Protestant denominations, large Pentecostal/charismatic ministries, evangelical independent churches, and Catholic parishes.

The target population comprised pastors, Christian education directors, Sunday school teachers, youth leaders, media personnel, and adult church members actively engaged in church-based educational programs. 'Selected churches' refers specifically to congregations that maintained active, identifiable digital education channels. Consequently, non-adopting churches were excluded, meaning this study evaluates user practices within adopting congregations rather than overall adoption prevalence across Ibadan Metropolis.

This article represents a secondary synthesis and qualitative re-interpretation based on the quantitative survey strand of a master's thesis completed at the University of Ibadan (Bamigbola, 2024). The primary study utilized a structured questionnaire to capture digital media practices across selected Ibadan churches. Out of 240 administered instruments, 218 were retrieved. After data cleaning and screening for completeness (>20% missing items excluded), a final valid analytical denominator of N = 200 responses was retained.

Because the original sampling frame and raw item-level frequency tables could not be independently audited for raw counts, this paper avoids fabricating numerical distributions. Instead, it synthesizes the verified relative qualitative patterns and thematic classifications documented in the primary thesis record.

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3.3 Research Ethics and Governance

The underlying data collection adhered to standard academic ethical protocols. Institutional clearance was secured through departmental review at the University of Ibadan. Informed consent was obtained from all survey respondents prior to instrument administration. To protect institutional privacy and fulfill confidentiality commitments, individual church names are anonymized using site codes (e.g., SITE-01 to SITE-12). Recruitment protocols were designed to minimize potential coercion arising from pastoral authority, ensuring voluntary member participation.

4. Source-Based Synthesis of Digital Christian Education Patterns

Synthesizing the documented findings from the primary thesis record (Bamigbola, 2024) reveals distinct structural forms, platform preferences, and operational models across the studied Ibadan congregations.

4.1 Principal Forms of Digital Christian Education

Digital Christian education in the selected sites operates not as a single uniform activity, but as a portfolio of four distinct functional forms:

1. **Online Bible-Study Groups:** Asynchronous or synchronous small-group Scripture reading, textual analysis, and practical application conducted primarily via instant messaging. These groups provide midweek learning continuity between Sunday physical services.
2. **Livestreamed Worship and Teaching:** Real-time broadcasting of weekend sermons, expository Bible lectures, and midweek teaching services via video platforms. This form prioritizes broad reach and accessibility for absent or distant members.
3. **Digital Devotional Distribution:** Daily or weekly dissemination of concise devotional commentaries, prayer points, and memory verses formatted as text messages, graphics, or short audio clips.
4. **Social-Media-Based Discipleship:** Facilitated group interaction focused on peer encouragement, topical Christian ethical discussions, leadership training, and informal pastoral care.

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Table 1: Author Synthesis and Theoretical Classification of Digital Christian Education Forms

Form of DCE	Primary Functional Objective	Pedagogical Requirements	Primary Platform Environments	Theoretical Lens Mapping
Online Bible Study	Expository reflection, Scripture application, peer discussion.	Active facilitation, conversational norms, feedback loops.	WhatsApp, Telegram	TAM: High Perceived Usefulness & Ease of Use
Livestreamed Teaching	Sermon broadcasting, lecture delivery, archival access.	Reliable video capture, stable internet, passive viewing management.	YouTube, Facebook Live	Media Ecology: Broadcast environment; low interaction
Digital Devotionals	Daily spiritual reflection, Scripture memory.	Concise messaging, low data footprint, readable graphics.	WhatsApp Status, Broadcast Lists	TAM: Optimized for low bandwidth & mobile ease
Social Media Discipleship	Topical mentoring, ethical reflection, pastoral check-ins.	Group moderation, safe space governance, leadership oversight.	WhatsApp Groups, Zoom, Google Meet	TPB: Subjective norms & leadership endorsement

4.2 Platform Ecology and Adoption Drivers

The data demonstrates that churches operate within a platform ecology, deploying multiple digital tools based on functional specialization rather than relying on a single application.

Table 2: Functional Mapping of Platform Affordances, Observed Uses, and Operational Limits

Platform	User-Reported Primary Use	Technical Affordances	Observed Operational Constraints & Risks
WhatsApp	Group Bible studies, devotional text distribution, ministry coordination.	Mobile ubiquity, asynchronous messaging, low data consumption, group controls.	Chat fragmentation, message overload, unmonitored side-conversations.
Facebook	Live video streaming, public event broadcasting, sermon clips.	Social feed circulation, wide public reach, notification alerts.	Algorithmic feed distractions, low viewer retention, passive consumption.
YouTube	On-demand video archiving, structured sermon series, Bible lectures.	Searchable video storage, high-definition streaming, playback speed control.	High data consumption, lack of built-in interactive feedback mechanisms.

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Platform	User-Reported Primary Use	Technical Affordances	Observed Operational Constraints & Risks
Zoom / Google Meet	Real-time interactive classes, leadership training, executive meetings.	Synchronous audio-visual multi-point interaction, screen sharing, breakout rooms.	High data bandwidth cost, schedule rigidity, participant screen fatigue.

WhatsApp emerged as the dominant platform for routine, midweek educational contact. Interpreted through TAM, its widespread adoption is driven by high Perceived Ease of Use (minimal technical barrier, existing user familiarity) and Perceived Usefulness (ability to function effectively under low bandwidth and unstable power conditions). Facebook and YouTube serve as broadcast engines for public teaching, while Zoom and Google Meet are reserved for specialized, synchronous interactive classes due to higher data costs.

4.3 Operational Pattern: Hybrid Integration

The dominant operational pattern across selected Ibadan churches is hybrid integration. Digital platforms do not replace physical church gatherings; rather, they serve as extensions that maintain educational continuity between Sunday services.

Digital tools extend the temporal and spatial reach of church education, allowing members with demanding work schedules or long urban commutes to remain connected to the church curriculum. However, face-to-face settings retain primary importance for spiritual mentoring, pastoral care, and embodied communal practices.

5. Critical Discussion and Pedagogical Implications

5.1 Beyond Technical Adoption: Affordances, Exclusion, and Familiarity

A critical finding of this synthesis is that platform adoption must not be equated with educational effectiveness. While WhatsApp is widely adopted due to low data demands, its unstructured chat interface can lead to fragmented discussions, off-topic postings, and information overload. Conversely, while video platforms offer rich instructional capabilities, high data costs create a risk of digital exclusion for lower-income church members.

Furthermore, user familiarity with social media often reflects pre-existing personal habits rather than intentional pedagogical design. When churches adopt a platform simply because members already use it, they risk importing casual social media communication norms into sacred instructional spaces. Effective digital Christian education requires transforming familiar communication channels into structured learning environments through intentional moderation, clear study prompts, and active facilitation.

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5.2 Framework for Church Practice

To optimize digital Christian education, church leaders and Christian educators should adopt a structured four-stage operational framework:

1. **Platform & Pedagogy Audit:** Map learning objectives to specific platform affordances; assess congregational data affordability and device access.
2. **Low-Bandwidth Inclusive Design:** Provide audio-only, text-summary, and downloadable formats; establish asynchronous study options for shared devices.
3. **Educator Capacity & Intergenerational Teams:** Pair media-savvy youth with experienced theological leaders; train facilitators in digital group moderation and privacy.
4. **Theological Governance & Outcome Evaluation:** Establish clear guidelines for content review and privacy; evaluate engagement via discussion quality and pastoral care.

6. Recommendations and Future Research

Based on the synthesis of thesis patterns and the theoretical framework, the following prioritized recommendations are offered for local churches and denominational bodies:

1. **Develop Written Digital Education Policies:** Local congregations should formulate clear policy guidelines covering digital curriculum standards, platform usage rules, data privacy, and online safeguarding.
2. **Implement Low-Bandwidth Standards:** Core educational materials (such as Sunday school lessons and Bible study outlines) should be made available in low-data formats including text summaries, audio recordings, and compressed PDFs, to prevent digital exclusion.
3. **Form Intergenerational Ministry Teams:** Churches should establish digital learning teams that combine the technical skills of younger members with the pastoral experience of senior leaders.
4. **Establish Pastoral Governance and Moderation:** Digital study groups should assign trained moderators to guide discussions, correct doctrinal misunderstandings, and maintain respectful online environments.
5. **Prioritize Formative Evaluation:** Educational effectiveness should be evaluated using qualitative indicators such as participant comprehension, discussion quality, and pastoral follow-up rather than superficial metrics like view counts or likes.

Priorities for Future Empirical Research

Future studies should address the limitations of the current literature by executing comparative empirical research across different denominations and socio-economic contexts. Researchers should utilize validated survey instruments, publish complete item-level response distributions, integrate objective platform analytics, and incorporate qualitative accounts of learner spiritual formation.

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7. Conclusion

Selected churches in Ibadan Metropolis demonstrate a dynamic, hybrid approach to digital Christian education. By deploying a platform ecology comprising WhatsApp, Facebook, YouTube, Zoom, and Google Meet, congregations successfully extend biblical teaching beyond the physical sanctuary. Platform selection is mediated by practical considerations of data cost, user familiarity, leadership endorsement, and instructional intent. Ultimately, digital Christian education achieves its spiritual objectives when technology is subordinated to sound pedagogy, inclusive access, theological accountability, and the relational building of Christian community.

References

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Bamigbola, J. O. A. (2024). Digital media adoption and platform ecologies in church-based Christian education in Ibadan Metropolis (Unpublished master's thesis). University of Ibadan, Ibadan, Nigeria.

Campbell, H. A. (2013). Digital religion: Understanding religious practice in new media worlds. Routledge.

Campbell, H. A., & Evolvi, G. (2020). Contextualizing current digital religion research on emerging technologies. Human Behavior and Emerging Technologies, 2(1), 5–17. https://doi.org/10.1002/hbe2.149

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319–340. https://doi.org/10.2307/249008

GSMA. (2023). The state of mobile internet connectivity report 2023: Sub-Saharan Africa analysis. GSMA Association.

Helland, C. (2005). Online religion as lived religion: Methodological issues in the study of religious participation on the Internet. Online – Heidelberg Journal of Religions on the Internet, 1(1), 1–16. https://doi.org/10.11588/rel.2005.1.380

Hutchings, T. (2017). Creating church online: Ritual, community and new media. Routledge.

McLuhan, M. (1964). Understanding media: The extensions of man. McGraw-Hill.

Ogunsola, K., & Raji, D. A. (2021). Qualitative study of the use of social media by church personnel for religious activities in Ibadan, Nigeria. African Journal for the Psychological Study of Social Issues, 24(3), 189–204.

Omotayo, F. O. (2017). Adoption and use of information and communication technologies by Pentecostal churches in Ibadan, Nigeria. Journal of Librarianship and Information Science, 49(2), 222–233. https://doi.org/10.1177/0961000616662517

Postman, N. (1992). Technopoly: The surrender of culture to technology. Alfred A. Knopf.

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World Bank. (2022). Nigeria development update: Resilient recovery and digital transformation. The World Bank.

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Challenges of Systemic Decline in Democratic Governance and its Implications for Sustainable Development in Nigeria

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Abstract
This paper analyzes the structural challenges of democratic governance in Nigeria's Fourth Republic (1999–2025) and evaluates their conditional implications for sustainable development goals (SDGs). Addressing empirical gaps in longitudinal governance research, this study executes a qualitative documentary synthesis based on a structured corpus of peer-reviewed literature, official statistical publications (National Bureau of Statistics, Debt Management Office), international governance indicators (World Governance Indicators, Corruption Perceptions Index), and credible civil society reports (N=62 retained sources selected via systematic inclusion rules). Rather than asserting uninterrupted linear decay, the study operationalizes 'systemic decline' as a series of institutional conversion bottlenecks and feedback distortions across distinct electoral cycles, contrasting early transition baselines (1999–2007) with post-2015 institutional trajectories. Using Systems Theory alongside normative Good Governance frameworks, the analysis demonstrates how institutional weaknesses in legislative oversight, judicial autonomy, and electoral administration interact with exogenous macroeconomic shocks (oil price volatility, COVID-19 pandemic) to constrain economic growth, exacerbate social deprivations, and impede environmental governance. Documentary synthesis indicates that while procedural democracy has persisted for over two decades, substantive governance deficits significantly undermine progress toward SDG 8 (Decent Work and Economic Growth), SDG 10 (Reduced Inequalities), SDG 13 (Climate Action), and SDG 16 (Peace, Justice, and Strong Institutions). The paper concludes with an implementation framework that categorizes institutional, legal, and electoral reforms by responsible authority, legislative pathway, resource requirements, and priority level.

