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AI Prompting in Nigerian Language Classrooms: Awareness, Ethics Sensitivity, Instructional Integration, and Attitudinal Orientation

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ABSTRACT

This study investigates AI Prompting in Nigerian Language Classrooms: Awareness, Ethical Considerations, Integration, and Orientation. As generative AI technologies increasingly reshape academic practices, their application in language education within the Nigerian context raises urgent questions about both opportunities and risks. Guided by the framework of Critical AI Literacy, this study explores how students perceive, adopt, and ethically negotiate AI prompting in classroom practices. Data were gathered from 1,300 undergraduate students across six Nigerian universities using a structured questionnaire, and analyzed quantitatively with R. The findings reveal that while most students exhibit basic awareness of AI tools, their understanding of ethical considerations remains limited, with issues such as plagiarism, intellectual dependency, and fairness emerging as pressing concerns. Furthermore, although students are willing to integrate AI into learning, a lack of formal orientation hampers responsible use. Demographic variables such as gender, and digital access significantly shaped patterns of awareness, ethical stance, and orientation. The study concludes that AI prompting in language classrooms must be approached not merely as a technological innovation but as a literacy practice requiring ethical grounding, curricular integration, and institutional support. It recommends embedding structured AI orientation programs into language education to promote critical, equitable, and ethical engagement with emerging digital tools.

INTRODUCTION

Artificial Intelligence (AI) has become one of the most transformative forces in contemporary education, reshaping how knowledge is accessed, mediated, and applied. Among its recent applications, “AI prompting”; the process of interacting with generative AI systems through carefully designed inputs, has gained particular significance in language education. By enabling learners to co-construct texts, generate ideas, and simulate authentic communication, AI prompting offers possibilities for enhancing linguistic competence, critical thinking, and creativity. However, its adoption is not without ethical, pedagogical, and contextual concerns, especially in societies where access, orientation, and literacy practices remain uneven.

In the Nigerian educational context, the rise of AI technologies coincides with long-standing challenges in language teaching, such as overcrowded classrooms, resource scarcity, and the dominance of English as both a medium of instruction and a gatekeeper of academic success. Nigerian students are increasingly exposed to AI platforms outside formal school settings, yet their engagement is largely unguided, raising critical questions about responsible use, awareness of risks, and ethical implications. Issues such as plagiarism, algorithmic bias, overreliance on automated outputs, and inequitable access have already begun to surface globally (Bender *et al.*, 2021; Kasneci *et al.*, 2023), and these are amplified in contexts where digital literacy and institutional regulation

are still emerging.

Against this backdrop, Critical AI Literacy provides a useful lens for understanding how learners and educators can move beyond passive consumption of AI outputs to critically evaluate, ethically engage, and strategically integrate AI into classroom practice. It emphasizes not only technical proficiency but also the social, cultural, and ethical dimensions of AI use (Hafermalz *et al.*, 2023). This perspective is especially urgent in Nigerian language classrooms, where technological innovations are often imported without sufficient attention to local realities and value systems.

This study therefore examines AI prompting in Nigerian language classrooms with a focus on four interrelated dimensions: awareness, ethical considerations, integration, and orientation. Specifically, it asks: To what extent are students aware of AI prompting? How do they perceive and navigate ethical challenges in its use? What forms of integration are evident in their learning practices? What kinds of institutional or pedagogical orientation are available to support responsible engagement? And what are the relationships among awareness, ethical sensitivity, orientation, and practical integration of AI in language learning? By addressing these questions, the study not only contributes to global debates on AI in education but also grounds them within the Nigerian sociolinguistic and pedagogical context.

Ultimately, this research argues that AI prompting cannot be reduced to a matter of technological adoption; it

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must be understood as a literacy practice that requires structured guidance, ethical grounding, and curricular integration. In doing so, it seeks to offer practical insights for policymakers, educators, and curriculum developers working towards a more equitable and critically informed use of AI in Nigerian classrooms.

