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Assessment of Nigerian Universities Readiness for Artificial-Intelligence Integration in Teaching: A Case-Study of National Institute for Nigerian Languages Aba, Abia State

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Abstract

The study examined the assessment of Nigerian universities readiness for artificial-intelligence integration in teaching: a case-study of national institute for Nigerian languages. A descriptive survey research design was adopted. Five questions and a null hypothesis guided the study. All academic staff of the institution makes up the population while purposive sampling was used to sampled all the 32 lecturers from faculty of education. Questionnaire on Readiness for Artificial-Intelligence Integration in Teaching (RAIIT) was used for data collection. Three experts, two from the Department of Science Education, and one from department of computer and robotic science all from University of Nigeria, Nsukka, validated the questionnaire. The instrument yielded a reliability coefficient of 0.80 using Cronbach's Alpha. Research questions were answer using grand mean and standard deviation while t-test was used to test the hypothesis at 0.05 level of significance. The findings of the study revealed thus: NINL as an institution is ready to deploy Al to a high extent. Male lectures were found to slightly utilize it more than male lecturers were found to possess more digital literacy and Al-related competency than females. Government was encouraged to invest more on infrastructure like; power supply, internet connectivity, and training of personnels.

Introduction

Nigeria's higher institutions stand at a pivotal moment as the rapid evolution of Artificial Intelligence (AI) offers new paradigm to transform teaching, learning, and institutional operations. In agreement, Ofem and Chukwujama (2024) stated that the rapidly evolving landscape of higher education due to the integration of AI into teaching and learning processes represents a transformative shift towards enhancing educational outcomes and operational efficiencies. Globally, Artificial Intelligence (AI) is educational reshaping practice, transformative potential for teaching, learning, and skill development. Although, the integration of AI in Nigerian higher education, especially in universities is at its emerging state, but it presents immense opportunities to addressing persistent fundamental educational challenges. According to Agbo et al., 2023; Okafor et al., (2025), AI integration would bridge the existing skills gaps, and prepare graduates for an increasingly digitized global economy.

Artificial Intelligence (AI) is the replication of human intelligence in machines that are programmed to think and learn like humans, performing tasks that typically require human intelligence, such as visual perception, speech recognition. decision-making, and language translation (Ukala, Ukala & Chukwuemeka, 2025). By this definition, Artificial-intelligence connotes the ability of a computer system to mimic the behaviour of the human brain. According to Swargiary (2024), AI is an innovative generative language system capable of engaging in sophisticated, human-like conversations. It involves receiving information in the form of external data, learn the information through training to enable it achieve the goals for which it was designed.

Artificial Intelligence (AI) is transforming education globally, unlocking new ways to personalize learning, automate administrative tasks, and enhance pedagogical outcomes. Nations are leveraging AI-powered adaptive platforms, intelligent tutoring systems, automated assessments,



and data analytics to strengthen teaching and learning processes. In addition, AI-driven tools, such as personalized learning platforms, intelligent tutoring systems, and automated assessment tools, are revolutionizing traditional pedagogical approaches (Agbo et al., 2023), and fostering more dynamic and engaging educational experiences (Garima & Mudgal, 2024).

The integration of AI into higher education of learning is widely accepted for its transformative potential, offering benefits that are vital for the sustainability and improvement of educational systems. These benefits include enhanced accuracy, efficiency, and scalability, each of which addresses specific challenges faced by institutions, particularly in Nigerian contexts where resource constraints and a growing student population compound the need for innovative solutions. In higher institutions, AI promote personalized learning pathways, provide instant feedback, streamline administrative tasks, and improve research capabilities, ultimately enhancing the efficiency and quality of education (Aldosari, 2020; D'Souza et al., 2024). Furthermore, AI can democratize access to global resources and provide immersive learning experiences, even in the face of infrastructural limitations (Olaleye & Hassan, 2022; World Bank, 2023). Hence, AI is seen as a necessary tool for addressing contemporary societal challenges, by fostering innovation, and preparing a skilled graduate-ready workforce.

According to UNESCO (2021), World Bank (2023), nations, especially the developed one's, have made substantial strides in integrating AI into their education systems, leveraging its capabilities to bridge learning gaps, enhance accessibility, and create more engaging and effective learning environments. This shift towards AI-powered education globally highlights the urgent need for developing nations, like evaluate her higher institutions Nigeria, to strategically preparedness to integrate technologies into their classrooms so as to remain competitive and relevant in the 21st century.

The Nigerian higher institutions comprise; universities, polytechnics, and colleges of education. With over 170 public and private universities (National Universities Commission, 2022), their degree of adoption of AI varies significantly from one institution, and region to the other. The institutions operate under a strain of rapid population growth and the resultant increased demand for higher education, presenting unique challenges and opportunities for innovation (Ukala, et al., 2020). Other hurdles limiting the effective adoption of AI in Nigerian universities include infrastructural deficits, such as limited access to reliable electricity and internet

connectivity, particularly in rural areas, and the high cost of AI technologies (Nwonye et al., 2025). Also, there are notable policy gaps, a general lack of awareness and understanding of AI among educators, inadequate training and support for faculty, and concerns about job displacement and algorithmic bias. In addition, the limited digital literacy among educators and students also poses a substantial barrier to effective AI utilization.