Keywords: Democratic Governance, Systemic Decline, Sustainable Development Goals, Institutional Analysis, Prebendalism, Systems Theory, Public Policy

Introduction

Democracy, in its substantive conception, extends beyond the periodic execution of elections to encompass a resilient institutional matrix grounded in horizontal accountability, popular participation, rule of law, and transparent public resource allocation (Diamond, 2008, 2020). Sustainable development, as formulated by the Brundtland Commission (1987) and codified in the United Nations 2030 Agenda, integrates economic growth, social inclusion, and environmental protection. The relationship between democratic governance and sustainable development is

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widely evaluated in institutional economics and political science (Acemoglu & Robinson, 2012; Kaufmann et al., 2010; World Bank, 1992). Effective governance creates a credible institutional climate that minimizes transaction costs, enforces contracts, protects property rights, and secures social service delivery. However, democratic institutions do not automatically guarantee economic growth; rather, their impact on development is mediated by institutional quality, state capacity, policy stability, and macroeconomic management (Rodrik, 2007; Sen, 1999).

Nigeria provides an important case study for analyzing the intersection between democratic continuity and institutional performance. The inauguration of the Fourth Republic on May 29, 1999, ended decades of military rule, initiating the longest period of uninterrupted civilian administration in the nation's history. Yet, two and a half decades into this democratic era, the substantive quality of democratic institutions presents complex, heterogeneous patterns (Omotola, 2010; Suberu, 2021). While civilian control over the military has been sustained and power has transferred between political parties (notably in the landmark 2015 general election), core governance functions face structural strains.

Scholars historically categorized Nigerian politics using frameworks such as 'prebendalism' (Joseph, 1987) or 'structural authoritarianism' (Ake, 1996) to describe how state offices were appropriated for personal and communal clientelism under early post-colonial and military regimes. Applying these concepts to the Fourth Republic requires careful temporal qualification. Rather than treating early historical diagnoses as direct descriptors of contemporary dynamics, contemporary institutional analysis examines how clientelist networks have adapted to competitive electoral structures (Lewis & Kew, 2022; Page, 2021). Systemic decline manifests not as a total collapse of the state, but as persistent functional deficits within conversion mechanisms, specifically where public demands for security, economic opportunity, and infrastructure are inadequately translated into effective, equitable policy outputs (Easton, 1965).

The socio-economic consequences of these institutional deficits are significant. According to the National Bureau of Statistics (NBS, 2022a), Nigeria's 2022 Multidimensional Poverty Index (MPI) revealed that 63% of the population (approximately 133 million individuals) experience multidimensional poverty across deprivations in healthcare, education, living standards, and security. Concurrently, public debt servicing absorbed 96.3% of federal retained revenue in 2022 (Budget Office of the Federation, 2023), limiting fiscal space for capital development. Furthermore, chronic insecurity, ranging from violent extremism in the North-East to rural banditry in the North-West and resource-based conflicts in the Middle Belt reflects deep challenges in state capacity and territorial governance (International Crisis Group [ICG], 2014, 2020).

This paper critically interrogates the systemic dimensions of democratic governance in Nigeria's Fourth Republic and evaluates their implications for sustainable development. By systematically synthesizing documentary evidence, institutional indicators, and economic data, the study links governance conversion bottlenecks to specific Sustainable Development Goals (SDGs), while distinguishing institutional governance failures from external macroeconomic shocks.

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Theoretical Framework and Literature Review

Theoretical Framework

This study adopts an integrated theoretical framework combining David Easton's Systems Theory (1965) with normative Good Governance Frameworks (Kaufmann et al., 2010; UNDP, 1997; World Bank, 1992).

Systems Theory

Easton's Systems Theory views the political system as an input-conversion-output-feedback mechanism operating within an environment:

- **Inputs:** comprise demands (citizen requests for public goods, security, and justice) and supports (tax compliance, political participation, and civic trust).
- **Conversion Processes:** represent the institutional structures (legislature, judiciary, executive, electoral management bodies) that process inputs into authoritative decisions.
- **Outputs:** consist of public policies, laws, budgetary allocations, and enforcement actions.
- **Feedback Loops:** provide information on policy impacts back into the system via elections, judicial review, media reporting, and civic protests.

In the Nigerian context, 'systemic decline' is conceptualized as a structural breakdown in the conversion mechanism and feedback loops. Clientelist capture, bureaucratic inefficiency, and elite cartelization disrupt the conversion of civic inputs into public goods. Consequently, the political system produces distorted outputs (e.g., misallocated budgets, selective regulatory enforcement), which generate negative feedback loops manifesting as civic alienation, low electoral trust, tax evasion, and security challenges (Lewis & Kew, 2022).

Good Governance Framework

While Systems Theory explains the functional mechanisms of institutional processing, the Good Governance framework provides normative indicators to evaluate system performance. Originating in World Bank (1992) analytical work on development bottlenecks and expanded by the UNDP (1997) and World Governance Indicators (WGI) project (Kaufmann et al., 2010), good governance is evaluated across key dimensions: Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. Rather than assuming that democratic governance is a sufficient condition for economic growth, this study recognizes good governance as an institutional catalyst that enhances policy credibility, reduces investment risks, and improves resource allocation (Acemoglu & Robinson, 2012; Rodrik, 2007).

Literature Review and Comparative Synthesis

Previous scholarship on Nigerian politics frequently examines governance deficits through isolated thematic lenses. Table 1 maps the existing literature, highlighting specific empirical domains, methodological approaches, and structural gaps addressed by this paper's integrated systems synthesis.

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Table 1: Literature Matrix and Comparative Synthesis

Author(s) & Year	Analytical Focus	Core Argument / Findings	Methodological Design	Identified Literature Gap Addressed by This Study
Achebe (1983)	Leadership & Ethics	Identifies leadership failure and pervasive ethical decay as primary drivers of national underdevelopment.	Normative political essay / Qualitative observation	Lacks empirical institutional data and structured analysis of modern post-1999 state structures.
Joseph (1987)	Prebendalism & Clientelism	Conceptualizes political offices as prebends used for personal and communal elite enrichment.	Historical institutionalism (Second Republic case study)	Pre-dates the Fourth Republic; requires empirical updating for post-1999 competitive electoral dynamics.
Ake (1996)	Political Economy of Development	Argues political authoritarianism and state capture impede developmental goals across post-colonial Africa.	Macro political economy analysis	Theoretical synthesis predating 1999 democratic institutions.
Adejumobi (2000)	Democratization & State Power	Examines how civilian transitions retain structural elements of military authoritarianism.	Comparative qualitative analysis	Focused primarily on initial transition mechanics rather than multi-decade SDG outcomes.
Omotola (2010)	Electoral Governance	Analyzes how electoral fraud and monetization undermine democratic legitimacy in the Fourth Republic.	Empirical case study of 2003 and 2007 elections	Focuses on electoral integrity in isolation from macroeconomic and environmental SDGs.
Suberu (2021)	Federalism & Institutional Reform	Evaluates structural flaws in Nigeria's fiscal federalism and intergovernmental revenue allocation.	Legal-institutional policy review	Analyzes federal revenue distribution without systematically mapping conversion loops to state capacity.

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Author(s) & Year	Analytical Focus	Core Argument / Findings	Methodological Design	Identified Literature Gap Addressed by This Study
Lewis & Kew (2022)	Democratic Trajectories & Public Perception	Demonstrates persistent divergence between procedural democratic survival and public satisfaction using survey data.	Quantitative survey analysis (Afrobarometer series)	Examines public perception metrics without unbundling economic transmission channels (e.g., debt, procurement).
This Study (2026)	Systemic Governance Decline & SDG Interactions	Integrates institutional, legal, and macroeconomic data into a Systems Theory framework linking governance conversion bottlenecks directly to SDGs 8, 10, 13, and 16.	Structured qualitative documentary synthesis (N=62) with multi-source triangulation	Addresses empirical fragmentations by providing a longitudinal, multi-sector analysis that accounts for external shocks.

Methodology and Reproducibility

This study employs a qualitative documentary synthesis design, structured to analyze institutional trajectories, legislative developments, economic indicators, and governance metrics across Nigeria's Fourth Republic (1999–2025). To address methodological concerns regarding qualitative reproducibility, data collection and analysis followed a transparent screening, appraisal, and triangulation protocol.

Document Corpus, Identification, and Inclusion Rules

Data collection was conducted across five search repositories: Scopus, Web of Science, Google Scholar, the World Bank Open Knowledge Repository, and official Nigerian government portals (National Bureau of Statistics [NBS], Debt Management Office [DMO], Independent National Electoral Commission [INEC]). The search protocol utilized combinations of Boolean terms: ("Nigeria" OR "Nigerian") AND ("democratic governance" OR "institutional quality" OR "prebendalism") AND ("sustainable development" OR "SDGs" OR "poverty" OR "economic growth") AND ("1999" OR "Fourth Republic").

The document retrieval process proceeded as follows:

1. **Identification:** Scopus / Web of Science / Google Scholar (n = 84); World Bank / UNDP / Transparency International Portals (n = 22); NBS / DMO / INEC / Central Bank Official Portals (n = 12). Total Identified: N = 118.
2. **Screening:** Excluded duplicates (n = 14); excluded pre-1999 studies lacking longitudinal relevance (n = 16). Screened Records: n = 88.
3. **Eligibility Assessment:** Evaluated full-text methodology, data validity, and source credibility. Excluded unverified news commentaries and non-refereed blogs (n = 26). Retained Corpus: N = 62.

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Inclusion Criteria

1. **Temporal Coverage:** Focuses on institutional, political, or economic developments within the 1999–2025 timeframe.
2. **Methodological Rigor:** Peer-reviewed journal articles, books by academic publishers, official statistical publications from accredited state agencies (NBS, DMO), or standardized reports from established multilateral organizations (World Bank, UNDP, ICG).
3. **Thematic Relevance:** Direct empirical or theoretical focus on Nigerian governance structures, judicial processes, electoral systems, security dynamics, macroeconomic performance, or environmental regulation.

Data Extraction, Coding, and Triangulation Protocol

The retained 62 documents were analyzed using qualitative thematic coding structured around the study's main research questions. Categories included:

- **Category A (Institutional Oversight & Rule of Law):** court decisions, legislative oversight records, civic space laws.
- **Category B (Corruption Metrics & State Capture):** Corruption Perceptions Index score series, NEITI audit reports.
- **Category C (Electoral Integrity Trajectories):** electoral observer reports, INEC technical assessments.
- **Category D (Socio-Economic Outcomes):** NBS poverty surveys, DMO debt records, labor force series.

To mitigate analytical bias, claims were cross-validated using data triangulation. Official go

- **Category E (Security & Environmental Governance):** ICG conflict series, NOSDRA spillage logs.

vernment statistics were evaluated against independent reports from international financial institutions (e.g., comparing NBS poverty metrics with World Bank Development Updates). Qualitative allegations of political interference were verified against documented legal cases, statutory instruments, and empirical survey series (e.g., Afrobarometer).

Analysis of Systemic Decline in Democratic Governance

Operationalizing 'decline' over a 26-year temporal frame requires distinguishing between persistent baseline institutional weaknesses and dynamic post-1999 changes across specific sectors. Nigerian institutional quality has evolved unevenly: electoral administration experienced periods of structural improvement (e.g., 2011–2015) followed by operational setbacks (2019–2023), while legislative oversight and civic space have experienced distinct regulatory pressures.

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Legislative Oversight and Judicial Autonomy

Legislative Oversight Dynamics

A core requirement of presidential democracy is horizontal accountability enforced through legislative oversight. In Nigeria's Fourth Republic, the National Assembly has maintained statutory autonomy, occasionally exercising legislative power such as defeating the proposed constitutional third-term amendment in 2006. However, longitudinal oversight records reveal structural vulnerabilities. Legislative-executive interactions have frequently been characterized by patronage considerations and budget modification processes (popularly termed 'budget padding'), alongside high approval rates for executive loan requests. For example, during the 9th National Assembly (2019–2023), executive borrowing requests experienced an approval rate exceeding 95% with minimal structural modification, raising questions about independent fiscal scrutiny.

Judicial Autonomy and Enforcement Dynamics

Judicial independence faces operational and political challenges. While the Nigerian judiciary has rendered landmark decisions asserting independence such as restoring contested gubernatorial mandates in Ekiti, Ondo, and Edo States in the late 2000s, executive encroachment remains documented. A clear example occurred in January 2019 with the executive suspension of Chief Justice of Nigeria (CJN) Walter Onnoghen immediately preceding the 2019 general elections, an action criticized by local and international legal bodies as violating constitutional removal protocols specified under Section 292 of the 1999 Constitution.

Furthermore, non-compliance with court orders by state security agencies presents an ongoing challenge to the rule of law. Documented cases include the delayed compliance with judicial bail orders for high-profile detainees by the Department of State Services (DSS) between 2015 and 2022, and executive delays in adhering to Supreme Court interim directives regarding the central bank currency redesign policy in February 2023. Public trust in judicial adjudications has also been impacted by conflicting electoral tribunal decisions across parallel jurisdictions, as reflected in Afrobarometer Round 9 surveys where public trust in formal courts fell below 35%.

Corruption Metrics and State Capture

Assessing corruption trajectories requires standardized longitudinal metrics rather than isolated rank placements, as national rankings fluctuate based on country coverage. Transparency International's Corruption Perceptions Index (CPI) which measures perceptions of public sector corruption on a scale from 0 (highly corrupt) to 100 (very clean), provides a comparative basis.