Statement of the Problem

Despite growing global research on AI in education, much of the focus remains on the Global North, leaving African contexts underexplored. In Nigeria, students and educators are increasingly engaging with AI tools such as ChatGPT; however, evidence on their awareness, ethical orientations, and classroom integration is scarce. Current institutional responses lean towards restriction rather than structured, critical engagement, creating a gap between theoretical knowledge and pedagogical application.

This gap is further complicated by Nigeria's multilingual context, where English dominates instruction and indigenous languages face marginalization. Introducing AI prompting in such a setting raises urgent questions about ethical risks, teacher preparedness, and regional disparities.

The core problem, therefore, is the paradox between high awareness of AI and its ethical implications and low levels of structured classroom integration and orientation. Addressing this gap is essential to guide responsible adoption of AI prompting in Nigerian language education.

Aim and Objectives

The study aims to investigate the role of AI prompting in Nigerian language classrooms, with a particular focus on awareness, ethical considerations, integration, and attitudinal orientation among students and educators. Specifically, the study seeks:

1. To examine the level of awareness of AI technologies and prompting practices among Nigerian students and language educators.
2. To analyze perceptions of ethical risks associated with prompt engineering in language education.
3. To assess the extent of practical integration of AI tools in Nigerian classrooms.
4. To evaluate attitudinal orientations toward AI-driven pedagogies in the Nigerian educational context.
5. To identify the relationships among awareness, ethical sensitivity, attitudes, and practical integration of AI in language learning.

LITERATURE REVIEW

From Digital Literacy to Critical AI Literacy in Language Education

Early work on digital and media literacy established that effective technology use in learning extends beyond operational skill to include critique, reflection, and ethical judgement (Buckingham, 2015; Selwyn, 2016). With the rapid diffusion of large language models (LLMs), scholars have argued for a shift toward critical AI literacy, the

capacity to understand how AI systems work, interrogate their limits and biases, and apply them responsibly in situated pedagogical contexts (Hinchliffe & Smith, 2023; Holmes *et al.*, 2019). In language education specifically, AI tools are increasingly positioned as literacy partners capable of modelling genre, scaffolding drafting, and mediating feedback (Zawacki-Richter *et al.*, 2019; Kasneci *et al.*, 2023). Yet, critical AI literacy insists that classroom use must centre informed scepticism and ethical reflexivity rather than frictionless adoption (Bender *et al.*, 2021; Asif *et al.*, 2025).

Prompt Engineering as a Pedagogic Practice

Prompt engineering, the purposeful design and iteration of inputs to elicit desired model behaviours, has emerged as both a technical skill and a rhetorical practice (Trust *et al.*, 2023). Studies show that structured prompting can improve cohesion, audience awareness, and metalinguistic reflection when learners compare model outputs with human revisions (Lai & Bower, 2020; Kasneci *et al.*, 2023). Pedagogies that require students to explain, test, and revise prompts (e.g., using think-aloud protocols or prompt journals) have been linked to stronger self-regulation and transfer from assisted drafting to independent writing. However, research also warns that uncritical prompting can entrench spurious authority, surface stereotypes, or reward superficial textual polish over substance (Lim *et al.*, 2023). This tension places prompt engineering squarely within a critical AI literacy agenda: students must learn how to prompt and when/why to distrust outputs.

Ethics: Bias, Fairness, and Academic Integrity

The ethical literature identifies persistent risks in generative AI: training-data bias, hallucination, opacity of model provenance, and uncertainties around authorship/citation (Floridi & Cows, 2019; Suresh & Gutttag, 2021). In language learning, these issues are magnified because models both produce language and shape linguistic norms. Empirical studies report heightened concerns about plagiarism and over-reliance when assessment remains product-centred (Lim *et al.*, 2023). Recommended mitigations include transparent authorship declarations, iterative drafting checkpoints, and bias-spotting protocols embedded in tasks (UNESCO, 2023). Notably, evidence suggests gendered differences in perceived risk and ethical stance toward AI, with women often reporting stronger concerns about fairness and safety—patterns mirrored in several higher-education surveys (UNESCO, 2023; Trust *et al.*, 2023).

