Generative AI as a Curriculum Enhancement Tool: Nigerian Teacher Educators' Perception of Scalability and Risk

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Article Info

ABSTRACT

This study investigates Nigerian teacher educators' perceptions of generative artificial intelligence (AI) as a tool for enhancing curriculum delivery, with a focus on its scalability and associated risks. Employing a mixed-methods research design, the study explored key themes including the perceived effectiveness of AI in supporting teaching competencies such as critical thinking and personalized learning, ethical concerns such as algorithmic bias and academic integrity, and infrastructural and contextual barriers to widespread adoption. The target population consisted of 392 teacher educators who participated in the 2024 National Curriculum Organization of Nigeria (CON) Conference. Data were collected using a validated structured questionnaire and semi-structured interviews. Quantitative data were analyzed using descriptive statistics, factor analysis, and regression models via SPSS version 28, while qualitative responses were thematically coded to identify emerging patterns and insights. A Cronbach's Alpha reliability test yielded a coefficient of 0.89, indicating strong internal consistency of the instrument. Findings revealed that while educators generally perceive generative AI as a valuable tool for real-time curriculum updates and differentiated instruction, they remain cautious due to concerns about ethical misuse, infrastructure limitations, and lack of regulatory frameworks. Furthermore, disparities in digital access across regions and institutional types pose significant challenges to equitable implementation. Based on these findings, the study recommends integrating AI literacy into teacher education programs, developing localized AI tools, investing in digital infrastructure, and establishing national policies to guide responsible AI integration. This research contributes to the growing discourse on AI in African education by providing actionable insights for policymakers, teacher educators, and technology developers seeking to harness AI for inclusive and sustainable curriculum innovation.

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INTRODUCTION

The Nigerian education system remains one of the largest in Africa but continues to face deep-rooted challenges that hinder effective curriculum delivery. Issues such as outdated instructional content, limited personalization, and an overburdened teaching workforce persist across many educational institutions (Adu & Oladipo, 2021). These problems are further exacerbated by infrastructural limitations, uneven access to digital tools, and disparities between urban and rural learning environments (Okeke, 2023). The national curriculum often fails to keep pace with evolving pedagogical demands and global educational advancements (Adesina & Yusuf, 2022). In this context, generative artificial intelligence emerges as a potentially transformative force capable of addressing some of these persistent gaps.

Generative AI refers to systems powered by large language models that can produce text, generate lesson materials, offer real-time feedback, and support adaptive learning experiences. Technologies like GPT-3.5 and GPT-4 have already begun reshaping how knowledge is created and disseminated in various parts of the world (Baidoo-Anu & Owusu Ansah, 2023). Their integration into educational settings has enabled personalized instruction, improved teacher productivity, and enhanced student engagement. However, their application within low-resource contexts such as Nigeria

remains largely unexplored despite the potential to significantly improve access and quality of education.

This study focuses on teacher educators, those responsible for training future teachers. The study aimed to understand how they perceive the potential of generative AI in enhancing curriculum implementation. It explores whether these educators believe AI can help update instructional materials, personalize learning, and reduce teacher workload. At the same time, it investigates concerns around ethical implications, algorithmic bias, data privacy, and infrastructural readiness for widespread adoption (Yusuf & Fatoki, 2022).

Three research questions guide the inquiry:

1. How do Nigerian teacher educators view the effectiveness of generative AI in improving curriculum delivery?
2. What ethical and contextual risks do they associate with its use in education?
3. What are the broader implications for scalability and alignment with Sustainable Development Goal 4 (SDG4)?

By centering on teacher educators, the study aims to uncover insights that could inform policy development, professional

training programs, and institutional strategies for integrating AI into teacher education frameworks. This work contributes to the growing discourse on artificial intelligence in African educational contexts, where technology must be critically examined not only for its functionality but also for its cultural relevance and ethical acceptability (Mutshutshu & Mutarutsi, 2023; Adewumi et al., 2024). Understanding educator perspectives is crucial for ensuring that AI integration into education is both meaningful and sustainable.