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Table 2: Transparency International CPI Score Trajectory for Nigeria (2012–2023)

Year	CPI Score (0–100)	Global Rank	Country Sample Size	Source
2012	27	139	176	Transparency International (2012)
2014	27	136	175	Transparency International (2014)
2016	28	136	176	Transparency International (2016)
2018	27	144	180	Transparency International (2018)
2020	25	149	180	Transparency International (2020)
2021	24	154	180	Transparency International (2021)
2023	25	145	180	Transparency International (2023)

The data demonstrates that Nigeria's CPI score has fluctuated within a narrow band (24–28 out of 100) over the past decade, reflecting persistent public sector corruption perceptions. State capture dynamics are evident in public resource management, particularly within the petroleum sector and public procurement. Independent audits by the Nigeria Extractive Industries Transparency Initiative (NEITI, 2021) documented historic unremitted crude oil sales revenues, opaque crude-for-refined-product swap arrangements (Direct Sale-Direct Purchase models), and substantial crude oil theft. Anti-corruption agencies like the Economic and Financial Crimes Commission (EFCC) and Independent Corrupt Practices Commission (ICPC) have secured convictions and asset recoveries; however, institutional effectiveness remains affected by allegations of selective enforcement, political interference during election cycles, and budgetary constraints.

Electoral Trajectories and Civic Space Dynamics

Electoral Trajectories

Nigeria's electoral performance shows an episodic pattern. The 2007 general elections represented a low point in procedural credibility, marked by widespread vote-buying, logistics failures, and result alterations, as documented by domestic and international observer missions (EU-EOM, 2007). Substantive institutional reforms under the Independent National Electoral Commission (INEC) leadership between 2010 and 2015 led to structural improvements, culminating in the 2015 general election which is the first successful national opposition alternation of power in Nigerian history.

However, subsequent general elections in 2019 and 2023 faced renewed operational and technological challenges. While the Electoral Act 2022 introduced technological innovations, specifically the Bimodal Voter Accreditation System (BVAS) and the INEC Result Viewing Portal (IReV), the 2023 general elections experienced significant operational delays in real-time presidential result uploads on election day. These technical failures led to legal challenges and eroded public trust in electoral administration (YIAGA Africa, 2023).

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Civic Space and Regional Insecurity Dynamics

Civic space pressures have manifested through statutory proposals and executive measures. It is necessary to distinguish proposed legislative drafts from enacted laws: the controversial NGO Regulatory Bill (2017/2019) remained a proposed legislative draft that failed to pass following civil society opposition. Conversely, enacted statutory instruments such as Section 24 of the Cybercrimes (Prohibition, Prevention, etc.) Act 2015 has been utilized by law enforcement agencies to detain journalists and bloggers for online commentary. Dated civic space events include the seven-month executive suspension of the social media platform Twitter/X between June 2021 and January 2022, and the security force crackdown on #EndSARS demonstrators protesting police brutality at the Lekki Toll Gate in October 2020.

Simultaneously, state capacity has been strained by distinct regional security crises, which operate through varied drivers rather than a single causal mechanism:

- **North-East:** Ideological jihadist insurgencies driven by Boko Haram and ISWAP (ICG, 2014).
- **North-West:** Criminal banditry, kidnapping networks, and illegal gold mining dynamics (ICG, 2020).
- **Middle Belt:** Violent resource competition between nomadic herders and sedentary farming communities, exacerbated by environmental degradation and demographic pressures (ICG, 2018).
- **South-East:** Ethno-nationalist separatism led by the Indigenous People of Biafra (IPOB) and economic disruptions from non-state enforcement of 'sit-at-home' directives (ICG, 2021).

Gender and Youth Representation

Political inclusion metrics show ongoing gaps in female and youth legislative representation. According to Inter-Parliamentary Union (IPU, 2023) data, female representation in the Nigerian National Assembly remains among the lowest globally:

- **9th National Assembly (2019–2023):** 8 out of 109 Senators (7.34%); 13 out of 360 House of Representatives members (3.61%).
- **10th National Assembly (2023–2027):** 3 out of 109 Senators (2.75%); 17 out of 360 House of Representatives members (4.72%).

Regarding youth participation, passing the Not-Too-Young-To-Run Act 2018 reduced constitutional age thresholds for elective offices (e.g., lowering the presidential age requirement from 40 to 35, and House of Representatives from 30 to 25). However, this statutory change has not translated into proportional electoral victories, as candidates under 35 won under 4% of legislative seats in the 2023 elections due to high party nomination fees and clientelist candidate selection processes.

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Implications for Sustainable Development Goals (SDGs)

Democratic governance quality influences sustainable development outcomes through specific transmission channels: public procurement efficiency, fiscal sustainability, regulatory enforcement, and social service allocation. However, governance factors interact with exogenous macroeconomic shocks, such as global oil price volatility, the COVID-19 pandemic, and foreign exchange market adjustments.

Economic Sustainability (SDGs 8 and 9)

Corruption and weak regulatory frameworks impact economic growth by increasing transaction costs and political risk premiums. In public procurement, political interference and inflated contract pricing reduce capital investment productivity. These structural deficits complicate macroeconomic management during external shocks. Nigeria experienced two economic recessions within five years: in 2016 (triggered by the 2014–2015 global crude oil price collapse and falling domestic production) and in 2020 (induced by COVID-19 pandemic lockdowns and global demand contraction).

Labour Market Metrics

Evaluating employment statistics requires acknowledging a major methodological break in national datasets. Under the National Bureau of Statistics (NBS) old labour force framework, unemployment reached 33.3% in Q4 2020. In 2023, the NBS adopted the revised International Labour Organization (ILO) standard guidelines via the Nigeria Labour Force Survey (NLFS). Under this updated methodology which defines employed individuals as those who worked for pay or profit for at least one hour in the 7-day reference period headline unemployment was recorded at 4.1% in Q1 2023 and 5.0% in Q3 2023. Because of these structural definition changes, the 2020 figure (33.3%) cannot be directly compared with post-2022 NLFS series. However, underemployment (12.3% in Q3 2023) and informal employment (92.3% in Q3 2023) remain high, highlighting persistent structural labour market challenges under SDG 8 (Decent Work and Economic Growth).

Debt Dynamics and Fiscal Space

Nigeria's fiscal sustainability has been constrained by rising sovereign debt servicing requirements. According to the Debt Management Office (DMO, 2023) and the Budget Office of the Federation (2023), total public debt reached ₦87.38 trillion ($113.4 billion) by Q2 2023.

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Table 3: Debt Servicing as a Percentage of Federal Retained Revenue (2018–2022)

Year	Federal Retained Revenue (₦ Trillion)	Debt Service Expenditure (₦ Trillion)	Debt Service-to-Revenue Ratio (%)	Primary Source
2018	3.86	2.21	57.2%	Budget Office of the Federation (2019)
2019	4.12	2.45	59.4%	Budget Office of the Federation (2020)
2020	3.42	3.10	90.6%	Budget Office of the Federation (2021)
2021	4.64	3.86	83.2%	Budget Office of the Federation (2022)
2022	5.04	4.85	96.3%	Budget Office of the Federation (2023)

The high debt service-to-revenue ratio, reaching 96.3% in 2022 reflects a fiscal situation where nearly all federal retained revenue was absorbed by debt obligations, limiting capital expenditure allocations for infrastructure (SDG 9).

Social Sustainability (SDGs 1 and 10)

Social development indicators demonstrate significant welfare deprivations.

Poverty and Inequality Metrics

To avoid confusing welfare metrics, monetary poverty must be distinguished from multidimensional poverty:

- **Monetary Poverty:** The World Bank (2020) Nigeria Living Standards Survey (NLSS 2018/19) established that 40.1% of the population lived below the national monetary poverty line of ₦137,430 per person per year. Updated World Bank estimates indicated monetary poverty stood at 38.9% in 2023.
- **Multidimensional Poverty:** The National Bureau of Statistics (NBS, 2022a) National Multidimensional Poverty Index survey revealed that 63% of the population (133 million people) are multidimensionally poor, experiencing simultaneous deprivations in health, education, basic infrastructure, and security.

Income inequality, measured by the Gini coefficient based on consumption expenditure, was recorded at 35.1 in 2018/19 by the NBS (2020). Compared to historical baselines (35.9 in 2003/04), consumption inequality has remained structural, reflecting persistent gaps between urban elite centers and rural populations, impacting SDG 10 (Reduced Inequalities).

Out-of-School Children Statistics

Education sector indicators reflect persistent access challenges. According to UNESCO (2022) estimates, Nigeria has approximately 20 million out-of-school children. This figure represents approximately 8% to 10% of the global total of out-of-school children (244 million), and roughly 20% of sub-Saharan Africa's out-of-school population. High out-of-school rates are concentrated in northern rural regions, driven by insecurity, poverty, and underfunding of primary education, posing challenges to SDG 4 (Quality Education).

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Environmental Governance (SDGs 13, 14, and 15)

Environmental degradation in Nigeria illustrates the operational limits of state regulatory institutions. Environmental governance challenges stem from an intersection of regulatory capture, resource constraints, population growth, and economic incentives.

Table 4: Environmental Governance Dimensions and Mechanisms

Domain	Geographical Focus	Primary Driver & Mechanism	Institutional Framework	SDG Linkage
Petroleum Pollution	Niger Delta (Ogoniland, Bayelsa)	Oil spillage, gas flaring, illegal artisanal refining, equipment failure.	NOSDRA, NESREA, HYPREP, Petroleum Industry Act (PIA) 2021	SDG 14 (Life Below Water), SDG 15 (Life on Land)
Deforestation & Desertification	Northern Buffer States (Sokoto, Jigawa, Borno)	Fuelwood extraction, population pressure, pastoral climate adaptation.	Great Green Wall Initiative, Federal Ministry of Environment	SDG 13 (Climate Action), SDG 15 (Life on Land)
Urban Waste & Flooding	Urban Centers (Lagos, Ibadan, Port Harcourt)	Wetland reclamation, inadequate municipal drainage, poor waste management.	State Environmental Protection Agencies (SEPAs), NESREA	SDG 11 (Sustainable Cities), SDG 13 (Climate Action)

In the Niger Delta, National Oil Spill Detection and Response Agency (NOSDRA, 2022) records show thousands of documented oil spill sites. Environmental regulatory agencies such as NOSDRA and the National Environmental Standards and Regulations Enforcement Agency (NESREA) face enforcement limits due to budgetary dependencies and security restrictions in logistics monitoring. The Hydrocarbon Pollution Remediation Project (HYPREP), established to implement the 2011 United Nations Environment Programme (UNEP) report on Ogoniland, has faced procurement and implementation delays. Furthermore, artisanal refining ('kpo-fire') operates as an informal economic adaptation to rural poverty and economic exclusion, generating severe localized atmospheric and marine pollution.

Limitations of the Study

This documentary synthesis acknowledges three primary analytical limitations:

1. **Secondary Data Limitations:** The analysis relies on secondary documentary sources, official statistics, and third-party survey metrics. While rigorous cross-validation and triangulation protocols were executed, official government statistics in developing contexts can be subject to historical methodological adjustments or reporting delays.
2. **Methodological Breaks in Macroeconomic Data:** Discontinuities in longitudinal statistical series, notably the National Bureau of Statistics' 2023 overhaul of the Labour Force Survey methodology preclude direct quantitative comparisons between pre-2021 and post-2022 unemployment metrics.

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3. **Generalization Constraints:** As a single-country qualitative case study, the empirical observations reflect Nigeria's specific socio-political and institutional structures. While theoretical mechanisms surrounding prebendalism and systems conversion apply broadly to comparative political analysis, findings should be adapted cautiously when generalized to other sub-Saharan African polities with differing institutional frameworks.

7. Strategic Implementation Framework and Actionable Policy Recommendations

To ensure policy proposals avoid confusing current statutory text with needed constitutional amendments, recommendations are presented in an Actionable Implementation Framework. Proposals are categorized by responsible authority, legal mechanism, resource implications, and priority level.