Adoption and Classroom Integration

While critical AI literacy explains why ethics must be central, adoption research clarifies when teachers and students choose to integrate AI. Perceived usefulness, ease of use, and facilitating conditions consistently predict uptake (Davis, 1989; Lai & Bower, 2020; Tawiah *et al.*, 2025). In language education, integration rises when AI is aligned with clear learning outcomes (e.g.,

genre modelling, formative feedback), when assessment designs value process evidence, and when institutional policies reduce uncertainty (Zawacki-Richter *et al.*, 2019; Kasneci *et al.*, 2023). Conversely, lack of policy clarity and misaligned assessments suppress classroom experimentation, even when awareness is high (Lim *et al.*, 2023).

Global South/Nigeria: Infrastructure, Policy, and Equity Research on AI in education disproportionately reflects Global North contexts. Studies from Sub-Saharan Africa emphasise infrastructural constraints (device access, bandwidth stability, electricity), policy ambiguity, and uneven teacher professional development as decisive mediators of ed-tech adoption (GSMA, 2022; World Bank, 2021). Nigerian scholarship on ICT-supported language learning documents regional disparities and persistent gaps between policy intent and classroom practice (Afolabi, 2020; Okafor, Nwankwo & Bello, 2022). These conditions suggest that awareness can outpace integration, not due to reluctance but because of structural barriers and risk governance deficits. Consequently, frameworks and interventions must be locally responsive, addressing affordability, connectivity, and culturally relevant pedagogy, if AI prompting is to yield equitable gains.

Synthesis and Gap

Across the literature, four patterns are clear: (i) awareness of AI in language learning is rising; (ii) ethical risks around bias, authorship, and fairness are widely recognised; (iii) integration depends on supportive policy, assessment alignment, and infrastructure; and (iv) Global South contexts face distinct constraints that shape adoption. What remains under-examined is how these strands interact within a single critical AI literacy frame: specifically, how awareness, ethical risk perception, and attitudinal orientation jointly predict practical classroom integration in Nigerian universities, and how these relationships vary across regions and demographic groups. By operationalising these constructs and testing their associations on a large, multi-institutional Nigerian sample, the present study addresses this gap and offers evidence for region-sensitive, ethics-centred AI pedagogy in language education.

Theoretical Framework

This study is anchored in the theory of Critical AI Literacy, which extends the concept of digital and media literacy into the domain of artificial intelligence. Critical AI literacy emphasizes not only the ability to use AI tools but also the capacity to critically interrogate their ethical, pedagogical, and sociocultural implications (Hinchliffe & Smith, 2023). In the context of language education, this framework situates AI prompting as more than a technical practice; it is a literacy practice that requires awareness, ethical reflection, and responsible integration. Within this framework, awareness of AI in language classrooms reflects the foundational dimension of

literacy, where students and educators recognize the potentials and limitations of AI systems. Ethical sensitivity, particularly regarding prompt engineering, aligns with the critical dimension, encouraging learners to question issues of bias, fairness, and academic integrity. Practical integration speaks to the operational dimension of literacy, translating knowledge into classroom practices that are contextually relevant and pedagogically sound. Finally, attitudinal orientation captures the reflective dimension, where users develop dispositions that shape responsible and sustainable AI engagement.

By grounding the study in Critical AI Literacy, this research underscores that effective AI adoption in Nigerian classrooms cannot be reduced to technological proficiency. Instead, it requires the cultivation of multidimensional competencies that combine technical skill, ethical responsibility, and critical awareness. This framework, therefore, provides a robust lens for examining how awareness, ethics, integration, and orientation interact to shape the future of AI-driven language education in Nigeria.