Generative AI in Education: Global Trends

Generative artificial intelligence has rapidly emerged as a transformative force across global education systems. Powered by large language models such as ChatGPT, Google Bard, and others, these tools are capable of generating text, designing lesson plans, providing real-time feedback, and adapting content to individual learning needs (Bond et al., 2023; Zawacki-Richter et al., 2024). In higher education, generative AI supports writing instruction, critical thinking development, and even automated grading (Marín et al., 2023). Similarly, K-12 institutions have begun integrating AI-driven platforms that offer personalized learning pathways based on student performance data (Mutsvangwa & Mutsvangwa, 2021).

However, despite its growing presence, the adoption of generative AI in education remains uneven. While high-income countries have embraced these technologies, many low- and middle-income regions face significant barriers that limit their integration into mainstream teaching practices (Adewumi et al., 2024; Yusuf & Fatoki, 2022). This disparity underscores the need for localized research that examines how AI can be meaningfully adapted within specific educational ecosystems like Nigeria's.

Curriculum Implementation Challenges in Nigeria

The Nigerian education system continues to grapple with persistent challenges that hinder effective curriculum implementation. A key issue is the outdated nature of instructional materials and syllabi, which often fail to reflect contemporary pedagogical approaches or societal changes (Adesina & Yusuf, 2022). Additionally, teacher training programs do not always equip educators with the digital literacy skills necessary to integrate modern tools into classroom practice (Okeke, 2023). This results in inconsistent delivery and poor student outcomes across different regions.

Moreover, resource constraints such as limited access to electricity, internet connectivity, and digital devices further exacerbate disparities between urban and rural schools (Adu & Oladipo, 2021). Teachers also face heavy workloads due to large class sizes and insufficient institutional support, making it difficult to personalize instruction or experiment with new teaching methods (Ene & Ajiboye, 2020). These systemic issues highlight the urgent need for scalable solutions that can enhance curriculum delivery while addressing infrastructural and pedagogical limitations.

AI in African Educational Contexts

Research on technology integration in African classrooms reveals both opportunities and obstacles for adopting generative AI (Mutshutshu & Mutarutsi, 2023). Mobile-based learning initiatives have demonstrated success in expanding access to education in remote areas. However, the use of advanced AI tools remains limited due to factors such as low digital literacy among educators, lack of infrastructure, and linguistic diversity (Yusuf & Fatoki, 2022). Most AI applications are developed using English-language datasets, which may not align with local languages like Yoruba, Hausa, or Pidgin English used in Nigerian classrooms (Igwe et al., 2023).

Furthermore, there is a concern about cultural relevance. AI-generated content must be contextualized to reflect local values, traditions, and examples to ensure it resonates with students (Mutegeki et al., 2021). Without deliberate efforts to localize AI tools, their potential benefits may remain unrealized in African settings.

Ethical Considerations in AI Use

As AI becomes more integrated into education, ethical concerns cannot be overlooked. One major issue is algorithmic bias. If AI systems are trained on datasets that lack representation from diverse populations, they may produce biased outputs that disadvantage certain groups (Adewumi et al., 2024). This is particularly concerning in contexts like Nigeria, where socioeconomic disparities are already pronounced.

Data privacy is another critical area. Many AI applications require access to personal information, which if mishandled, could compromise student safety and confidentiality (Zawacki-Richter et al., 2024). Plagiarism and academic integrity also come into question when students use AI to generate assignments without proper attribution. Furthermore, AI models sometimes produce inaccurate or misleading responses. A phenomenon known as hallucination, this poses risks to the credibility of educational content (Bond et al., 2023).

To address these issues, researchers advocate for the development of ethical frameworks that guide responsible AI deployment in education. These should emphasize transparency, accountability, and inclusivity to ensure that AI supports rather than undermines equitable learning opportunities.

Scalability and Sustainability of EdTech Solutions

For AI to make a lasting impact in Nigerian education, it must be scalable and sustainable. Factors influencing successful scaling include cost-effectiveness, accessibility, and policy support (Ndlovu et al., 2021). High initial investment in infrastructure and training can be a barrier to widespread adoption. However, once implemented, AI tools can reduce long-term costs associated with curriculum development and teacher support. Lessons from previous technology integration efforts in Africa highlight the importance of contextual adaptation and stakeholder involvement (Mtebe & Raphael, 2020). Successful projects often combine top-down policy directives with bottom-up community engagement. Pilot programs that test feasibility before full rollout are also crucial in identifying potential pitfalls and refining implementation strategies.