7.1 Priority Reform Framework

Table 5: Categorized Actionable Policy Reform Matrix

Reform Dimension	Specific Policy Measure	Responsible Institution	Legal/Legislative Pathway	Resource & Cost Profile	Implementation Horizon & Priority
Electoral Integrity	Codify mandatory electronic transmission of polling unit results (Form EC8A) via IReV without administrative discretion.	INEC, National Assembly	Statutory Amendment to Section 60(5) of Electoral Act 2022	Low Direct Cost; High IT Infrastructure Investment	Short-Term (1–2 Years); High Priority
Electoral Inclusion	Legalize independent candidacy for all elective offices to bypass party nomination entry barriers.	National Assembly, State Houses of Assembly	Constitutional Amendment to Sections 65, 106, 131, and 177	Low Administrative Cost	Medium-Term (2–4 Years); Medium Priority
Judicial Autonomy	Remove executive discretion from National Judicial Council (NJC) appointment recommendations and secure direct fund transfers.	National Judicial Council, National Assembly	Constitutional Amendment to Section 211 / Federal Statutory Review	Low Budgetary Cost; Refreshes Institutional Allocation	Short-Term (1–2 Years); High Priority

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Reform Dimension	Specific Policy Measure	Responsible Institution	Legal/Legislative Pathway	Resource & Cost Profile	Implementation Horizon & Priority
Anti-Corruption & Transparency	Implement open contracting and beneficial ownership registries across NNPC Ltd and extractive licensing.	NUPRC, NMDPRA, NEITI, Corporate Affairs Commission	Enforcement of Petroleum Industry Act (PIA) 2021 Sections 83/104	Moderate Operational IT Cost; Substantial Revenue Recovery	Immediate (0–1 Year); High Priority
Decentralization & Fiscal Federalism	Devolution of policing and mineral royalty sharing, accompanied by sub-national audit safeguards and fiscal equalization formulas.	Federal Executive, National Assembly, State Governors	Constitutional Amendment to Second Schedule (Exclusive Legislative List)	High Structural Reallocation Cost; Long-Term Fiscal Yield	Long-Term (3–5 Years); Medium Priority
Gender & Civic Inclusion	Enforce 35% Affirmative Action quota for appointive public offices and establish statutory seats for women in parliament.	Federal Executive, Federal Ministry of Women Affairs, National Assembly	Executive Order & Constitutional Amendment to Sections 48/49	Low Direct Cost	Medium-Term (2–3 Years); High Priority
Environmental Governance	Restructure HYPREP governance for Ogoniland cleanup and enforce strict environmental remediation fines on upstream operators.	Federal Ministry of Environment, NOSDRA, NUPRC	Statutory Enforcement of NOSDRA Act 2006 & PIA Regulations	Funded through Ecological Fund and Operator Assessed Penalties	Immediate (0–1 Year); High Priority

Nuanced Fiscal Devolution Safeguards

While decentralization and fiscal devolution can enhance local responsiveness, unmanaged devolution carries risks of sub-national elite capture and regional fiscal disparities between oil-producing and non-oil states. Therefore, fiscal devolution must be paired with horizontal fiscal equalization mechanisms and mandatory sub-national public procurement audit frameworks. State-level Anti-Corruption Commissions and Auditor-General Offices must be granted statutory independence to prevent local elite capture of devolved revenues.

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Conclusion

This study has examined the challenges of systemic decline in democratic governance in Nigeria's Fourth Republic and evaluated its developmental implications across the UN Sustainable Development Goals. By executing a structured documentary synthesis grounded in Easton's Systems Theory and Good Governance frameworks, the paper moves beyond un-dated generalizations to provide a contextualized analysis of institutional performance.

The findings demonstrate that while procedural democratic continuity has been maintained for over two decades, conversion bottlenecks within legislative oversight, judicial enforcement, electoral administration, and public resource management constrain progress toward sustainable development. These institutional vulnerabilities increase transaction costs, exacerbate public debt service burdens, and impair social safety nets, rendering the country more vulnerable to external macroeconomic and environmental shocks.

Reversing these systemic challenges requires moving beyond piecemeal administrative adjustments toward targeted institutional, statutory, and constitutional reforms. Implementing mandatory electronic electoral transparency, securing judicial financial autonomy, enforcing anti-corruption transparency in resource management, and establishing clear fiscal equalization frameworks during devolution represent essential pathways for rebuilding state capacity. Re-establishing a credible social contract between the Nigerian state and its citizens remains central to converting democratic governance into tangible, inclusive development outcomes.

References

Acemoglu, D., & Robinson, J. A. (2012). Why nations fail: The origins of power, prosperity, and poverty. Crown Currency.

Achebe, C. (1983). The trouble with Nigeria. Heinemann Educational Books.

Adejumobi, S. (2000). Elections in Africa: A fading shadow of democracy? International Political Science Review, 21(1), 59–73. https://doi.org/10.1177/0192512100211004

Ake, C. (1996). Democracy and development in Africa. The Brookings Institution.

Brundtland, G. H. (1987). Our common future: Report of the World Commission on Environment and Development. Oxford University Press.

Budget Office of the Federation. (2019). 2018 Federal Government of Nigeria budget implementation report. Ministry of Budget and National Planning.

Budget Office of the Federation. (2020). 2019 Federal Government of Nigeria budget implementation report. Ministry of Budget and National Planning.

Budget Office of the Federation. (2021). 2020 Federal Government of Nigeria budget implementation report. Ministry of Finance, Budget and National Planning.

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Budget Office of the Federation. (2022). 2021 Federal Government of Nigeria budget implementation report. Ministry of Finance, Budget and National Planning.

Budget Office of the Federation. (2023). 2022 Federal Government of Nigeria budget implementation report. Ministry of Finance, Budget and National Planning.

Debt Management Office. (2023). Nigeria's public debt portfolio as at June 30, 2023. Debt Management Office, The Presidency.

Diamond, L. (2008). The spirit of democracy: The struggle to build free societies throughout the world. Times Books.

Diamond, L. (2020). Democratic regression in comparative perspective: Paralysis, decay, and authoritarian resurgence. Journal of Democracy, 31(1), 22–39.

Easton, D. (1965). A systems analysis of political life. John Wiley & Sons.

European Union Election Observation Mission. (2007). Final report on the general elections in the Federal Republic of Nigeria 2007. EU-EOM.

Human Rights Watch. (2007). Criminal politics: Violence, 'godfathers' and corruption in Nigeria. Human Rights Watch.

Independent National Electoral Commission. (2022). Electoral Act 2022. Federal Republic of Nigeria Official Gazette.

Inter-Parliamentary Union. (2023). Monthly ranking of women in national parliaments. IPU Parline Database. https://data.ipu.org/women-ranking

International Crisis Group. (2014). Curbing violence in Nigeria (II): The Boko Haram insurgency (Africa Report No. 216). International Crisis Group.

International Crisis Group. (2018). Stopping Nigeria's spiralling herder-farmer violence (Africa Report No. 262). International Crisis Group.

International Crisis Group. (2020). Violence in Nigeria's North-West: Rolling back the mayhem (Africa Report No. 288). International Crisis Group.

International Crisis Group. (2021). Nigeria's Southern separatists: Challenge and response (Africa Briefing No. 171). International Crisis Group.

Jega, A. M. (2015). Electoral reforms in Nigeria: Challenges and prospects [Public Lecture]. Nasarawa State University, Keffi, Nigeria.

Joseph, R. A. (1987). Democracy and prebendal politics in Nigeria: The rise and fall of the Second Republic. Cambridge University Press.

Kaufmann, D., Kraay, A., & Mastruzzi, M. (2010). The Worldwide Governance Indicators: Methodology and analytical issues. World Bank Policy Research Working Paper, (5437). https://ssrn.com/abstract=1682136

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Lewis, P. M., & Kew, D. (2022). Nigeria's Fourth Republic at twenty-three: Democratic persistence and institutional erosion. African Affairs, 121(484), 345–372. https://doi.org/10.1093/afraf/adac018

National Bureau of Statistics. (2020). 2019 Nigerian Living Standards Survey (NLSS): Executive summary. NBS.

National Bureau of Statistics. (2022a). Nigeria Multidimensional Poverty Index (2022) report. NBS.

National Bureau of Statistics. (2022b). Labor force statistics: Unemployment and underemployment report (Q4 2020). NBS.

National Bureau of Statistics. (2023). Nigeria Labour Force Survey (NLFS) report: Q1 & Q3 2023. NBS.

National Oil Spill Detection and Response Agency. (2022). Oil spill monitor statistical portal. NOSDRA. https://nosdra.gov.ng

Nigeria Extractive Industries Transparency Initiative. (2021). Oil and gas industry audit report 2020. NEITI.

Omotola, J. S. (2010). Elections and democratic transition in Nigeria under the Fourth Republic. African Affairs, 109(437), 535–553. https://doi.org/10.1093/afraf/adq040

Page, M. (2021). A guide to origination, clientelism, and state capture in Nigeria. Carnegie Endowment for International Peace.

Rodrik, D. (2007). One economics, many recipes: Globalization, institutions, and economic growth. Princeton University Press.

Sen, A. (1999). Development as freedom. Oxford University Press.

Smith, D. J. (2007). A culture of corruption: Everyday deception and popular discontent in Nigeria. Princeton University Press.

Suberu, R. (2021). Prebendalism, federalism, and governance in Nigeria. Social Research: An International Quarterly, 88(2), 431–458.

Transparency International. (2012). Corruption Perceptions Index 2012. Transparency International.

Transparency International. (2014). Corruption Perceptions Index 2014. Transparency International.

Transparency International. (2016). Corruption Perceptions Index 2016. Transparency International.

Transparency International. (2018). Corruption Perceptions Index 2018. Transparency International.

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Transparency International. (2020). Corruption Perceptions Index 2020. Transparency International.

Transparency International. (2021). Corruption Perceptions Index 2021. Transparency International.

Transparency International. (2023). Corruption Perceptions Index 2023. Transparency International.

United Nations Development Programme. (1997). Governance for sustainable human development. UNDP.

United Nations Development Programme. (2002). Human Development Report 2002: Deepening democracy in a fragmented world. Oxford University Press.

UNESCO. (2022). Global education monitoring report 2022: Out-of-school children population estimates. UNESCO Publishing.

World Bank. (1992). Governance and development. The World Bank.

World Bank. (2020). Nigeria economic update: Resilience through reform. The World Bank.

World Bank. (2022). Nigeria development update: The continuing urgency of business unusual. The World Bank.

YIAGA Africa. (2023). Watching the vote: Final statement on the 2023 presidential and National Assembly elections. YIAGA Africa Initiative.

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An Investigation into the Iron Smelting Furnace Types on the Jos-Plateau, North-Central Nigeria: Results from Recent Survey

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DOI : https://doi.org/10.5281/zenodo.23560713

Abstract

Communities on the Jos Plateau of North-Central Nigeria are known for their iron-smelting activities. Although colonial anthropologists and archaeologists have documented iron-smelting remains and associated cultural practices in the area, the furnace structures used across the region have received limited focused typological analysis. Existing studies have largely presented broad archaeological surveys or general descriptions of iron smelting, with less attention to the classification of furnace forms. This paper documents and examines iron-smelting furnace structures on the Jos Plateau using evidence from field surveys, previously reported archaeological sites, surface remains, and published ethnographic records. The study draws on the examination of furnace remains, including tuyere fragments and furnace-wall materials, alongside information from earlier archaeological and ethnographic accounts. It identifies variation in furnace form and arrangement and proposes a classification based on the available structural evidence. The findings provide a basis for understanding the range of furnace designs documented on the Jos Plateau and their significance for the study of indigenous iron-smelting technology. However, interpretations concerning chronological change, production scale, fuel availability, and social organisation require further evidence before firm conclusions can be drawn. The study contributes to the documentation of iron-smelting furnace structures in the region and provides a foundation for further comparative research into their technological and archaeological significance.

Keywords: Jos Plateau, iron smelting, furnace types, archaeological survey, African metallurgy

Introduction

Iron smelting was an important technological development in African history (Davidson, 1959). Knowledge of iron technology contributed to changes in production, migration and the development of societies, although its effects varied across different communities and historical contexts (Ndera, 2026). The Jos Plateau of North-Central Nigeria is an important area for studying this technology because of the widespread remains associated with iron production, including iron slag, furnace structures and tuyere fragments. Historical records, anthropological accounts and archaeological surveys have documented iron-smelting sites in different communities across the

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Plateau, indicating that iron production formed an important part of the region's technological history (Jemkur and Walu, 2002; Gubam, 2013; Maram, 2014; Fwatshak, 2014; NAK/SNP/1192/19/1941).

Ropp Rock Shelter is among the archaeological sites on the Jos Plateau discussed in relation to the region's early human occupation. Shaw (1978) reported archaeological evidence associated with occupation spanning the Late Stone Age and the Early Iron Age. Iron implements, slag and iron ore have also been reported from an excavation trench at the site. However, the presence of these materials does not, by itself, establish that iron smelting took place at the shelter or that the materials were associated with a particular smelting installation. Their significance depends on their archaeological context, the circumstances of their recovery and the dating evidence available. The provenance and chronological association of these finds therefore require careful consideration when using Ropp Rock Shelter to discuss the history of iron production on the Plateau.

Beyond Ropp Rock Shelter, the Jos Plateau contains numerous remains associated with iron smelting, including slag deposits, tuyere fragments, furnace-wall fragments and abandoned smelting installations. Historical and ethnographic records also document iron-smelting practices that continued in some communities until the twentieth century. Together, these sources demonstrate the importance of investigating the region's iron-production history. However, the distribution of smelting remains and the duration of the craft do not, on their own, establish how furnace designs developed or whether particular forms were associated with specific periods, production scales or communities.

Previous archaeological and anthropological studies have examined iron production on the Jos Plateau, including its social and cultural dimensions (Netting, 1968; Shaw, 1978). Earlier descriptions of furnace structures also provide a basis for examining the forms used in different parts of the region. The present study builds on this existing work by bringing together available descriptions, archaeological observations and documented accounts to examine furnace forms across the Plateau. Rather than assuming that no previous typological work exists, it assesses the available evidence to determine how far earlier studies have described and distinguished the furnace structures. This approach provides an opportunity to clarify the similarities and differences among the documented forms and identify areas where further field investigation is required.