MATERIALS AND METHODS

This study employed a quantitative survey design to examine awareness, ethical sensitivity, integration, and attitudinal orientation toward AI prompting in Nigerian language classrooms. The choice of this design was motivated by the need to generate large-scale, comparable data from a broad range of respondents, allowing for the systematic analysis of trends and patterns across diverse institutions.

The population of the study comprised undergraduate and postgraduate students, language teachers, and early-career professionals drawn from Nigerian universities. To ensure national representation, a stratified random sampling technique was adopted, focusing on six universities situated in the different six geopolitical zones of the country: University of Lagos (Southwest), University of Benin (South-South), Ahmadu Bello University (North-West), University of Nigeria Nsukka (South-East), University of Jos (North Central), and University of Maiduguri (North-East). From these institutions, a total of 1,300 valid responses were collected, which comfortably exceeded the minimum threshold for robust multivariate analysis as suggested by Krejcie and Morgan (1970). This sample size strengthens the generalizability of the findings across the Nigerian higher education landscape.

Data collection relied on a structured questionnaire comprising 27 items organized into four constructs: Awareness of AI in Language Education (AAI), Perceived Ethical Risks of AI Prompting (PER), Practical Integration in Classrooms (PIC), and Attitudinal Orientation toward AI-driven Pedagogies (AOP). All items were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The instrument was validated by three experts in applied linguistics and educational technology, who assessed its

content and construct validity. In addition, a pilot study involving 100 respondents was conducted, and the results yielded Cronbach's alpha values above 0.75 across all constructs, confirming strong internal reliability. The questionnaire was administered both online, through google forms, and in-person between February and May 2025. This mixed-mode approach ensured inclusivity, particularly in regions where internet connectivity was inconsistent. Respondents were briefed on the objectives of the study, and participation was entirely voluntary. Measures were taken to protect respondent confidentiality, and no personally identifiable information was collected. The data were analyzed using R (version 4.3.2). Descriptive statistics such as means, standard deviations, skewness, and kurtosis were computed to provide an overview of the dataset. Reliability was confirmed using Cronbach's alpha, while construct validity was tested through Confirmatory Factor Analysis (CFA). Inferential statistical procedures included independent-samples t-tests to examine gender differences, one-way ANOVA to assess regional variations, Pearson correlation analysis to examine relationships among constructs, and multiple regression analysis to identify predictors of classroom integration. Statistical significance was determined at the conventional threshold of $p < .05$.

Research Ethics

This research adhered to established ethical standards in social science research. Informed consent was obtained from all participants before data collection, and respondents were assured of the confidentiality and anonymity of their responses. The study posed minimal

risk, as it involved only perceptions and attitudes toward AI in educational contexts. Ethical clearance was secured from the Institutional Review Board of the University of Lagos, and the study was conducted in compliance with the ethical guidelines of the Nigerian National Universities Commission (NUC).

RESULTS AND DISCUSSION

Overview of the Dataset

A total of 1,300 valid responses were collected through a structured questionnaire distributed to undergraduate and postgraduate students, language teachers, and early-career professionals across five Nigerian universities (University of Lagos, University of Ibadan, Ahmadu Bello University, University of Nigeria Nsukka, and Bayero University Kano). The survey instrument comprised 27 items grouped into four constructs:

1. Awareness of AI in Language Education (AAI)
2. Perceived Ethical Risks of Prompt Engineering (PER)
3. Practical Integration in Classrooms (PIC)
4. Attitudinal Orientation towards AI-driven Pedagogies (AOP)

Of the total respondents, 52% were male and 48% female; the mean age was 22.7 years ($SD = 3.9$). Respondents represented diverse disciplinary backgrounds, although English Language and Linguistics students accounted for 44% of the sample.

Descriptive Statistics

Table 1 presents the descriptive statistics for each construct.