Despite these limitations, a few studies; Egbai and Eke (2024) found that institutional characteristics (budget, leadership, policy), and technological (infrastructure, technical expertise), and socio-cultural (awareness, and norms), stand as barriers to integrating AI in teacher education. Similarly, Ogunleye et al. (2024) acknowledged the capability of AI tools in transforming education system, but highlighted infrastructure limitations and ethical risks as the major drawback. Diallo et al. (2024) argued that sufficient studies exist on global AI-readiness assessments, but noted that emphasis are not placed on African contexts and highlight the need for tailored evaluation of infrastructure, governance, and ecosystem maturity in Africa. In another study involving a surveyed 421 undergraduates in North-Central Nigeria, it was revealed that students possess moderate level of awareness (Onasanya & Ibrahim, 2024), had strong attitude and belief in AI's pedagogical benefits (Suleiman, 2024). Similarly, Abanikanda and Falade (2024) found high awareness and readiness among science students, and call for institutional actions to raise awareness and secure digital literacy.

Furthermore, report suggest that Nigeria has begun responding to AI integration. The 3 Million Technical Talent (3MTT) initiative launched in October 2023 aims to train professionals including academics in AI and related fields. Also, a free AI Academy was also unveiled in December 2024 to build capacity among students, youths, and civil servants (Sheme, 2025). Similarly, a national AI Awareness Day held on February 17, 2025, brought together educators, regulators, and experts to call for structured AI policy and curriculum integration and giving awards to universities that demonstrate leadership in this regard (Federal Government, 2025). Although both government and private organisation are making effort to ensure the full integration of IA in the system. However, for effective adoption of these technologies they must ensure a dual approach of technological advancement and institutional sustainability.

Despite these reports, comprehensive readiness assessments are still elusive. Research has focused on perceptions, awareness and usage of AI in

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schools, but there is a lacuna in understanding institutional preparedness across infrastructure, human capacity, policy frameworks, and ethics particularly in specialized contexts were language and cultural relevance matter most. Hence, this study was conducted to assess the readiness of Nigerian universities to AI in teaching, with emphasis on National Institute for Nigerian Languages (NINL), Abia state.

Research Question

- 1. To what extent is the NINL institutionally prepared for AI integration in teaching?
- 2. What is the level of digital literacy and Alrelated competency among lecturers at NINL?
- 3. What is the level of digital literacy and AIrelated competency among lecturers at NINL based on gender?
- 4. What are the institutional and technical challenges limiting AI integration in teaching at NINL?
- 5. What is the possible solution to the institutional and technical challenges limiting AI integration in teaching at NINL?

Research hypothesis

1. There is no significant difference in the level of digital literacy and AI-related competency between male and female lecturers at NINL

Methods

This study adopted a descriptive survey research design. This design is suitable for this study because it allows the researchers to obtain first-hand information from stakeholders regarding infrastructure, human capacity, institutional policies, relevant to this work. All academic staff at the NINL, Abia state make-up the population. A multistage sampling was deployed to select participants for the study. First, stratified random sampling technique was used to stratify the lecturers into different faculties. At second stage, purposive sampling

technique was used to sample all 32 lecturers from faculty of education. Purposive sampling was used to select only lecturers from faculty of education because they are the only staff that are certify teacher that would be able to evaluate the effectiveness of educational program.

The instrument for data collection was a structured questionnaire developed by the researchers and validated by three experts in Educational Technology and Measurement and Evaluation all from University of Nigeria, Nsukka (UNN). The questionnaire was sectioned into two parts. Part (1) contain respondents' demographic data, while part (2) contains 24 questionnaire items in four clusters. Cluster (1) contains 6 items on institutional readiness, cluster (2) contain 6 items on digital literacy and AIrelated competency, cluster (3) contains 6 items on perceived challenges while cluster (4) contains 6 items on perceived solutions to the challenges to effective AI integration in NINL. The instrument was rated on four-point Likert scale of "Strongly Agree to Strongly Disagree".

The instrument was subjected to face and content validation, after which it was pilot tested on 15 lecturers from faculty of education, UNN a similar institution in different state but shared similar characteristics. It yielded a reliability coefficient of 0.80 using Cronbach's Alpha. With the aid of one lecturer from each department within the faculty who acted as research assistance, the instruments were administered physically and were given time to respond and submit on the spot. This was to ensure high return of the answered instrument. Collected data were analysed using descriptive statistics (mean and SD) and inferential statistics (t-test) to determine the influence of demographic variables on digital literacy and AI-related competency. Decision rule for the study was mean rating of 2.5 and above as accept otherwise, mean below 2.5 was reject. In addition, the decision rule for table 1 was based on grand mean of 2.50 and above as "High Extent", otherwise below 2.50 as "Low Extent".