Furnace structures are important sources of evidence for understanding the technological practices involved in iron smelting. Their shape, construction, dimensions and associated features can provide information about how smelting installations were built and used. Differences between furnaces may reflect technological choices, but explaining those differences requires evidence beyond morphology alone. Interpretations concerning production scale, fuel use, ore selection, labour organisation and cultural preferences must therefore be assessed against the archaeological context and any available ethnographic or historical information. Similarly, claims about changes in furnace design over time require reliable chronological evidence.

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This paper examines iron-smelting furnace structures on the Jos Plateau through the re-examination of previously reported archaeological sites, the analysis of surface remains and the review of historical and ethnographic accounts of iron smelting. It aims to document the furnace forms represented in the available evidence, establish a consistent classification and assess the significance of the observed variation. The study has three objectives:

1. To document and classify the main iron-smelting furnace forms reported on the Jos Plateau.
2. To examine variation in furnace design across documented sites and communities, while considering chronological differences where sufficient evidence is available.
3. To assess what the documented furnace forms and their archaeological contexts reveal about iron-smelting technology, resource use and social organisation on the Jos Plateau.

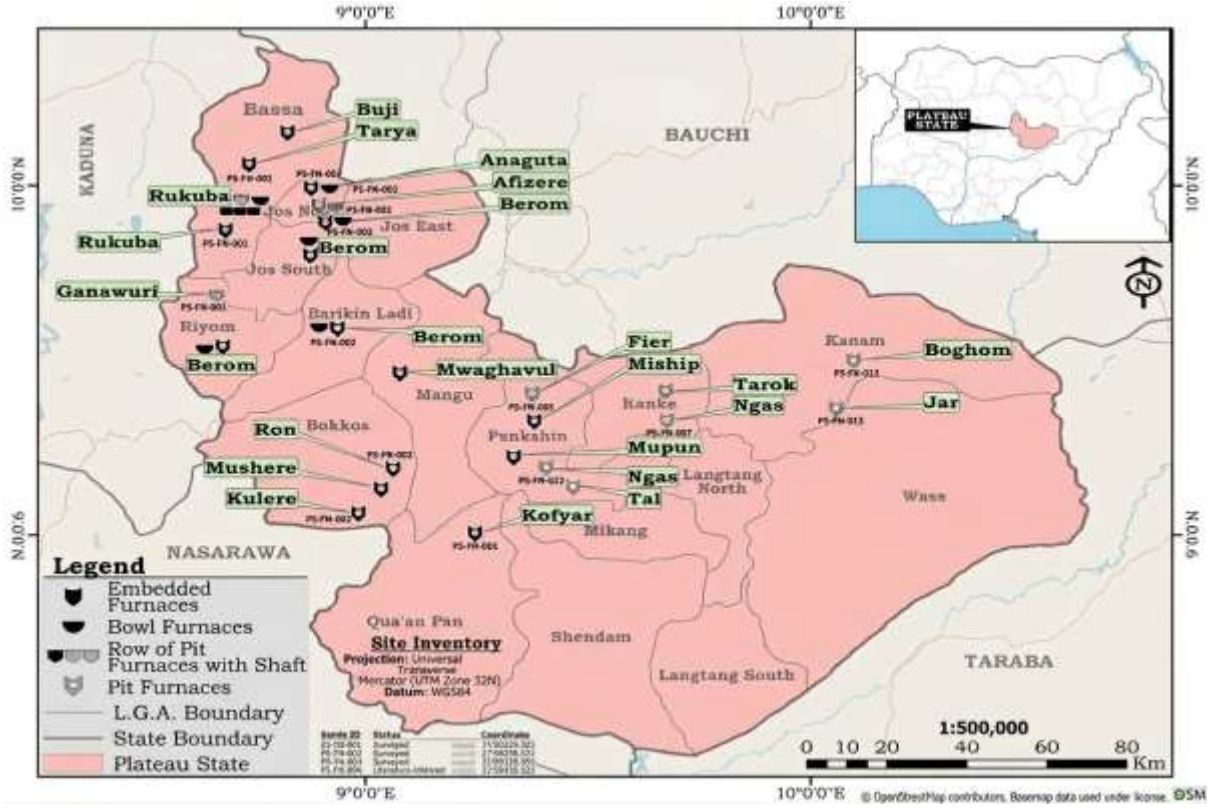

Figure 1: Distribution of Iron Smelting Furnaces Traditions across Various Ethnic Groups on the Jos-Plateau
Source: Modified from https://www.openstreetmap.org/#map=6/9.117/8.674

Methods of the Research

This study adopted a qualitative research approach that combined field surveys, a review of relevant literature and archival materials, and oral interviews. Field surveys were conducted on the Jos Plateau between 2018 and 2023. Sites were identified through previously published archaeological and historical reports (Fagg, 1958, 1969; Jemkur, 1989; Berthoud, 1969; Gunn,

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1953; Netting, 1969; Tambo, 1976; Temple, 1976; and Maram, 2014), as well as through engagement with local communities. The survey examined reported iron-smelting locations and visible remains, including furnace structures, furnace-wall fragments, tuyere fragments and slag deposits. Published ethnographic accounts and archival materials on communities of the Jos Plateau, together with relevant studies of iron smelting elsewhere in Nigeria, were also reviewed to provide historical and comparative context.

The research covered communities associated with the Buji, Tarya, Anaguta, Afizere, Berom, Rukuba, Ganawuri, Ron, Mwaghavul, Mushere, Kulere, Fier, Miship, Tarok, Ngas, Mupun, Tal and Kofyar peoples. The identification of sites drew on earlier reports and information supplied by community members. In some cases, hunters who had encountered archaeological remains in the bush identified their locations and explained what they knew about them. The researcher then visited these locations with the assistance of the hunters to examine the remains directly. This approach helped locate sites that might otherwise have been difficult to identify through published sources alone. The survey findings were considered alongside documentary and oral evidence. The field surveys discussed in this study took place between 2018 and 2023; the survey dates and provenance of individual photographs should be checked against the original field records to ensure that all captions accurately reflect when and by whom the images were obtained.

Oral interviews were conducted with 76 participants drawn from communities across the study area. The participants comprised six traditional rulers, ten academics, fifteen civil servants, twenty farmers, fifteen housewives and ten students. Participants were selected purposively because they were considered capable of providing relevant information about the history, location or technology of iron smelting. They included local blacksmiths, members of the last generation of iron smelters, community members with knowledge of the craft, traditional rulers familiar with community histories, hunters who had encountered smelting remains, and academics who had conducted research in the area. These participants did not necessarily possess the same type or level of knowledge. Former practitioners could provide information based on direct participation in ironworking, while other participants contributed observations, community histories, inherited accounts or research-based interpretations. Their accounts were therefore considered in relation to the source of their knowledge and, where possible, compared with the archaeological remains and documentary evidence.

The interviews used open-ended questions focusing on iron-smelting technology on the Jos Plateau, particularly the forms, construction and use of furnaces. Both group interviews and individual interviews were conducted. Group interviews allowed participants to discuss their knowledge and experiences, while individual interviews provided opportunities to obtain accounts from particular informants. Voice recordings were transcribed into written English, with translation undertaken where necessary. Field observations and relevant information were also recorded in written field notes. The interview material was examined alongside the field observations, published literature and archival records to identify descriptions of furnace structures and compare information from different sources. The available methodological record should specify how interview responses were organised and compared during analysis, including whether a formal coding procedure was used.

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Consent was sought from interview participants, and consent was granted. Participants were assured that their information would be treated confidentially. Community engagement formed part of the process of locating sites and obtaining information from people familiar with local iron-smelting histories. The research drew on archaeological field observations, oral accounts and existing documentary sources. However, any formal institutional ethical approval, community-level research permissions or archaeological survey and collection permits obtained for the work should be identified explicitly in the final manuscript. The paper should also clarify how consent for voice recording and translation was handled, and whether participants agreed to be identified by name when their statements or personal communications are cited. These details are important for transparency and for documenting the ethical basis of the research.

Iron-Smelting Furnaces, Tuyeres and Bellows: Technology and Operation

Iron-Smelting Furnaces and Their Importance

Iron smelting is the process of extracting metallic iron from iron ore through chemical reduction. It involves removing oxygen from iron oxides under controlled high-temperature conditions. In traditional bloomery iron smelting, the iron is produced mainly in a solid, spongy mass known as a bloom, while some of the impurities combine with other materials to form slag, which may become molten. The bloom is subsequently consolidated through hammering and forging to produce usable iron. Smelting should therefore be distinguished from melting, forging and blacksmithing, although these activities are related stages in iron production (Childs & Killick, 1993; Killick, 2015; Rehder, 2000).

The furnace is one of the principal structures used in this process. It provides an enclosed space in which heat, airflow and the chemical conditions required for the reduction of iron ore can be maintained. The structure also helps to regulate the movement of air and gases during smelting. Furnace construction is therefore an important part of iron-smelting technology because the shape, size, materials and arrangement of the furnace influence how the smelting process is conducted (Chirekure, 2015; Killick, 2015; Rehder, 2000).

The furnace structures documented on the Jos Plateau were constructed mainly from locally available clay. The clay was prepared by mixing it with water and working it into a suitable consistency before the furnace walls were built, often in layers. The choice of clay depended on the materials available to the smelters and their knowledge of suitable local resources. The internal surfaces of the furnaces were also formed from prepared clay to withstand the high temperatures generated during smelting. These construction practices demonstrate the importance of local knowledge in the selection and preparation of materials for iron production.

Ethnographic information from the Mwaghavul area refers to a plant known as *gagarang*, which was reportedly mixed with clay used for plastering the furnace. According to the account, the plant helped to strengthen the clay when exposed to heat. This information relates specifically to the reported Mwaghavul practice and should not be assumed to represent the construction methods of all iron-smelting communities on the Jos Plateau.

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The operation of the furnace required a suitable fuel supply and a means of introducing air into the combustion chamber. Charcoal was used as fuel, while bellows supplied air through clay pipes known as tuyeres. The interaction between charcoal, air and the furnace environment generated the heat and reducing gases needed to extract iron from the ore. The furnace therefore functioned not simply as a container for fire but as a structure that supported the chemical reactions involved in smelting.

Construction and Operation of Furnaces on the Jos Plateau

Ethnographic accounts describe several stages in the construction and operation of iron-smelting furnaces on the Jos Plateau. After the furnace had been constructed and prepared for use, charcoal was placed inside and ignited. Additional charcoal and iron ore were introduced during the operation. The bellows operators continuously supplied air through the tuyeres to maintain combustion and the required furnace conditions.

Vrengkat (personal communication, 2009) reported that the charge was added at intervals as the smelting process proceeded. According to this account, charcoal and ore were placed in layers over an initial bed of charcoal. The account provides information about the reported operating procedure, but it should be distinguished from direct observations made during the field surveys conducted between 2018 and 2023.

The charcoal served two related purposes. It provided heat through combustion and generated carbon monoxide, which acted as a reducing gas. Under suitable furnace conditions, carbon monoxide reacted with iron oxides and removed oxygen from them, allowing metallic iron to form. The reduced iron accumulated as a bloom, while impurities were incorporated into slag. The precise behaviour of the ore, gases and slag depended on the temperature, airflow, composition of the charge and other operating conditions.

The bellows were operated by hand, and the number of operators depended on the arrangement and size of the installation. Ethnographic information describes two or three men working the bellows during some smelting operations. A small wall was reportedly constructed between the furnace and the bellows operators to protect them from the heat. The account also describes a hole in the pot positioned at the top of some furnaces through which the smelters observed conditions inside the furnace.

According to the same account, the colour of the tuyere was used as an indication of the progress of the smelt. A red tuyere was interpreted as a sign of successful smelting, whereas a white tuyere was associated with an unsuccessful operation and could lead to ritual action to establish the cause. This information should be understood as a reported interpretation within the relevant smelting tradition rather than as a universal technical rule for determining the success of iron smelting.

The ethnographic accounts also describe the use of a pot at the mouth of some pit furnaces. The upper part of the pot was reportedly positioned to help regulate conditions around the furnace opening. Because furnace arrangements differed, this feature should be associated with the particular furnace form in which it was reported rather than presented as a characteristic of all furnaces on the Jos Plateau.

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Furnace Structure, Slag Removal and Reuse

The furnace remains documented on the Jos Plateau show differences in architectural arrangement and in the reported methods of removing smelting residues. These differences are important for classification, but the physical form of a furnace must be distinguished from the way it was operated. For example, a furnace may be built into an elevation or wall without this feature alone establishing whether slag was tapped during smelting.

In the accounts examined for this study, residues from some pit furnaces were reportedly removed through the upper opening, allowing the structure to be repaired and used again. Other accounts describe embedded furnaces in which the bloom and associated residues were removed through an opening near the base. These descriptions provide a basis for comparing the reported operating procedures. However, the presence of a lower opening for bloom extraction does not, by itself, demonstrate that the furnace was a slag-tapping furnace. Such a classification requires additional evidence, such as a channel through which slag flowed, identifiable slag-flow deposits, or other diagnostic features of slag tapping.