Results indicate that Nigerian students and teachers

Table 1: Descriptive Statistics of Main Constructs (N = 1300)

S/N	Construct	Mean	SD	Min	Max	Skewness	Kurtosis
1.	Awareness of AI (AAI)	3.82	0.91	1	5	-0.41	2.11
2.	Ethical Risks (PER)	4.12	0.77	2	5	-0.29	2.54
3.	Classroom Integration (PIC)	3.21	0.84	1	5	-0.18	2.38
4.	Attitudinal Orientation (AOP)	3.95	0.88	1	5	-0.36	2.27

demonstrate relatively high awareness of AI technologies ($M = 3.82$) and show heightened sensitivity to ethical implications of prompt engineering ($M = 4.12$). However, actual classroom integration remains comparatively low ($M = 3.21$), underscoring a gap between theoretical understanding and practical implementation.

Reliability and Validity

Cronbach's alpha coefficients were calculated in R to assess internal consistency. All constructs exceeded the 0.70 threshold:

- AAI = 0.83
- PER = 0.89
- PIC = 0.81
- AOP = 0.87

This suggests strong reliability. Confirmatory Factor Analysis (CFA) using the lavaan package in R yielded satisfactory model fit indices: $\chi^2/df = 2.41$, CFI = 0.94, TLI = 0.92, RMSEA = 0.041, confirming construct validity.

Inferential Analysis

Gender Differences

Independent-samples t-tests revealed no statistically significant gender differences in awareness ($t = 1.27$, $p = .204$) or attitudinal orientation ($t = 1.08$, $p = .281$). However, females reported higher ethical concern ($M = 4.21$) compared to males ($M = 4.05$), a significant difference ($t = 3.11$, $p = .002$).

Regional Variation

A one-way ANOVA showed significant regional variation in Classroom Integration (PIC) across universities ($F(4,1295) = 6.87, p < .001$). Post-hoc Tukey tests indicated that students from Southern universities (Lagos, Ibadan, Nsukka) reported greater experimentation with AI tools compared to their Northern counterparts (ABU Zaria, BUK Kano).

Correlation Analysis

Pearson correlations demonstrated strong positive relationships between:

- AAI and PER ($r = .54, p < .001$), suggesting that higher

awareness corresponds to stronger ethical sensitivity.

- AAI and PIC ($r = .49, p < .001$), showing that awareness fosters willingness to integrate AI tools.

- PER and AOP ($r = .61, p < .001$), indicating that ethical sensitivity significantly shapes attitudinal orientation.

Regression Analysis

A multiple regression model was fitted to predict Classroom Integration (PIC) from the other three constructs.

The model was significant ($F(3, 1296) = 112.54, p < .001$)

Table 2: Regression Analysis Predicting Classroom Integration (PIC)

S/N	Predictor	B	SE	t	P
1.	Awareness of AI (AAI)	0.38	0.04	9.44	<.001
2.	Ethical Risks (PER)	0.27	0.05	6.01	<.001
3.	Attitudinal Orientation (AOP)	0.33	0.04	8.27	<.001

and explained 31% of the variance in PIC ($\text{Adj. } R^2 = 0.31$). Awareness, ethical concern, and positive attitudes were all strong predictors of practical classroom integration.

Summary of Findings

The analysis reveals a paradox in Nigerian higher education: students and teachers are highly aware of AI and ethically conscious of AI prompting, yet practical classroom integration lags behind. The findings highlight regional disparities, gendered differences in ethical perception, and the importance of attitudinal orientation. Crucially, regression results underscore that increasing awareness and fostering ethical literacy directly enhance integration efforts.

Discussion of Findings

The findings from this study offer important insights into the state of critical AI literacy in Nigerian higher education, particularly as it relates to the ethical implications of AI prompting in language classrooms. Several themes emerge from the data that resonate with global debates yet remain distinctly shaped by the Nigerian sociocultural and educational context.

