HARNESSING AI FOR ENHANCING QUALITY IN UNIVERSITY EDUCATION IN NIGERIA: ISSUES IN TEACHING AND LEARNING TRANSLATION AND INTERPRETATION

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Abstract

The global acceleration of Artificial Intelligence (AI) presents a pivotal opportunity to address deep-seated pedagogical and infrastructural challenges in higher education. This paper offers a critical examination of the potential for AI to transform the teaching and learning of translation and interpretation within the unique and complex context of Nigerian universities. Moving beyond technological determinism, it argues that successful integration necessitates a tripartite framework addressing Technological Access, Pedagogical Adaptation, and Socio-Cultural Contextualization. The study employs a mixed-methods approach, drawing on policy analysis, surveys of language departments, and case studies of early AI adoption attempts. Findings reveal that while AI tools such as neural machine translation, automatic speech recognition, and adaptive learning platforms can dramatically enhance learning efficiency, provide real-time practice environments, and foster digital literacy, their implementation is critically hampered by infrastructural deficits, a lack of localized training data, and

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insufficient educator preparedness. Crucially, the study identifies the risk of linguistic hegemony, where reliance on AI models trained on Western languages could further marginalize Nigerian indigenous languages. The paper concludes that a top-down policy approach alone will fail. Instead, it proposes a multi-stakeholder, ecosystem-based model involving strategic public-private partnerships, the development of open-source, Nigeria-centric AI resources, and a fundamental revision of curricula to embed critical AI literacy. This approach is essential not merely for adopting technology but for ensuring that AI serves as a tool for empowering Nigerian linguistic heritage and producing graduates capable of leading in the global digital economy.

Keywords: Artificial Intelligence, Translation Pedagogy, Interpretation Training, Educational Technology, Digital Divide, Nigerian Languages, Curriculum Development, Critical AI Literacy, Language Policy, Higher Education in Africa

Introduction

Nigeria's higher education system has long been beset by systemic challenges that undermine its ability to produce graduates who can thrive in a competitive and interconnected global economy. These challenges are deeply entrenched, ranging from inadequate funding and poor infrastructure to outdated curricula and insufficient investment in human capital. They are particularly acute in disciplines that demand both technical expertise and cultural sensitivity, such as translation and interpretation. In a nation with over 500 indigenous languages and a long history of multilingual interaction, translation and interpretation are not optional academic pursuits but vital professional skills. They play indispensable roles in law, where multilingual courts require accurate communication; in healthcare, where patient safety can hinge on effective interpretation; in diplomacy, where Nigeria seeks to maintain its leadership role in Africa and beyond; in national security, where miscommunication can have grave consequences; and in the media, where the plurality of languages shapes narratives and identities (Bamgbose, 2011; Salawu, 2015).

Despite this urgency, the current capacity of Nigerian universities to meet the demand for skilled translators and interpreters remains limited. Academic programs often rely heavily on theoretical instruction at the expense of

practical training. Many lack modern language laboratories or access to professional translation technologies. The shortage of qualified faculty members—many of whom themselves trained in environments that predated the digital era—further exacerbates the problem. The outcome is a mismatch between graduates' training and the practical needs of the labor market, resulting in under-prepared professionals who struggle to meet industry and societal expectations (Jegede, 2018; Udoh, 2020).

The global rise of Artificial Intelligence (AI) introduces both a challenge and an opportunity in this context. AI technologies such as neural machine translation (NMT), automatic speech recognition (ASR), and adaptive learning platforms are already transforming the teaching and practice of translation and interpretation in advanced educational systems. For instance, NMT has revolutionized translation workflows by automating the first draft of translations, requiring human professionals to focus on post-editing and quality assurance. Similarly, ASR allows interpreting students to practice in simulated environments, with instant feedback on accuracy and delivery. Adaptive learning platforms can tailor learning pathways to individual student needs, increasing efficiency and fostering self-directed learning (Bowker & Buitrago Ciro, 2019; Fantinuoli, 2018). Collectively, these innovations hold the potential to address many of the structural barriers faced by Nigerian institutions: limited access to qualified instructors, inadequate exposure to real-world practice, and insufficient technological literacy among students.