The distinction is important because the removal of slag and the removal of the bloom are not necessarily the same operation. In some bloomery furnaces, slag accumulated within the furnace or in a pit and was removed after or during the smelt. In other arrangements, slag could be allowed to flow out through a prepared opening. The classification of the Jos Plateau furnaces should therefore rely on the combination of architectural features, associated slag and other physical evidence rather than on the location of an opening alone.

Ethnographic accounts also indicate that some furnaces could be repaired and reused. When a furnace wall became damaged, the smelters reportedly prepared additional clay, sometimes mixing it with dried grass stalks, and applied it to the affected area. This practice reduced the need to reconstruct the entire furnace after every smelting operation. It demonstrates that furnace maintenance formed part of the technological process. However, evidence that a furnace could be repaired and reused does not establish the actual duration of use of any particular archaeological furnace. Such conclusions require evidence from the individual site.

The height of the furnaces, measured internally, ranged from 1.6 to 1.7 m. This measurement is retained as part of the study's recorded description of the furnace structures. It should be interpreted in relation to the particular furnaces measured and distinguished from the height of the portions that remain visible above the present ground surface. Some structures have suffered substantial deterioration through erosion, farming and other human activities. Consequently, the surviving height of a furnace may be much lower than its original height.

The construction and location of furnaces were also associated with cultural beliefs. Dadiyel (personal communication, 2020) reported that some furnaces were constructed outside settlements because of beliefs concerning ritual conditions and the possible effects of certain forms of contact on the smelting operation. In the account, menstruation and sexual activity were mentioned in connection with these restrictions. This information is presented as a belief reported by an informant within a particular cultural context, rather than as a universal practice among iron-smelting communities on the Jos Plateau. Such accounts are relevant to understanding how technical activities could be connected to ritual expectations and community values.

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Tuyeres and Bellows in Iron Smelting

Tuyeres and bellows were important components of the iron-smelting system, but they performed different functions. A tuyere is a heat-resistant conduit through which air enters the furnace, while a bellows is a device used to supply and force that air into the tuyere. The tuyere was generally made from clay capable of withstanding high temperatures. The bellows, by contrast, formed part of the air-supply apparatus and were not refractory materials.

Ethnographic information indicates that tuyere clay was sometimes collected from particular locations, including riverbanks. The choice of clay was based on the smelters' knowledge of materials considered suitable for producing tuyeres. Tylecote (1965) also discusses the use of different materials for air-delivery components in some iron-smelting contexts. Such comparisons are useful for understanding the range of materials employed in iron technology, although the practices reported elsewhere should not automatically be attributed to the Jos Plateau.

The manufacture of tuyeres was also examined through observations of blacksmithing activities in the area. In the observed process, prepared clay was mixed with water to produce a workable material and tempered with dried grass stalks. The clay was then moulded around a stick coated with ash. After the clay had taken shape, the stick could be removed, leaving a passage through which air could flow. Visual examination of some clay samples also revealed naturally occurring quartz grains, including grains approximately 1–2 mm in diameter.

These observations provide information about local clay preparation and the manufacture of clay air-delivery components. However, the equipment observed in blacksmith workshops should not be treated as identical to the equipment used in earlier iron-smelting furnaces without further evidence. The observations are relevant as an ethnographic comparison of techniques and materials, while the identification of archaeological tuyeres must be based on the characteristics and contexts of the recovered remains.

The bellows were described as being covered with animal skins, with goat skin reportedly preferred because of its strength. The bellows supplied air to the furnace through the tuyeres, helping to sustain combustion and maintain the conditions required for reduction. The number of bellows and operators could vary according to the furnace arrangement and the demands of the operation. The relationship between the bellows, tuyeres and furnace therefore formed an important part of the technical system.

The dimensions and geometry of the tuyeres require careful description. The ends must be identified consistently according to their function: the end connected to the bellows and the end exposed to the furnace interior. Any description of narrowing or flaring should be supported by measurements or a labelled drawing showing the internal and external diameters. This is particularly important when working with fragments, because a broken tuyere may not preserve enough of its original form to establish its orientation with certainty.

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Chemical Reduction and the Role of Carbon Monoxide

The reduction of iron ore during bloomery smelting involves chemical reactions between iron oxides and reducing gases generated by the fuel. Charcoal provides heat and participates in the production of carbon monoxide, which reacts with iron oxides and removes oxygen in the form of carbon dioxide. The reduction proceeds through different iron oxide phases, depending on the temperature and the chemical conditions within the furnace.

The simplified reactions can be represented as follows:

$$3Fe_2O_3 + CO \rightarrow 2Fe_3O_4 + CO_2 \quad \text{(I)}$$
$$Fe_3O_4 + CO \rightarrow 3FeO + CO_2 \quad \text{(II)}$$
$$FeO + CO \rightarrow Fe + CO_2 \quad \text{(III)}$$

Source: David et al, 1989; Joosten, 2004

These equations illustrate the reduction of hematite to magnetite, magnetite to wüstite, and wüstite to metallic iron. They are simplified representations of the reduction stages rather than a complete description of all reactions that occur during smelting. The actual reaction pathways depend on temperature, gas composition, ore characteristics and other conditions inside the furnace.

The relationship between carbon monoxide and carbon dioxide is important because it helps describe the reducing conditions of the furnace. The CO/CO_2 ratio refers to the relative amounts of carbon monoxide and carbon dioxide in the gas mixture; it should not be confused with the percentage concentration of either gas. The verified CO/CO_2 information used in this study should be retained with its original supporting source and the precise meaning of the reported value clearly stated. Its interpretation should remain tied to the conditions and basis on which it was established rather than presented as a universal value for every iron-smelting furnace.

Air supply also affected the combustion process and the conditions required for reduction. The bellows forced air through the tuyeres, while the furnace walls helped contain heat and maintain an environment in which the reducing gases could react with the ore. The interaction of fuel, air, ore and furnace structure was therefore central to the production of metallic iron.

Archaeological Significance of Furnace Remains

Iron-smelting furnaces are important archaeological features because their construction and associated materials can provide evidence of past technological practices. Furnace walls, tuyere fragments, slag deposits and other remains can help researchers investigate how furnaces were built and operated. When these materials are considered together with site context, ethnographic accounts and published archaeological records, they provide a stronger basis for interpreting iron-smelting technology on the Jos Plateau.

Furnace morphology may also help identify differences in technological arrangements. However, the shape or size of a furnace does not independently establish the scale of production, the duration of a smelt, the amount of fuel used or the organisation of labour. These interpretations require supporting evidence, including the quantity and distribution of associated materials, the layout of the installations and reliable information about their use.

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The condition of the remains is an important consideration. Some furnaces survive only as low wall fragments or circular impressions, while other structures preserve more substantial architectural features. Where a furnace is heavily eroded, its original height and shape may be difficult to reconstruct. Classification should therefore identify the features actually observed and distinguish them from interpretations based on comparison with better-preserved structures or ethnographic descriptions.

The furnace remains on the Jos Plateau demonstrate the value of combining archaeological survey with ethnographic and historical evidence. At the same time, interpretations must account for differences in preservation, the limits of surface survey and the absence of secure dates for some structures. Furnace form can provide a useful basis for technological comparison, but chronological development and claims about changes in resource use or social organisation require additional evidence.

Taken together, the furnaces, tuyeres, bellows and associated residues provide evidence of the technical knowledge involved in iron production on the Jos Plateau. Their study helps document local approaches to furnace construction, air supply, fuel use and residue removal. A careful distinction between observed remains, reported practices and archaeological interpretation provides the most reliable foundation for comparing furnace traditions across the region.

The Jos Plateau Furnace Types

Furnace Forms Documented on the Jos Plateau

The field survey identified different furnace forms on the Jos Plateau. However, the remains are in varying states of preservation because of human activities, including farming, animal grazing and hunting, as well as natural processes such as erosion. In some locations, only low circular impressions or fragments of the original furnace walls remain visible above the ground. These conditions make it necessary to distinguish the original furnace structure from the features that can still be observed in the archaeological record.

One furnace form documented during the survey was the embedded furnace at Kisanchi in the Bassa area of Plateau State. Jemkur (2004) described this type of furnace as being constructed along stream banks or natural elevations. In this arrangement, the natural bank formed the rear of the furnace, sometimes after the surface had been excavated or shaped. A clay wall was then constructed at the front to complete the structure. The furnace observed at Kisanchi had an internal height of approximately 1.6–1.7 m. This measurement refers to the furnace described in the field observations and should not be confused with the height of the surviving remains of other, more heavily eroded furnaces.

The embedded furnace has also been discussed in earlier accounts of iron smelting in the region. Berthoud (1969) reported a furnace associated with the Ganawuri, while Jemkur (2004) used the term “embedded furnace” to describe a form constructed against a natural bank or elevation. These descriptions provide a basis for comparison with the Kisanchi example. Nevertheless, the terms should be used with attention to the actual construction features described in each source rather than assuming that every furnace built on an elevation belongs to the same category.

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For the present study, furnace classification distinguishes two broad architectural families: **shaft-type furnaces and bowl furnaces**. Within the shaft-type family, three construction or operational variants are distinguished in the available descriptions: short-shaft or pit furnaces associated with slag pits; free-standing cylindrical shaft furnaces; and embedded or bank-built shaft furnaces. The arrangement of furnaces as individual structures, clusters or rows is recorded separately because arrangement describes their spatial organisation rather than necessarily defining a different furnace form. Similarly, slag-pit use and slag removal are recorded as operational characteristics and are not treated as architectural forms on their own.

The classification is based on the structural features described in the field observations and the published accounts consulted for this study. Where a furnace is heavily eroded, its original form cannot always be established confidently. Such remains should therefore be classified as uncertain where the surviving evidence is insufficient to distinguish a short shaft from a bowl-shaped structure or another type of installation.



Figure 2. Short-shaft/pit furnaces with low walls on an elevation. Source: 2022

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Figure 3. Short-shaft/pit furnace. Source: field survey 2022



Figure 4. Remains of an embedded/bank-built furnace. Source: field survey; 2023.

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Figure 5. Bowl-furnace remains. Source: field survey; 2023.

Comparison with Furnace Types Reported Elsewhere in Nigeria

Previous studies have described several forms of iron-smelting furnaces in Nigeria. Williams (1975) and Anozie (1979), for example, discussed different furnace forms, including domed furnaces, shaft or cylindrical furnaces, and pit or bowl furnaces. These descriptions provide a national and regional comparative framework for examining the structures documented on the Jos Plateau. They should, however, be distinguished from the results of the present field survey.

Anozie (1979, p. 122) described the domed furnace as an improved form of shaft furnace, while Williams (1974) discussed slag tapping as a characteristic associated with the furnace form he described. These accounts indicate that furnace classification may involve both architectural construction and the way slag was managed during smelting. For this reason, a domed form should be identified by its architectural features, while slag tapping should be recorded separately as an operational characteristic supported by appropriate evidence.

The shaft or cylindrical furnace is another form described in the literature. Tylecote (1975) characterised the Taruga furnace as a thin-walled mud shaft constructed over shallow pits. Anozie (1979) also discussed the Taruga furnace in relation to shaft-furnace classification, although the distinctions made in the original sources should be checked carefully before treating these descriptions as identical or different categories. Anozie (1979) reported a height of approximately

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1 m for a small Taruga furnace. This figure provides a comparative measurement from the published literature and is not a measurement of the furnaces recorded at Kisanchi.

Sassoon (1964) and Tylecote (1965) also described shaft furnaces associated with the Ghizim of Potiskum. These accounts demonstrate that shaft construction was used in different Nigerian iron-smelting contexts. However, similarities in shape alone do not establish that the furnaces shared the same date, operational procedure or cultural origin.

Pit or bowl furnaces form another category in the literature. Anozie (1979) described these as shallow installations, with reported diameters of approximately 30–50 cm and depths of 30–40 cm, lined with a thin layer of clay. These dimensions are taken from the published description and should not be assumed to represent the dimensions of every bowl furnace on the Jos Plateau. For the present study, bowl furnaces are distinguished from shaft furnaces by their shallow construction and limited wall superstructure. Where erosion has removed much of a furnace wall, this distinction must be made cautiously and supported by additional structural evidence.

Earlier publications also mention furnaces constructed along stream banks or natural elevations. David et al. (1989), Sassoon (1964) and Tylecote (1965) are cited in the literature consulted for these arrangements. Such furnaces were constructed with the natural bank forming part of the structure, while an artificial wall completed the remaining side. The published descriptions also refer to the use of a clay nozzle for directing air into the furnace and a protective wall for the bellows operator. These accounts are useful for comparison with the embedded furnace documented at Kisanchi, but the similarity should not be taken as proof that all bank-built furnaces shared identical construction or operating procedures.

Earlier Studies of Iron Smelting on the Jos Plateau

Iron-smelting activities and furnace structures in Central Nigeria have been discussed by Nadel (1942), Fagg (1958, 1969), Jemkur (1989), Akinade (2003), Berthoud (1969), Gunn (1953), Netting (1968), Tambo (1976) and Temple (1963, 1976), among others. These studies provide historical and ethnographic information for examining the distribution of iron-smelting activities and the forms of furnaces used in the region. The published descriptions also indicate that free-standing shaft furnaces were widely reported in the Jos Plateau area.