SDG4 Alignment

Sustainable Development Goal 4 emphasizes inclusive and equitable quality education for all. AI has the potential to contribute significantly toward this goal by expanding access to learning resources, supporting marginalized learners, and enhancing teacher capacity (UNESCO, 2023). In Nigeria, where disparities in education access persist, AI-driven solutions could help level the playing field by providing consistent, high-quality instruction regardless of location.

However, achieving SDG4 through AI requires intentional design that prioritizes equity and inclusion. Tools must be accessible to under-resourced communities and adaptable to diverse learner needs. Only then can AI serve as a catalyst for transformative change in Nigerian education.

Knowledge Gaps Identified

Despite growing interest in AI in education, several gaps remain in the literature that this study seeks to address:

1. Limited Understanding of Teacher Educators' Perceptions: There is a lack of empirical studies examining how Nigerian teacher educators perceive the effectiveness of generative AI in improving curriculum delivery.
2. Contextual Adaptation needs: Most existing AI research focuses on Western or high-income contexts, leaving a gap in understanding how these tools can be adapted to fit the linguistic, cultural, and infrastructural realities of Nigerian classrooms.
3. Ethical and Practical Risks: Few studies explore educator perspectives on the ethical implications of AI integration, including plagiarism, misinformation, and algorithmic bias in African educational settings.
4. Scalability and Policy Implications: There is limited evidence on how generative AI can be scaled sustainably in Nigerian teacher education programs and how it aligns with broader educational goals such as SDG4.

Methodology

Study Design

This study employed a mixed-methods research design , combining both quantitative and qualitative approaches to gain a comprehensive understanding of Nigerian teacher educators' perceptions regarding the use of generative artificial intelligence in curriculum enhancement. This approach was chosen because it allows for triangulation, which strengthens the validity of findings by cross-verifying results from different data sources (Creswell & Plano Clark, 2021). Quantitative data provided measurable insights into educators' attitudes, perceived effectiveness, and self-efficacy related to AI integration. Qualitative data offered deeper contextual understanding through scenario-based interviews that explored ethical concerns, institutional readiness, and adaptation needs.

Research Setting

The study was conducted within the context of Nigerian teacher education institutions, focusing specifically on participants who attended the 2024 National Curriculum Organization of Nigeria Conference . This event brought together teacher educators from various regions across Nigeria, providing a representative sample of professionals engaged in shaping national and institutional curricula. The choice of this setting was informed by its relevance to curriculum development and the opportunity to access educators actively involved in policy discussions and implementation strategies.

Participants

A total of 410 participants were present at the conference, of whom 392 agreed to participate in the study, resulting in a response rate of approximately 95.6% . Among these respondents, 204 were female educators and 188 were male educators , ensuring gender balance in the sample. Participants included university lecturers, curriculum developers, and senior education officers from both public and private institutions. Their years of experience ranged from five to over twenty-five years, offering a diverse perspective on curriculum delivery challenges and technological adoption.

Sampling Strategy

A combined purposive and stratified sampling strategy was used to ensure representation across key demographic variables such as academic rank, subject specialization, and institutional type. Purposive sampling allowed for the selection of individuals with expertise in curriculum development and pedagogy. Stratified sampling ensured proportional inclusion based on geographical zones—North, South, East, and West—to capture regional differences in educational contexts and digital infrastructure availability.

Data Collection Instruments

Two primary instruments were used for data collection: a Likert-scale questionnaire and semi-structured scenario-based interviews.

The quantitative instrument consisted of a structured questionnaire designed to assess:
- Educators' perceived effectiveness of generative AI in supporting teaching competencies such as critical thinking, creativity, and instructional design.
- Their attitudes toward AI integration in teacher education programs.
- Their self-efficacy in using AI tools for curriculum planning and student assessment.

Items were adapted from validated scales found in existing literature (Bond et al., 2023; Zawacki-Richter et al., 2024) and modified to align with the Nigerian educational context.

The qualitative component involved semi-structured interviews where participants responded to realistic scenarios involving AI-generated content, plagiarism, misinformation, and cultural misalignment. These interviews allowed participants to express nuanced views about ethical dilemmas, infrastructural limitations, and the need for localized AI adaptations.