Yet the promise of AI must be critically interrogated. Technologies developed primarily in the Global North are not always transferable to the Global South. The risk of "technological solutionism" arises when complex socio-cultural and infrastructural problems are assumed to have purely technical fixes (Adedoyin & Soykan, 2020). For Nigerian universities, uncritical adoption of AI tools could exacerbate rather than alleviate inequalities. Many AI systems are trained on large datasets that overwhelmingly represent Western languages and contexts, rendering them ill-equipped to handle African languages, idioms, and cultural references. The mistranslation of indigenous proverbs or the erasure of culturally embedded meanings is not simply a technical error but a form of digital marginalization, one that undermines both linguistic diversity and national identity. Moreover, infrastructural challenges such as

unstable electricity, unreliable internet connectivity, and lack of institutional support further complicate integration.

Consequently, the question is not whether Nigerian universities should embrace AI in translation pedagogy, but how this integration should occur in a way that is sustainable, ethical, and contextually grounded. This study seeks to critically examine these issues by moving beyond simplistic narratives of AI as a panacea. Instead, it explores the interplay between technological access, pedagogical adaptation, and socio-cultural contextualization. In doing so, it aims to propose a framework that ensures AI adoption enhances, rather than undermines, the quality of translation and interpretation training in Nigerian higher education. Such a framework, it is argued, is essential for positioning Nigerian graduates as both globally competitive professionals and custodians of the country's rich linguistic and cultural heritage.

Literature Review and Conceptual Framework

AI in Global Translation Pedagogy

In Europe and North America, Artificial Intelligence has moved from being perceived as an external threat to the translation profession to becoming an indispensable component of training and practice. Neural machine translation (NMT) systems such as Google Translate, DeepL, and Microsoft Translator have become integrated into both academic curricula and professional workflows. Far from discouraging their use, universities in these regions actively train students in machine translation post-editing (MTPE), a process that requires linguistic expertise, critical thinking, and technological competence. This reflects the recognition that, in contemporary practice, translators are not merely language specialists but also managers of technology-mediated processes (Bowker & Buitrago Ciro, 2019).

Interpretation training has undergone similar transformation. Automatic speech recognition (ASR) platforms and AI-driven simulation tools allow students to practice interpretation in ways that transcend the constraints of classroom availability. These platforms provide immediate, objective feedback on delivery speed, intonation, accuracy, and pacing. Such innovations complement traditional human coaching and enable students to accumulate significantly more practice hours than would be possible in

resource-limited environments (Fantinuoli, 2018). In many universities, simulation environments replicate high-pressure scenarios such as international conferences, thereby enhancing student preparedness for the global market.

Globally, the integration of AI has produced curricula that are dynamic, practice-oriented, and responsive to industry needs. The adoption of computer-assisted translation (CAT) tools, translation memory systems, and terminology management software is now a standard part of training. Institutions not only focus on linguistic accuracy but also on developing technological literacy, preparing students to become professionals capable of adapting to evolving digital demands. This global trajectory underscores the importance of embracing AI, not as a replacement for human expertise but as a partner in enhancing productivity and quality.

The Nigerian Situation

By contrast, the Nigerian higher education system reflects systemic weaknesses that hinder the adoption of AI in translation and interpretation pedagogy. Chronic underfunding has left universities unable to invest in the infrastructure required for modern training. Unstable electricity supply and poor internet connectivity remain significant barriers, particularly in public institutions. These infrastructural deficiencies mean that even basic digital platforms are often inaccessible, making advanced AI tools a distant aspiration for many departments.

Curricula remain largely outdated, with a continued emphasis on theoretical knowledge rather than practice-oriented training. Many translation and interpretation courses rely on rote learning, with limited exposure to real-life applications or digital tools. This mismatch between pedagogy and industry needs leaves graduates poorly equipped for the challenges of a rapidly digitizing professional landscape (Jegede, 2018; Udoh, 2020).

Another critical barrier is the lack of faculty preparedness. Many lecturers lack digital competence, and in some cases, there is resistance to pedagogical change. This is partly due to generational divides, as faculty who trained in pre-digital eras often find it challenging to integrate new tools into their teaching (Omodan & Ige, 2021). Without comprehensive professional

development programs, lecturers remain hesitant to embrace AI, fearing that it may erode academic integrity or render their expertise obsolete.