Freund (1982) discussed the importance of iron smelting among communities of the Jos Plateau. Gunn's work on the Berom and Afizere also described shaft furnaces equipped with clay tuyeres and operated using bellows covered with goatskin (Gunn, 1953, 1956; the exact publication details and dates should be verified against the reference list). These descriptions can be compared with the furnace and air-supply arrangements documented in the present study. However, the distribution of a particular furnace form should be established from specific site records rather than inferred solely from the broad geographical coverage of an earlier publication.

Netting (1968) documented a compound furnace arrangement among the Kofyar in which multiple furnaces were constructed close together and associated with collective smelting organised by a lineage group. Other studies have also discussed multiple furnace installations in the region (Jemkur, 2004; Gubam, 1995). These records are important for understanding how individual furnace structures could form part of a larger production arrangement. Nevertheless, a group of

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adjacent furnaces should not automatically be assumed to have operated simultaneously or shared an air-supply system unless the structural or historical evidence supports that interpretation.

The available literature and the remains documented during the present survey indicate that iron smelting was an important technological activity in the Jos Plateau region. The condition of many surviving furnaces, however, limits the conclusions that can be drawn about their original dimensions and operating arrangements. Some structures survive only as circular impressions or low wall remnants, with visible portions reported to measure approximately 10–26 cm above the present ground level. These measurements describe the surviving remains, not the original height of the furnaces. They therefore do not contradict the 1.6–1.7 m internal height recorded for the embedded furnace at Kisanchi or the larger dimensions reported for other more complete shaft structures.

Classification of Furnace Forms Documented in the Study

The classification adopted here separates architectural form from spatial arrangement and operational characteristics. The shaft-type family includes short-shaft or pit furnaces, free-standing cylindrical shaft furnaces, and embedded or bank-built shaft furnaces. Bowl furnaces constitute the second broad architectural family. A row or cluster of furnaces is recorded as an arrangement, while evidence for slag pits or slag tapping is recorded as an operational feature.

This classification provides a consistent basis for comparing the remains documented on the Jos Plateau with the descriptions in earlier archaeological and ethnographic studies. It also recognises the limits of the evidence. Where only a small fragment or shallow surface impression survives, the classification remains provisional unless diagnostic features distinguish the furnace from other types.

The furnace remains at Kisanchi are particularly relevant because different furnace forms were reported in the same general area. Their presence shows that more than one furnace arrangement could occur within a local landscape. However, the coexistence of different forms at a site does not, by itself, establish that they were used at the same time or that they represent a chronological sequence. Secure dating and better-preserved contexts would be required to establish such relationships.

Results, Findings and Discussion

Results of the Survey and Classification of Furnace Remains

The research identified different forms of iron-smelting furnace remains on the Jos Plateau through field observations, examination of archaeological remains, and information obtained from community members and earlier studies. The classification considered furnace morphology, construction setting, associated materials, and ethnographic accounts from communities including Mwaghavul, Mupun, Ron, Ngas, Kofyar, Jar/Boghom, Berom, Anaguta, Afizere, Irigwe, Buji, and Rukuba. The evidence indicates two broad architectural forms: shaft furnaces and bowl furnaces. The shaft furnaces include short-shaft structures associated with pits, free-standing cylindrical structures, and structures built against natural banks or elevations. Clusters and rows of furnaces are treated as spatial arrangements rather than separate architectural types because the number and proximity of furnaces do not, by themselves, establish a different construction method or a shared operating system.

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Shaft-furnace remains were widely distributed across the surveyed areas of the Jos Plateau. The observed remains included fired-clay walls and lining fragments, tuyere fragments, and iron-smelting slag. The recorded dimensions varied according to the form and state of preservation of the remains. Some shaft-furnace remains were described as measuring approximately 1.5–1.7 m in height and 0.6–1.0 m in diameter. However, the individual measurements, number of furnaces measured, and preservation condition of each structure need to be presented in a site inventory before these ranges can be treated as representative of the surveyed furnace population. The measurements should also distinguish surviving wall height from reconstructed or estimated original height.

Slag deposits were found around some furnace remains, including deposits described as pits or concentrations of slag. These deposits provide evidence of iron-smelting activity in the areas concerned. However, the size or presence of a slag deposit does not independently establish the quantity of iron produced. The interpretation of these furnaces as high-output installations therefore remains provisional until the volume and character of the slag deposits, the number of smelting episodes, and other relevant evidence can be assessed. The current survey supports the presence and distribution of shaft-furnace remains, but it does not provide sufficient quantified evidence to calculate production output.

Bowl Furnaces

Bowl-shaped furnace remains were reported in the Kisanchi area of Rukuba land, where they occurred alongside shaft-furnace remains. The recorded dimensions were approximately 0.4–0.7 m in diameter, with limited wall superstructure. These dimensions describe the surviving features and should not automatically be treated as the original dimensions of complete furnaces. The survey also recorded slag associated with these remains, which was described as thin or sheet-like. Although slag morphology can contribute to furnace identification, sheet-like slag alone is not sufficient to distinguish a smelting furnace from a forge hearth, a collapsed furnace, or another feature associated with metalworking.

The identification of these remains as bowl furnaces should therefore be based on the combined evidence of their shape, surviving clay lining or wall structure, spatial relationship with other smelting remains, and associated materials. Where the remains are too eroded to establish these characteristics, they should be described as possible bowl-furnace features rather than securely identified examples. The distinction is important because the low profile of an eroded shaft furnace may resemble a shallow bowl-shaped installation after the upper walls have disappeared.

Earlier studies cited in this research, including Jemkur (2004), Franke (2016), and Adu (1985), provide a comparative context for considering furnace forms reported in the Jos Plateau and neighbouring areas. However, the chronology and geographical distribution described in those studies should not be transferred directly to the Kisanchi examples without confirming that the features are comparable in construction and archaeological context. The present survey identified bowl-shaped remains at Kisanchi, but no securely dated context has been established here to determine when these furnaces were used.

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An informant, Achikulli (personal communication, 2020), described bowl furnaces as installations used for supplementary or household-level iron production. This account provides a useful perspective on how such furnaces may have been understood or used locally. However, the survey did not independently establish the output, fuel consumption, operating temperature, or duration of smelting in these installations. Their small dimensions alone do not demonstrate that they were used by individual smiths, required less fuel, operated for shorter periods, or produced iron at lower temperatures. These interpretations should remain possibilities for further investigation rather than established results.

Multiple Shaft Furnaces and Furnace Arrangements

The survey documented groups or rows of shaft-furnace remains in the Rukuba area and in areas associated with Lai, within Bassa and Mangu Local Government Areas. Some of these structures were situated along natural walls, banks, or elevations. The arrangements are important because they show that furnace remains were not always isolated features. In some locations, several installations occurred within the same area, suggesting repeated or organised use of the landscape for iron smelting.

Field observations and oral accounts described some groups as containing approximately four to six shafts associated with a common clay platform. The accounts also referred to a shared air-supply arrangement and seasonal smelting organised through lineage groups during the dry season, following the harvest. These details require careful distinction between what was directly visible and what was reported by informants. The number of shafts and their proximity can be recorded as observable features where the remains are sufficiently clear. However, the existence of physical connections between the shafts, a common air-supply system, and simultaneous operation cannot be established from adjacency alone. Such interpretations require supporting plans, photographs showing the connections, identifiable air channels or tuyere arrangements, or other direct evidence.

Netting's (1968) account of compound furnace systems among the Kofyar provides a relevant comparison for examining the relationship between furnace arrangements and collective smelting. The comparison does not mean that the Kofyar and Rukuba installations were necessarily identical or that they belonged to the same period. The Kofyar evidence is a previously published account, whereas the Kisanchi observations belong to the present survey. Similarities in arrangement may indicate comparable ways of organising smelting activities, but they do not establish direct historical continuity.

Oral accounts relating smelting to lineage organisation and the agricultural calendar provide evidence of the social meanings attached to iron production in the communities concerned. They may also help explain how labour was organised when smelting took place. Nevertheless, the presence of several furnaces in one location does not by itself demonstrate centralised political authority, surplus production, or a production system extending beyond the household. These interpretations require additional evidence from the scale and organisation of production, the archaeological context, and the accounts of people with direct knowledge of the practices.

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Embedded or Bank-Built Shaft Furnaces

A further form recorded in the literature and discussed in the survey is the embedded or bank-built shaft furnace. Jemkur (2004) described this type at Kisanchi in the Bassa area of Plateau State and reported related forms in Southern Kaduna. In this construction, a natural bank or elevation forms part of the rear of the installation, while a built wall or clay structure forms the exposed front. In some cases, the natural surface may have been modified before the furnace was constructed. This form differs from a fully free-standing shaft because the surrounding landform contributes to its architectural setting.

The reported internal height of the Kisanchi embedded furnace is approximately 1.6–1.7 m. This measurement should be distinguished from the height of the surviving remains above the present ground surface. Erosion, collapse, farming, grazing, and other activities may have removed much of the original structure. The surviving height therefore cannot automatically be used to reconstruct the original height unless the basis for the reconstruction is documented.

Adangala (personal communication, 2020) described the operation of this type of furnace as communal and requiring substantial labour. The account also indicated that the furnace was operated from the top and that the iron bloom was removed through an opening at the bottom. These details are useful evidence of reported operating practice, but the distinction between an opening for bloom removal and a slag-tapping outlet must be maintained. An opening at the base does not, on its own, demonstrate that molten slag was tapped during smelting. A claim of slag tapping requires evidence such as a recognisable tapping channel, slag flow, or a deposit whose morphology and context support that interpretation. Unless such evidence is documented for the Kisanchi furnace, its operation should be described as reported bloom removal through a lower opening, while slag tapping remains unconfirmed.

The embedded furnace is therefore treated here as a construction variant of the shaft furnace rather than as a completely separate broad architectural family. Its defining characteristic is the use of a natural bank or elevation as part of the furnace setting. The operational practices reported for it are discussed separately because construction form alone cannot establish how slag was managed or how many people participated in each smelt.

Summary of the Observed Furnace Forms

The following classification summarises the forms discussed in this study. It distinguishes architectural characteristics from spatial arrangements and operational interpretations.

Category	Diagnostic characteristics	Survey location or evidence	Interpretive status
Short-shaft or pit-associated shaft furnace	Low surviving shaft or wall associated with a pit or slag deposit; original form may be difficult to determine where heavily eroded	Recorded in the surveyed areas; individual site IDs and counts remain to be tabulated	Classification should be confirmed from the combined morphology and context of each feature
Free-standing cylindrical shaft furnace	Upright, approximately cylindrical fired-clay wall or lining	Shaft-furnace remains reported across the Jos Plateau; some recorded dimensions are approximately 1.5–1.7 m in height and 0.6–1.0 m in diameter	Measurements are preliminary until individual records and sample counts are supplied

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Embedded or bank-built shaft furnace	Shaft built against a natural bank or elevation, with the landform forming part of the rear structure	Kisanchi, Rukuba area; internal height reported as approximately 1.6–1.7 m	Construction form described in earlier literature and discussed through survey and oral evidence; operational details require separate corroboration
Bowl-shaped furnace	Shallow bowl-like form with limited wall superstructure	Kisanchi, Rukuba area; reported diameter approximately 0.4–0.7 m	Identification should be based on morphology, lining, context, and associated materials, not sheet slag alone
Multiple furnaces arranged in a row or cluster	Several furnace remains in close proximity, sometimes along a bank or elevation	Rukuba/Kisanchi and areas associated with Lai; reported Kofyar comparison from Netting (1968)	Spatial arrangement rather than a separate furnace type; shared platforms, air supply, and simultaneous operation require direct evidence

This table provides a working classification rather than a complete quantitative inventory. Site identifiers, counts for each category, individual measurements, and the basis for classifying fragmentary remains should be added from the original field records. Where a feature cannot be assigned confidently, it should be recorded as uncertain rather than forced into one of the categories.

Discussion: Technology, Production and Social Organisation

The range of furnace forms documented in the survey suggests that iron-smelting remains on the Jos Plateau are not architecturally uniform. Differences in wall form, construction setting, surviving dimensions, and spatial arrangement provide a basis for investigating technological variation. The evidence also shows that more than one furnace form may occur within the same locality, as reported at Kisanchi. Such coexistence is important because it cautions against treating the Jos Plateau as a single, unchanging technological tradition.

However, the present evidence does not establish a chronological sequence linking shaft furnaces to the Nok period, bowl furnaces to a later household-production phase, or multiple furnaces along elevations to a later stage of lineage organisation. Surface morphology cannot independently date a furnace. The presence of similar forms in the Nok area and on the Jos Plateau may provide a basis for comparative research, but it does not establish a direct technological connection or contemporaneity. These questions require securely dated contexts and a more systematic comparison of construction features and associated archaeological materials. Until such evidence is available, the proposed relationships should be treated as hypotheses rather than demonstrated historical developments.