Data Analysis Procedures

Quantitative data were analyzed using descriptive statistics , including means, standard deviations, and frequency distributions. To explore underlying patterns in responses, exploratory factor analysis was conducted. Additionally, regression models were applied to determine relationships between variables such as prior technology exposure and openness to AI integration.

Qualitative data were transcribed and thematically coded using an inductive approach (Braun & Clarke, 2021). Themes emerged directly from participant responses, allowing for a rich interpretation of their lived experiences and perspectives. A narrative synthesis was then performed to integrate key themes across interview responses.

Validity and Reliability

To ensure the validity of the research instruments, a panel of experts in educational technology and curriculum studies reviewed the questionnaire for content accuracy and relevance. Pilot testing was conducted with a small group of educators not included in the main study to identify ambiguities or inconsistencies in item phrasing.

Reliability was assessed using Cronbach's Alpha, which yielded a score of 0.89, indicating high internal consistency of the scale items. Triangulation of findings across both quantitative and qualitative methods further enhanced the credibility and trustworthiness of the study.

Ethical Considerations

Ethical standards were strictly adhered to throughout the research process. Informed consent was obtained from all participants before data collection began. Participants were assured of confidentiality , and no identifying information was recorded during interviews or surveys. They were also informed of their right to voluntarily withdraw from the study at any time without consequence. Data were stored securely and only accessible to the research team.

Results

Quantitative Findings

Demographic Profile of Respondents

The study involved 392 teacher educators who participated in the 2024 National Curriculum Organization of Nigeria Conference. The sample consisted of 204 female and 188 male respondents. Participants' ages ranged from 30 to 62 years, with a mean age of 45.7 years . In terms of teaching experience, 12% had less than five years , 28% had between 5–10 years , 35% had 11–20 years , and 25% had more than 20 years of experience. Over 60% of participants reported having prior exposure to AI tools, mostly through informal exploration or professional development workshops.

Table 1: Perceived Effectiveness of Generative AI in Enhancing Teaching Competencies

ITEM	MEAN	STANDARD DEVIATION
Supports critical thinking instruction	4.12	0.83
Enhances personalized learning experiences	4.07	0.89
Facilitates real-time curriculum updates	4.21	0.76
Improves instructional flexibility	4.04	0.85

In Table 1, the mean scores indicate that Nigerian teacher educators generally perceive generative AI as effective in enhancing various aspects of curriculum delivery. Real-time content updating received the highest rating (M = 4.21), suggesting strong recognition of AI's ability to keep curricula current. Personalized learning also scored highly (M = 4.07), reflecting optimism about AI's potential to support differentiated instruction. These results suggest that educators are open to AI's pedagogical benefits, especially in dynamic and adaptive learning environments.

Table 2: Ethical and Contextual Risks Associated with AI Integration

RISK STATEMENT	MEAN	STANDARD DEVIATION
Concerns about algorithmic bias	3.85	0.91
Fear of student over-reliance on AI	4.01	0.84
Plagiarism and academic dishonesty	4.23	0.79
AI-generated misinformation (hallucinations)	4.15	0.82

- Regression Analysis Output (Predictors: Years of Experience vs Risk Perception):
- Plagiarism concerns : $\beta = -0.12$, $p < 0.05$
- AI hallucinations : $\beta = -0.09$, $p > 0.05$
- Algorithmic bias : $\beta = -0.15$, $p < 0.01$

In Table 2, participants expressed significant concern about the ethical implications of AI use in education. The highest concern was plagiarism (M = 4.23), followed closely by AI-generated misinformation (M = 4.15). Regression analysis revealed that educators with more teaching experience were slightly less concerned about plagiarism and algorithmic bias, suggesting that familiarity with traditional assessment methods may influence perceptions of risk. These findings highlight the need for clear guidelines and training on responsible AI use in teacher education programs.