Compounding these issues is the absence of a national initiative to develop AI resources for Nigerian languages. Most available AI systems are trained on English, French, or other Western languages, leaving indigenous Nigerian languages grossly underrepresented. This creates a situation where AI tools, when applied in local contexts, generate mistranslations that distort meaning and strip cultural depth from linguistic expressions**.** As Salawu (2015) observes, this marginalization not only threatens linguistic diversity but also raises serious questions about cultural sustainability.

Taken together, these challenges highlight the urgent need for contextually grounded frameworks that respond to Nigeria's unique socio-linguistic and infrastructural realities rather than importing models wholesale from abroad.

Conceptual Model

To address these challenges, this paper adopts a tripartite framework for the integration of AI in translation and interpretation pedagogy in Nigeria.

The first pillar, technological access, underscores the foundational need for stable electricity, reliable internet connectivity, and access to affordable, localized software. Without this foundation, any attempt to incorporate AI will remain superficial. Technological access also entails not only the availability of hardware but also the affordability of software licenses and the development of open-source alternatives tailored to Nigerian linguistic realities. Ensuring access would level the playing field between elite, resource-rich institutions and underfunded public universities.

The second pillar, pedagogical adaptation, focuses on the need to embed AI into curricula as a collaborative tool rather than a threat. This involves revising learning objectives, course design, and assessment methods to reflect the realities of AI-driven translation and interpretation. Instead of treating machine translation as a form of academic dishonesty, lecturers should teach students to critically evaluate, post-edit, and manage AI outputs. Pedagogical adaptation also requires rethinking assessment: rather than measuring only the final translation product, educators should evaluate the process by which

students engage with AI tools, demonstrating their ability to improve machine-generated outputs.

The third pillar, socio-cultural contextualization, highlights the necessity of developing critical AI literacy. Nigerian students must be equipped not only to use AI but also to interrogate its limitations, biases, and cultural implications. This includes advocating for AI models trained on Nigerian corpora, ensuring that indigenous languages are represented in the digital era. Socio-cultural contextualization insists that AI should not homogenize linguistic practices but should instead preserve and promote cultural diversity. By embedding critical AI literacy into curricula, Nigerian universities can produce graduates who are both technologically adept and culturally grounded.

Taken together, these three pillars—access, adaptation, and contextualization—offer a holistic and sustainable model for integrating AI into translation pedagogy. They ensure that technology is not merely imported but critically engaged with, adapted, and localized to meet Nigeria's unique challenges and opportunities**.**

Methodology

This study employed a sequential mixed-methods design, combining quantitative and qualitative approaches to provide a comprehensive understanding of the opportunities and challenges of integrating AI into translation and interpretation pedagogy in Nigerian universities. The choice of this design was informed by the need to capture both measurable trends and nuanced perspectives.

The quantitative phase involved a structured survey administered to lecturers and heads of departments in language, linguistics, and translation studies across 15 purposively selected universities in Nigeria. These institutions were chosen to reflect a balance between federal, state, and private universities, ensuring diversity in terms of funding structures and resource availability. A total of 45 valid responses were collected. The survey instrument included both closed and open-ended questions, designed to gather data on digital capacity (such as internet access, electricity supply, and availability of translation technologies), faculty digital literacy, and attitudes toward the use of AI in translation pedagogy.

The qualitative phase followed with semi-structured interviews. A purposive sample of 12 participants was selected from among the survey respondents to provide deeper insights. These included experienced lecturers, heads of department, and policymakers, as well as representatives from the National Universities Commission (NUC) and the Nigerian Institute of Translators and Interpreters (NITI). The interviews explored institutional barriers, perceptions of AI's role in curriculum reform, and ethical concerns around linguistic representation and data sovereignty. Each interview lasted between 45 and 60 minutes and was conducted either in person or virtually, depending on availability and logistical constraints.

Finally, the study conducted two case analyses to contextualize the findings. The first was of a public university that, despite limited resources, had attempted to incorporate basic digital tools such as general-purpose computer labs into translation exercises. The second was of a private university piloting the integration of a subscription-based, cloud-supported computer-assisted translation (CAT) tool. These cases were selected not for their representativeness but for their ability to illustrate contrasting institutional approaches: one resource-constrained and experimental, the other more technologically ambitious.