The *chaîne opératoire* approach associated with Lemonnier (1993) offers a framework for examining furnace construction and operation as a sequence of technical choices. From this perspective, furnace form can be considered alongside the selection of construction materials, the placement of tuyeres, the supply of air, the management of slag, and the organisation of labour. However, the survey does not establish that every architectural difference resulted from a deliberate response to fuel availability, labour requirements, or social organisation. Those explanations need to be tested against evidence for the operating conditions of each furnace type.

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The shaft furnaces and their associated slag deposits indicate iron-smelting activity, but the scale of production cannot be inferred from furnace size or slag-pit presence alone. Quantified slag deposits, evidence of repeated smelting, securely associated iron-production materials, and more detailed information about furnace operation would be needed to assess output. Likewise, although oral accounts describe some smelting activities as communal, the relationship between furnace arrangements and the organisation of labour requires further investigation. Gubam's (2013) interpretation of iron production on the Jos Plateau as organised beyond the household provides a point of comparison, but it should not be treated as direct proof of the organisation of every furnace recorded in this survey.

The bowl-shaped remains raise similar questions. Their relatively small surviving dimensions distinguish them morphologically from the larger shaft structures, but dimensions alone cannot establish their temperature, smelting duration, fuel demand, or production capacity. Nor do they demonstrate a historical shift from centralised production to household production. The account provided by Achikulli (personal communication, 2020) suggests that some bowl furnaces may have been associated with supplementary production, but this interpretation needs corroboration through further oral evidence and archaeological investigation. It is also possible that preservation has affected the dimensions and appearance of some remains, making it important to distinguish complete installations from eroded or collapsed structures.

The multiple furnace arrangements reported at Kisanchi and in the Kofyar area provide another avenue for investigation. Netting (1968) documented compound furnace systems among the Kofyar, and this published account allows comparison with the arrangements recorded during the present research. Nevertheless, the number of furnaces within a group does not automatically demonstrate simultaneous operation, a shared air supply, or centralised control. Those features should be established independently before the installations are interpreted as a coordinated production system. Oral accounts of seasonal and lineage-based smelting remain valuable evidence of local understandings of production, but they should be distinguished from the architectural evidence.

Overall, the survey contributes observations on furnace remains, their construction settings, associated slag and tuyere fragments, and their distribution in the areas investigated. Its principal contribution is the documentation and provisional classification of these remains, together with the identification of questions that require more detailed archaeological and technical investigation. The evidence supports technological diversity, while the chronology, production scale, and relationship between furnace form and social organisation remain open questions.

Limitations of the Study

The interpretation of the furnace remains is limited by their state of preservation, the coverage of the survey, the availability of individual site measurements, and the absence of securely dated contexts for the features discussed here. Farming, grazing, hunting, erosion, and other activities have affected many of the remains, making it difficult to distinguish original furnace architecture from later collapse and surface disturbance. The low height of some surviving features may therefore reflect erosion rather than the original design.

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The study also draws on different kinds of evidence, including direct field observations, oral accounts, and descriptions published by earlier researchers. These sources provide complementary information, but they are not interchangeable. Observed morphology can support a description of surviving structures; oral accounts can provide information about remembered or reported practices; and published studies can provide comparative examples. None should be used to establish chronology, production output, or technological connections beyond what the evidence supports.

The current classification is therefore provisional. A complete site inventory should provide a unique identifier for each feature, its location, measurements, preservation condition, associated materials, photographic record, and confidence level for its classification. Plans or measured drawings would be particularly important for assessing claims about interconnected shafts and shared air-supply systems. Secure dating and further analysis of slag, furnace lining, and associated materials would also help clarify the chronology and operation of the different forms.

Conclusion

The survey documents a range of iron-smelting furnace remains on the Jos Plateau. The evidence supports two broad architectural forms, shaft furnaces and bowl-shaped furnaces—with shaft furnaces represented by short-shaft or pit-associated forms, free-standing cylindrical forms, and embedded or bank-built forms. Multiple furnaces arranged in rows or clusters are treated as spatial arrangements rather than automatically as a separate architectural type. The findings indicate that different furnace forms and arrangements occur across the surveyed areas, and that more than one form may occur within the same locality. The study also records associated slag, tuyere fragments, and furnace lining, as well as oral accounts concerning furnace construction and the organisation of smelting activities. These observations provide a basis for further research into the technological and social history of iron production on the Jos Plateau.

The available evidence does not yet establish a chronological sequence among the furnace forms, a direct link between the surveyed remains and the Nok period, or a definite relationship between furnace dimensions and production scale. It also does not demonstrate that every group of adjacent furnaces shared an air-supply system or operated simultaneously. Such interpretations require further documentation, securely dated contexts, and more detailed technical analysis.

The study should therefore be understood as a contribution to the documentation and provisional classification of furnace remains on the Jos Plateau, rather than as a definitive or first typology. Its value lies in recording the observed diversity, distinguishing architectural form from spatial arrangement and operating practice, and identifying the evidence needed to investigate chronology, production, and social organisation more securely.

References

Alahira, H. A. (2010). *The role of women in the colonial economy of Northern Nigeria: A case study of the Berom of Plateau, 1900–1960* [Unpublished doctoral dissertation, Ahmadu Bello University].

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Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Andah, B. W. (1979). Iron Age beginnings in West Africa: Reflections and suggestions. *West African Journal of Archaeology, 9*, 135–150.

Anozie, F. N. (1979). Early iron technology in Igboland: Lejja and Umundu. *West African Journal of Archaeology, 9*, 119–134.

Berthoud, G. (1969). Les Ganawuri du Nigeria. *Bulletin Annuel du Musée d'Ethnographie*, 66, 99–126.

Childs, S. T., & Herbert, E. W. (2005). Metallurgy and its consequences. In A. B. Stahl (Ed.), *African archaeology: A critical introduction*. Blackwell Publishing.

Childs, S. T., & Killick, D. (1993). Indigenous African metallurgy: Nature and culture. *Annual Review of Anthropology, 22*, 317–337.

Connah, G. (1969). The coming of iron: Nok and Daima. In T. Shaw (Ed.), *Lectures on Nigerian prehistory and archaeology*. Ibadan University Press.

Davidson, B. (1959). *Old Africa rediscovered*. Victor Gollancz.

Eggert, M. K. H., Höhn, A., Kahlheber, S., Meister, C., Neumann, K., & Schweizer, A. (2006). Pits, graves and grains: Archaeological and archaeobotanical research in southern Cameroon. *Journal of African Archaeology, 4*(2), 273–298.

Fagg, A. (1972a). A preliminary report on an occupation site in the Nok Valley, Nigeria: Samun Dukiya, AF/70/1. *West African Journal of Archaeology, 2*, 75–79.

Fagg, B. (1972b). The Nok culture in prehistory. *The Journal of African History, 13*(1), 41–52.

Franke, G. (2016). *A chronology of the Central Nigerian Nok culture: 1500 BC to the beginning of the Common Era*. Africa Magna Verlag.

Freund, B. (1981). *Capital and labour in the Nigerian tin mines*. Longman.

Fwatshak, S. U. (2005). Colonialism and indigenous enterprises on the Jos Plateau. In G. Nengel (Ed.), *[Title and publication details of the relevant Mangyeng volume to be verified]*.

Gubam, D. S. (1995). *An archaeological reconnaissance survey of Dikut-Nyedung iron-smelting site in Mangun, Mangu Local Government Area of Plateau State, Nigeria* [Unpublished bachelor's research project, Ahmadu Bello University].

Gubam, D. S. (2013). *An archaeological survey of Nfwi abandoned settlement in Mangu Local Government Area of Plateau State, Nigeria* [Unpublished master's dissertation, Ahmadu Bello University].

Gunn, H. D. (1953). *Peoples of the Plateau area of Northern Nigeria*. International African Institute.

Herbert, E. W. (1995). Metals and power at Great Zimbabwe. In G. Pwiti & R. Soper (Eds.), *Aspects of African archaeology: Papers from the 10th Congress of the Pan-African*

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Association for Prehistory and Related Studies (pp. 641–654). University of Zimbabwe Publications.

Holl, A. F. C. (2009). Early West African metallurgies: New data and old orthodoxy. *Journal of World Prehistory, 22*, 415–438.

Isichei, E. (1983). *Studies in the history of Plateau State, Nigeria*. Macmillan.

Jemkur, J. F. (1992). *Aspects of the Nok culture*. Ahmadu Bello University Press.

Jemkur, J. F. (2004). The beginnings of iron metallurgy in West Africa. In H. Bocoum (Ed.), *The origins of iron metallurgy in Africa: New light on its antiquity—West and Central Africa* (pp. 3–43). UNESCO.

Jemkur, J. R., & Walu, I. D. (2002, September 9–13). *Metallurgy and marriage in the Tal area of Plateau State, Central Nigeria* [Conference paper]. International conference "Transition of Knowledge: Terracotta and Metals in West Africa and Cameroon," Institute of African Studies, University of Ibadan, Nigeria.

Killick, D. (2015a). The chemistry of ancient African iron. *Journal of Archaeological Science, 58*, 1–10.

Killick, D. (2015b). Invention and innovation in African iron-smelting technologies. *Cambridge Archaeological Journal, 25*(1), 307–319. https://doi.org/10.1017/S0959774314001176

Lemonnier, P. (1993). Introduction. In P. Lemonnier (Ed.), *Technological choices: Transformation in material culture since the Neolithic* (pp. 1–35). Routledge.

Maram, M. M. (2014). *An archaeological study of ancient iron-working sites in Mahurum, Bokkos Local Government Area, Plateau State, Nigeria* [Unpublished master's thesis, Ahmadu Bello University].

Morel, M., Poirier, D., Bouchard, B., & Livingstone Smith, A. (2026). Evolution of an early iron-smelting technique at Dide West 1, Falémé Valley, Senegal: Technological continuity for more than 800 years (400 cal BCE–400 cal CE). *African Archaeological Review*.

Ndera, J. D. (2026). Archaeometallurgy in West Africa: The origins and contributions of iron technology to the political and socioeconomic complexities of early West African societies. In E. A. Nwankwo, J. A. Ugwanyi, J. U. Ngonadi, C. V. Ngonadi, & S. J. Onyemechalu (Eds.), *Perspectives in archaeometallurgy and archaeological research in Nigeria: A festschrift in honour of Professor Edwin Emefesi Okafor* (pp. 25–36). Tobis Press.

Netting, R. M. (1968). *Hill farmers of Nigeria: Cultural ecology of the Kofyar of the Jos Plateau*. University of Washington Press.

Okafor, E. E. (1993). New evidence on early iron-smelting from southeastern Nigeria. In T. Shaw, P. Sinclair, B. Andah, & A. Okpoko (Eds.), *The archaeology of Africa: Food, metals and towns* (pp. 432–448). Routledge.

Phillipson, D. W. (2005). *African archaeology* (3rd ed.). Cambridge University Press.

Vol. 2, No. 1, 2026 - Kwararafa University Journal of Multidisciplinary Research and Innovation
Pub. Link: https://aa.unij.co.uk/index.php/kujmri/issue/view/6 - E- ISSN: 3156-5492 | P- ISSN: 3156-5514

Rehder, J. E. (2000). *The mastery and uses of fire in antiquity*. McGill-Queen's University Press.

Sani, A. S. (2013). Preliminary report of an archaeological excavation of an iron-smelting site at Olingdan on the Jos Plateau, Nigeria. *Nigerian Journal of Archaeology, 2*(2), 1–15.

Sassoon, H. (1964). Iron smelting in the hill village of Sukur, northeastern Nigeria. *Man, 64*, 8–9.

Schmidt, P. R. (1997). *Iron technology in East Africa: Symbolism, science, and archaeology*. Indiana University Press.

Schmidt, P. R., & Avery, D. H. (1983). More evidence for an advanced prehistoric iron technology in Africa. *Journal of Field Archaeology, 10*, 421–434.

Shaw, T. (1978). *Nigeria: Its archaeology and early history*. Thames and Hudson.

Soper, R. (1971). Early Iron Age pottery types from East Africa: A comparative analysis. *Azania: Archaeological Research in Africa, 6*, 3–13.

Stahl, A. B. (2005). Introduction: Changing perspectives on African pasts. In A. B. Stahl (Ed.), *African archaeology: A critical introduction*. Blackwell Publishing

Sutton, J. E. G. (1976). *Iron working around Zaria*. Zaria Archaeology Papers

Temple, C. L. (1963). *Notes on the tribes, provinces, emirates and states of the Northern Provinces of Nigeria*. Frank Cass.

Tylecote, R. F. (1975). The origin of iron smelting in Africa. *West African Journal of Archaeology, 5*, 1–9.

Van der Merwe, N. J. (1980). The advent of iron in Africa. In T. S. Wertime & J. D. Muhly (Eds.), *The coming of the age of iron* (pp. 463–506). Yale University Press.

Williams, D. (1969). African iron in the classical world. In L. Thompson & J. Ferguson (Eds.), *Africa in classical antiquity*. Ibadan.

Williams, D. (1974). *Icon and image*. Routledge.

National Archives of Kaduna Nigeria. (1941). *Iron smelting* (File NAK/SNP/1192/19/1941)