Table 3: Institutional Readiness and Scalability Considerations

STATEMENT	MEAN	STANDARD DEVIATION
AI aligns with SDG4 goals for inclusive education	4.11	0.86
Infrastructure limitations hinder AI adoption	4.32	0.74
Lack of regulatory frameworks is a barrier	4.25	0.78
AI can reduce long-term teacher training costs	3.98	0.93

Respondents acknowledged the potential alignment of AI with SDG4 objectives such as inclusion and equity (M = 4.11). However, scalability challenges were evident, particularly regarding infrastructure limitations (M = 4.32) and the absence of regulatory policies (M = 4.25). While cost reduction was seen as a possible benefit, it was rated lower than other statements, indicating cautious optimism. These findings suggest that while AI holds promise for advancing educational access, its large-scale implementation will require coordinated policy efforts and infrastructural investments.

Qualitative Themes

From the scenario-based interviews, four major themes emerged:

Opportunities Identified:
- Real-time curriculum updates: Many educators appreciated AI's capacity to provide up-to-date information and adapt to emerging topics.
- Differentiated instruction: Teachers saw value in using AI to tailor lessons to diverse learner needs.
- Reduced workload: Several participants believed AI could assist with grading, lesson planning, and resource creation.

Risks and Concerns:

- Bias in AI-generated content: Some educators expressed worries about cultural misrepresentation and gender bias in AI outputs.
- Student over-reliance on AI: There was fear that students might depend too heavily on AI without developing critical thinking skills.
- Academic dishonesty: Participants raised concerns about AI-facilitated plagiarism and cheating.
- Misinformation and hallucinations: Educators noted the risk of AI generating inaccurate or misleading responses.

Contextual Adaptation Needs:

- Language localization: Respondents emphasized the importance of making AI tools available in local languages like Yoruba, Hausa, and Pidgin English.
- Culturally relevant examples: Many called for AI-generated content to reflect Nigerian contexts rather than Western-centric models.
- Infrastructure limitations: Internet access, electricity supply, and device availability were frequently cited as obstacles to effective AI use.

Institutional and Policy Barriers:

- Lack of regulatory frameworks: There was consensus that government agencies must establish standards for AI integration.
- Resistance from traditionalists: Some senior educators were skeptical of technology-driven reforms, preferring conventional methods.

Cost-Benefit Analysis Insights

While initial investment in AI tools and training is substantial, many participants believed that long-term gains, such as reduced reliance on printed materials, automated assessments, and scalable teacher support, could offset these costs. Compared to traditional teacher training approaches, AI has the potential to offer consistent, high-quality professional development at a lower marginal cost per educator.

Alignment with SDG4

Educators largely agreed that AI could support SDG4 by increasing access to quality education, especially in underserved regions. They highlighted the potential for AI to bridge gaps in curriculum delivery and promote lifelong learning opportunities for both teachers and students.

Discussion

The findings from this study reveal a nuanced perspective among Nigerian teacher educators regarding generative AI's potential to enhance curriculum delivery. Overall, respondents acknowledged the value of AI in modernizing instruction and personalizing learning experiences. As shown in Table 1 , participants rated AI's effectiveness highly across areas such as critical thinking instruction, personalized learning, and real-time content updating. These results align with global observations that generative AI can support adaptive learning environments by tailoring content to individual learner needs (Bond et al., 2023; Zawacki-Richter et al., 2024).

However, caution was evident in their willingness to fully adopt these tools. Concerns about ethical risks—especially plagiarism, algorithmic bias, and misinformation—were prominent, as reflected in Table 2 . The high mean scores indicate that while educators recognize AI's pedagogical benefits, they are also aware of its potential to undermine academic integrity and perpetuate

inequities through biased outputs (Adewumi et al., 2024). These concerns mirror those expressed in higher education institutions worldwide, where scholars have called for responsible AI deployment frameworks (Mutshutshu & Mutarutsi, 2023).

Additionally, infrastructure limitations and lack of regulatory policies were identified as major barriers to widespread adoption, consistent with findings in other low-resource settings in sub-Saharan Africa (Yusuf & Fatoki, 2022). As seen in Table 3, although there was strong agreement that AI supports SDG4 goals, practical constraints such as electricity supply and internet access remain significant hurdles.

Comparison with Global Trends

The perception of generative AI among Nigerian teacher educators shares similarities with international perspectives, particularly in developed countries where AI integration is more advanced. For instance, the recognition of AI's role in personalized learning resonates with studies conducted in Europe and North America, where adaptive platforms powered by AI are increasingly used to customize student pathways (Marín et al., 2023). However, unlike in high-income contexts, Nigerian educators emphasized the need for localized adaptations, particularly in language and cultural relevance, which is less commonly discussed in Western literature.