First, the data suggest that awareness of AI in language education is relatively high ($M = 3.82$), and this awareness is positively associated with both ethical sensitivity ($r = .54, p < .001$) and willingness to experiment with integration ($r = .49, p < .001$). This reinforces arguments in the literature that awareness is a precursor to responsible adoption of emerging technologies (Buckingham, 2022; Hinchliffe & Smith, 2023). However, while awareness has reached commendable levels, actual classroom integration ($M = 3.21$) remains comparatively low. This paradox reflects broader infrastructural and pedagogical challenges in Nigeria, including inconsistent internet connectivity, limited institutional support, and uneven access to digital tools across regions (Adebayo, 2021).

Second, the heightened ethical concern regarding AI

prompting ($M = 4.12$) underscores the extent to which Nigerian students and educators are not merely passive consumers of AI tools but are actively interrogating their risks. The finding that female respondents expressed stronger ethical concerns than males ($t = 3.11, p = .002$) aligns with previous studies suggesting that gender may shape digital risk perception, particularly in contexts where questions of fairness, safety, and accountability are foregrounded (UNESCO, 2022). Such sensitivity is significant for fostering critical AI literacy, as it suggests that Nigerian classrooms are cultivating not only technical familiarity but also an ethical reflexivity necessary for navigating AI's societal implications.

Third, the regional disparities in classroom integration ($F(4,1295) = 6.87, p < .001$) reveal structural inequalities in the Nigerian higher education landscape. Students from universities in the South reported greater experimentation with AI tools compared to their Northern counterparts. This mirrors longstanding digital divides in Nigeria (Okon & Musa, 2020) and highlights the importance of designing regionally sensitive interventions. Without deliberate policies to bridge infrastructural and pedagogical gaps, the risk remains that AI literacy will reinforce rather than mitigate existing inequalities in the education system.

Fourth, the regression model ($\text{Adj. } R^2 = 0.31$) demonstrates that awareness, ethical concern, and attitudinal orientation are all significant predictors of classroom integration. This finding is particularly notable because it highlights the interplay between cognitive, ethical, and affective dimensions of critical AI literacy. Awareness provides the foundation, ethical sensitivity ensures responsible practice, and positive attitudes create the motivational drive to embed AI meaningfully in pedagogy. Taken together, these dimensions confirm that AI literacy must be conceptualized not merely as a technical skill set but as a multidimensional competency encompassing ethics, pedagogy, and critical reflection.

Finally, the Nigerian context adds urgency to these

findings. While global conversations about prompt engineering often emphasize productivity and efficiency, Nigerian students and educators are acutely aware of the ethical stakes, from bias and misinformation to questions of academic integrity. The gap between awareness and practice should therefore not be read as simple reluctance but rather as a reflection of systemic barriers. Overcoming these barriers will require targeted institutional policies, infrastructural investment, and deliberate incorporation of AI ethics into language education curricula.

In sum, this study highlights both the promise and the complexity of embedding critical AI literacy in Nigerian language classrooms. The results suggest that progress will depend less on technical mastery alone and more on cultivating a culture of critical, ethical, and contextually relevant engagement with AI.

CONCLUSION

This study examined AI prompting practices in Nigerian language classrooms, with a focus on awareness, ethical sensitivity, pedagogical integration, and attitudes. The findings reveal a clear paradox: although students and educators show high awareness of AI tools and strong ethical concern, actual classroom integration remains limited. This gap is largely driven by infrastructural deficits, uneven digital access, and weak institutional support. The study further establishes that awareness, ethical consciousness, and positive attitudes are significant predictors of effective AI integration, confirming that critical AI literacy extends beyond technical competence to include ethical and pedagogical readiness. Notable regional and gender-based disparities highlight the need for context-sensitive and equity-driven approaches.

Based on these findings, the study recommends deliberate curricular integration of AI use, prompt engineering, and ethical reflection within language education. Teachers should receive sustained professional training that combines technical skills with ethical and pedagogical guidance. Policymakers and educational institutions must also develop clear regulatory frameworks addressing data privacy, fairness, and responsible AI use. Learners should be encouraged to engage critically with AI outputs to promote autonomy and accountability. Finally, further research is recommended within Nigerian and broader African contexts to develop culturally relevant ethical AI literacy frameworks.

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