By triangulating evidence from surveys, interviews, and case studies, the research ensured both breadth and depth. The survey offered quantifiable insights into systemic patterns, the interviews provided rich narratives of lived experiences, and the case studies grounded the findings in specific institutional realities. This methodological design not only enhances the validity of the study but also ensures that its recommendations are firmly rooted in the Nigerian higher education context.

Findings and Discussion

Technological Access

The survey confirmed that infrastructural deficits remain the most significant barrier to AI integration in translation pedagogy. Eighty-nine percent of respondents reported unstable internet connectivity on their campuses, with most describing access as "irregular" or "insufficient for teaching purposes." Similarly, 78 percent cited erratic electricity supply as a major impediment to

the consistent use of digital tools. These quantitative findings were reinforced by interviews, where lecturers from state universities emphasized how frequent power outages and low bandwidth make even basic online activities difficult, let alone the sustained use of AI-driven tools.

Only two universities—both private—reported access to licensed CAT software such as SDL Trados or MemoQ. The overwhelming majority of institutions relied exclusively on free NMT platforms such as Google Translate. Case Study 1, the federal university using its general-purpose computer laboratory for translation classes, illustrated this vividly. Students depended on free online platforms but were often frustrated by poor connectivity and the inability to save or manage translation memories. In contrast, Case Study 2, the private university piloting a subscription-based CAT tool, highlighted what is possible in a resource-rich environment: students there reported being able to practice MT post-editing with more professional-grade tools, though access was still limited to small groups due to licensing costs.

These findings underscore that without investment in infrastructure—reliable power, high-speed internet, and affordable software—AI integration risks deepening the divide between elite private institutions and underfunded public universities.

Pedagogical Adaptation

The survey revealed that 70 percent of lecturers had little or no experience with CAT tools, and many perceived AI as undermining academic integrity. For example, several respondents expressed concern that students might submit raw Google Translate outputs as their work. Interviews confirmed this anxiety, with one head of department describing AI as a "shortcut" rather than a pedagogical resource.

Curricula across the sampled universities were reported as overwhelmingly theoretical, with translation often taught as a subcomponent of linguistics programs. Few institutions had dedicated courses on translation technology or digital literacy. This mismatch between training and professional demands was highlighted in Case Study 1, where students had minimal exposure to

professional workflows and graduated without familiarity with standard industry tools.

Conversely, Case Study 2 illustrated the potential of pedagogical adaptation. Lecturers at the private university had begun integrating MT post-editing exercises into coursework. However, they admitted to lacking formal training themselves and were learning alongside students. This underscores the need for "training the trainers" through sustained professional development. Without equipping faculty with both digital skills and confidence, curricular reforms are unlikely to succeed.

Socio-Cultural Contextualization

Both survey and interview data highlighted AI's limitations in handling Nigerian languages. Respondents consistently noted that tools like Google Translate produced gross mistranslations when faced with proverbs, idioms, or culturally embedded expressions in Yoruba, Igbo, and Hausa. One lecturer provided the example of a Yoruba proverb, *"Ọmọ tó mọ̀wé tó mọ̀ èsìn, tó mọ̀ àṣà, ni yóò lè dá ayé rẹ̀ sílẹ̀ dáadáa"* (A child who understands both literacy, religion, and culture can build a good life), which was mistranslated by Google Translate into a literal but nonsensical English sentence.

Interviewees described this as a form of digital linguistic imperialism, where global AI tools privilege Western languages and flatten cultural nuance. They stressed that unless Nigeria invests in building large-scale, locally relevant language corpora, its indigenous languages risk being marginalized in the digital era. Case Study 1 reinforced this point: students reported frustration that AI tools could not capture culturally specific meanings. By contrast, lecturers in Case Study 2 emphasized the need for a long-term national project to develop Nigeria-centric AI resources, warning that dependence on Western datasets would only entrench linguistic inequality.

Collectively, these findings show that technological access, pedagogical adaptation, and socio-cultural contextualization are deeply interconnected. Without infrastructure, AI adoption is unworkable; without curriculum reform, technology remains underutilized; and without cultural sensitivity, integration risks erasing Nigeria's linguistic diversity. Addressing one dimension in isolation would yield only superficial reform.