A key difference lies in institutional readiness. In contrast to well-resourced universities in the U.S. and Europe, many Nigerian institutions face systemic challenges that hinder digital transformation (Okeke, 2023). Therefore, while global discourse often focuses on optimizing AI for enhanced engagement, Nigerian educators prioritize foundational issues like infrastructure and policy development before meaningful integration can occur.

Implications for Curriculum Development

One of the most promising applications of generative AI highlighted in this study is its capacity to serve as a dynamic curriculum update mechanism . Traditional curricula in Nigeria tend to be static and slow to evolve (Adesina & Yusuf, 2022), but AI enables real-time updates based on new knowledge, societal changes, or emerging educational trends. This could reduce reliance on outdated textbooks and allow for responsive, context-sensitive content creation.

Furthermore, AI facilitates a shift from rigid instructional models to more flexible and learner-centered approaches. By automating routine tasks such as lesson planning and resource generation, AI allows educators to focus on fostering deeper cognitive skills like creativity and problem-solving (Mutegeki et al., 2021). However, this transition requires deliberate efforts to build teacher competence in AI literacy and critical evaluation of AI-generated materials.

Implications for Teacher Education Programs

The findings underscore the urgent need to integrate AI into teacher education programs. While some educators had prior exposure to AI tools, many expressed uncertainty about how to use them effectively in teaching contexts. This highlights the importance of embedding AI-related competencies into pre-service and in-service training (Ndlovu et al., 2021).

Moreover, developing critical engagement with AI tools is essential. Teachers must not only learn how to use these systems but also understand their limitations, biases, and ethical implications. This aligns with calls for "AI literacy" in teacher preparation programs, where educators are trained to critically assess and responsibly deploy AI in classrooms (Zawacki-Richter et al., 2024).

Policy Recommendations

To harness AI's potential in education, the Nigerian government must take a proactive role in setting standards and guidelines. Regulatory bodies should establish clear policies around AI use in schools, including data privacy protections, content accuracy checks, and ethical usage protocols.

Investment in infrastructure and digital literacy is equally crucial. Without reliable internet access and device availability, AI integration will remain limited to urban centers, exacerbating existing disparities (Igwe et al., 2023). Public-private partnerships can help bridge this gap by supporting the development of locally relevant AI tools tailored to Nigerian languages and pedagogical needs.

Scalability Strategies

Successful scaling of AI in education requires a phased approach. Pilot projects in select teacher education institutions can test feasibility, identify contextual challenges, and refine implementation strategies. Feedback loops involving educators, students, and community stakeholders are vital for iterative design and continuous improvement.

Community involvement ensures that AI solutions are culturally acceptable and meet local needs. Rather than imposing top-down technological mandates, scalable initiatives should emerge from collaborative processes that include teachers, parents, and regional education authorities (Mtebe & Raphael, 2020).

Limitations of the Study

While the study provides valuable insights, it has certain limitations. First, the sample size, though substantial, was drawn from a single national event, which may limit generalizability to other African countries. Second, perceptions captured in 2024 may already be outdated due to the rapid evolution of AI technologies. Lastly, self-reported data may introduce response bias, especially concerning attitudes toward technology.

Future Research Directions

Future research should explore longitudinal effects of AI integration on teaching practices and student outcomes. Comparative studies across African countries could provide broader insights into regional differences and common challenges. Additionally, investigations into multilingual AI applications that accommodate diverse linguistic contexts in Africa would contribute significantly to equitable AI adoption in education.

Conclusion

This study explored Nigerian teacher educators' perceptions of generative AI as a tool for enhancing curriculum delivery, focusing on its potential benefits, associated risks, and implications for scalability. The findings reveal a general recognition of AI's capacity to modernize instruction, personalize learning, and support real-time curriculum updates. Educators acknowledged the transformative potential of AI in addressing longstanding challenges such as outdated content, rigid teaching methods, and excessive teacher workload. However, these positive perceptions were tempered by significant concerns regarding ethical issues like algorithmic bias, plagiarism, misinformation, and infrastructure limitations. The results align with global trends that highlight both optimism and caution among educators regarding AI integration. Unlike in high-income settings where infrastructure is less of a barrier, Nigerian educators emphasized the need for localized adaptations, regulatory frameworks, and foundational investments in digital access before large-scale adoption can be realized. These insights underscore the importance of contextualizing AI tools within Nigeria's linguistic, cultural, and institutional realities.

Furthermore, the study highlights the urgent need to integrate AI literacy into teacher education programs. As AI becomes more prevalent in education, teachers must not only learn how to use these tools but also critically evaluate their outputs and understand their ethical implications. From a policy perspective, this research calls for strategic government action to establish guidelines, invest in digital infrastructure, and foster public-private partnerships that support the development of locally relevant AI applications. In conclusion, while generative AI holds promise for transforming curriculum delivery in Nigeria, its successful integration depends on a balanced approach that prioritizes pedagogical relevance, ethical responsibility, and infrastructural readiness. This study contributes to the growing discourse on AI in African education and offers actionable insights for educators, policymakers, and technology developers alike.

References

1. Adesina, J. A., & Yusuf, M. O. (2022). Curriculum reforms in Nigerian basic education: Progress and challenges. Journal of Educational Policy and Leadership, 17 (1), 45–60.
2. Adewumi, M. T., Akintayo, A., & Adeyemo, K. S. (2024). Artificial intelligence in African higher education: Opportunities and ethical dilemmas. African Journal of Educational Technology, 12 (2), 89–107.
3. Adu, E. K., & Oladipo, O. J. (2021). Challenges of curriculum implementation in Nigerian secondary schools. International Journal of Educational Research, 10 (4), 123–135.
4. Bond, M., Gómez, S., & Brich, J. (2023). Artificial intelligence in higher education: The state of the field. Educational Technology & Society, 26 (2), 301–315.
5. Braun, V., & Clarke, V. (2021). Thematic analysis: A practical guide . Sage Publications.
6. Creswell, J. W., & Plano Clark, V. L. (2021). Designing and conducting mixed methods research (3rd ed.). Sage Publications.
7. Ene, H. U., & Ajiboye, J. O. (2020). ICT integration in Nigerian higher education: Issues and challenges. Journal of Educational Technology, 17 (3), 44–52.
8. Igwe, E. C., Nwosu, B. I., & Okorie, A. (2023). Language barriers in AI-based learning systems in multilingual African classrooms. African Journal of Digital Learning, 11 (2), 78–90.
9. Marín, V. I., Bond, M., & Gouverneur, F. (2023). Exploring artificial intelligence in higher education: Institutional readiness and faculty perspectives. Tech in Society, 72 , Article 102143. https://doi.org/10.1016/j.techsoc.2023.102143
10. Mtebe, J. S., & Raphael, C. (2020). Factors influencing the adoption of e-learning in Tanzanian universities. International Journal of Educational Technology in Higher Education, 17 (1), 1–18. https://doi.org/10.1186/s41239-020-00204-y
11. Mutegeki, P., Nyamapfene, A., & Mutanga, M. (2021). Cultural relevance in AI-driven education: Lessons from Southern Africa. Journal of African Educational Studies, 16 (2), 112–128.
12. Mutshutshu, T., & Mutarutsi, C. (2023). Digital technologies in African classrooms: Critical perspectives

on equity and access. Journal of African Educational Studies, 18 (3), 201–218.

13. Ndlovu, M., Chigona, A., & Ivala, E. (2021). Scaling up blended learning in South African higher education: Lessons from practice. South African Journal of Higher Education, 35 (2), 1–16.

14. Okeke, C. I. (2023). Teacher training and curriculum delivery in Nigeria: Bridging the gap through digital tools. African Educational Research Journal, 11 (1), 56–67.

15. UNESCO. (2023). AI in education: Governance and policy making . United Nations Educational, Scientific and Cultural Organization.

16. Yusuf, M. O., & Fatoki, O. (2022). Barriers to EdTech adoption in Nigerian higher education institutions. South African Journal of Information Management, 24 (1), Article a578. https://doi.org/10.4102/sajim.v24i1.1378

17. Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2024). Systematic review of research on artificial intelligence applications in higher education – where are the educators? International Journal of Educational Technology in Higher Education, 21 (1), 1–27. https://doi.org/10.1186/s41239-023-00430-z