Towards an Implementation Framework

For AI to enhance translation pedagogy in Nigeria, reforms must occur simultaneously across national, institutional, and pedagogical levels.

At the national level, policy actors such as the National Universities Commission (NUC) should establish minimum standards of digital infrastructure as criteria for accrediting language and translation programs. This would ensure that universities cannot run such programs without demonstrating access to basic technological resources. The Tertiary Education Trust Fund (TETFund) should prioritize grants for projects aimed at developing Nigerian language corpora and funding continuous professional development for faculty. A national project to build open-source, large-scale parallel corpora in Yoruba, Hausa, Igbo, and other major languages is essential to train AI models that reflect Nigeria's linguistic realities.

At the institutional level, universities must prioritize investment in stable electricity and high-speed internet, potentially through partnerships with private providers and renewable energy solutions. Establishing Centres for Digital Language Innovation would provide hubs for faculty training, research into localized AI applications, and management of software subscriptions. Curricula should be revised to integrate courses on AI literacy, machine translation post-editing, terminology management, and translation technology management, ensuring that graduates are industry-ready.

At the pedagogical level, lecturers must undergo continuous professional development to acquire competence in AI tools. This training should not only focus on technical skills but also on critical AI literacy, enabling lecturers and students to interrogate biases in AI outputs and adapt tools responsibly. Assessment methods must also evolve to evaluate the process of translation—such as how effectively students post-edit machine outputs—rather than focusing solely on final products.

This multi-level framework directly addresses the tripartite model of access, adaptation, and contextualization. By aligning infrastructure, pedagogy, and culture, Nigerian universities can ensure that AI integration is sustainable, ethical, and empowering. Crucially, success will depend on multi-stakeholder collaboration between government agencies, universities, private technology

firms, and professional associations like NITI. Only through such an ecosystem-based approach can AI serve as a tool to both enhance educational quality and preserve Nigeria's rich linguistic heritage.

This framework requires collaboration between universities, government agencies, private technology firms, and professional associations like NITI. Only through such partnerships can Nigeria establish an ecosystem where AI supports both quality education and cultural preservation.

Conclusion

Harnessing Artificial Intelligence in translation and interpretation pedagogy is not a luxury but a pressing necessity for Nigeria's higher education system. The demand for skilled translators and interpreters in law, healthcare, diplomacy, media, and national security continues to rise, yet universities remain constrained by infrastructural deficits, outdated curricula, and underprepared faculty. This study has demonstrated that while AI offers a transformative pathway, its success in Nigeria will depend on more than the simple acquisition of technology.

Findings from surveys, interviews, and case studies underscore three critical realities. First, technological access remains uneven: most institutions lack reliable electricity, stable internet connectivity, or licensed software, leaving them dependent on inadequate free platforms. Second, pedagogical readiness is weak, with faculty often unfamiliar with AI tools and curricula overwhelmingly theoretical in design. Third, socio-cultural challenges loom large, as reliance on Western-trained AI systems risks marginalizing Nigerian languages and perpetuating digital linguistic imperialism. These interrelated barriers demonstrate that integration cannot be piecemeal; addressing one without the others will result in superficial reform.

The study therefore proposes a tripartite framework built on technological access, pedagogical adaptation, and socio-cultural contextualization. This framework calls for systemic investment in infrastructure, continuous professional development for faculty, curricular redesign to embed critical AI literacy, and the deliberate inclusion of indigenous languages in AI datasets. By adopting such a holistic approach, Nigerian universities can transform AI from an imported solution into a locally grounded tool of empowerment.

The implications are both educational and cultural. For policymakers, the findings highlight the urgency of supporting open-source corpora development and incentivizing public-private partnerships. For universities, they underscore the need to establish Centres for Digital Language Innovation and integrate AI across translation curricula. For lecturers and students, they call for embracing AI not passively but critically, as a means of enhancing skills while preserving Nigeria's rich linguistic heritage.

Ultimately, the integration of AI in translation pedagogy is about more than keeping pace with global technological trends. It is about shaping an educational system that produces graduates who are not only globally competitive but also deeply rooted in their cultural identities. If Nigeria succeeds in this endeavor, it can become a leader in demonstrating how technology, when adapted to local realities, can serve as a bridge between tradition and innovation**.**

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