Result

Table 1: Descriptive Statistics on institutional readiness for AI integration

S/N	Item	Mean	SD	Remark
1	The institution has reliable internet access for teaching and learning.	3.62	.55	Accept
2	Classrooms are equipped with up-to-date technology that supports AI integration.	3.59	.55	Accept
3	There is an existing policy guiding the use of AI in teaching at NINL.	1.46	1.16	Reject
4	The institution has allocated funding for digital transformation and AI adoption.	2.31	.73	Reject
5	The institution has trained her staff on how to integrate AI into teaching/learning.	3.09	.81	Accept
6	The institution encourages the use of AI to enhance teaching or research.	3.40	.71	Accept
	Grand mean		High E	xtent

Table 1 shows the mean score of respondents on the extent of institutional preparedness of NINL for AI integration in teaching. The result revealed that based on 2.50 mean score bench mark for the study, four out of six items were accepted. The prominent ones are that the lecturers unanimously accept that the institution has reliable internet access for teaching and learning with mean score of 3.62 and that the classrooms are equipped with up-to-date technology that supports AI integration with mean score of 3.59.

They reject that there is an existing policy guiding the use of AI in teaching at NINL with mean score of 1.46 and the institution has allocated funding for digital transformation and AI adoption with mean score of 2.31. This was anchored on the means score of each item statement based on 2.50 mean score bench mark for the study. Furthermore, the grand mean score of 2.91 which is higher than 2.50 bench mark for the study, suggest that the institution is ready to a High Extent to adopt AI in classrooms.

Table2: Descriptive Statistics on Digital Literacy and AI-related Competency Among Lecturers

S/N	Item	Mean	SD	Remark
7	I can confidently use digital tools like email, LMS, and cloud apps.	3.60	.60	Accept
8	I am familiar with the basic concepts of Artificial Intelligence.	3.71	.45	Accept
9	I have the skills to integrate AI-powered tools (e.g., ChatGPT, AI graders) in my teaching.	3.56	.66	Accept
10	I can teach students using AI-based educational platforms.	3.81	.53	Accept
11	I have attended workshops or trainings related to AI in education.	3.59	.61	Accept
12	I can assess the ethical implications of AI use in education.	3.68	.47	Accept
	Grand mean	3.66		Accept

Table 2 shows the mean score of respondents on the level of their digital literacy and AI-related competency. The result shows that lecturers accept all the item statement. This was anchored on the means score of each item statement ranging between 3.5 to 3.8 which is far higher than 2.50 bench mark for the

study. Also, grand mean score of 3.66 which is also greater than 2.50 bench mark indicting that lecturers possess good digital literacy and AI-related competency that would enable AI integration into their classrooms.

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Table 3: Descriptive Statistics on Digital Literacy and AI-related Competency Among Lecturers Based on Gender

on center						
Gender	N	Mean	SD			
Male	13	24.00	.03			
Female	19	20.63	2.08			

The result in Table 3 showed that the mean score of male lecturers on the level of digital literacy and AI-related competency is 24.00 with a standard deviation of .03 while female lecturers have a mean

score of 20.63 with a standard deviation of 2.08. Based on the result, the finding suggest that male lecturers possess higher level of digital literacy and AI-related competency.

Table 4: Inferential Statistics of (T-Test) of the Significant Diff. Between Male and Female Level of Digital Literacy and Al-Related Competency

Digital Literacy and Ar-Kelated Competency								
Gender	N	Mean	SD	df	Std.Er	t-cal	p.value	Remark
Male								
	13	24.00	.03					
				30 .48 0.0	0.002	0.000	Reject	
Female	1.0	20.62	• • • •					
	19	20.63	2.08					

The result in Table 4 above showed a significant value of t-cal of 0.002 and P-value of 0.000. The result showed a significant P-value of 0.00 which is equal to 0.05 level of significance for the study. The null hypothesis which states that There is no significant difference in the level of digital literacy and AI-related competency between male and female

lecturers at NINL is therefore rejected. Male lecturers were found to possess higher level of digital literacy and AI-related competency more than their female colleagues.

Research question 4: What are the institutional and technical challenges limiting AI integration in teaching at NINL?

Table 5: Descriptive Statistics on institutional and technical challenges limiting AI integration in teaching

S/N	Item	Mean	SD	Remark
13	There is insufficient institutional funding for AI-based technologies.	3.71	.45	Accept
14	The institution lacks the infrastructure needed for AI integration.	3.53	.80	Accept
15	Many lecturers lack adequate knowledge of AI-related tools.	2.12	1.07	Reject
16	There is no clear institutional policy on AI integration in teaching.	3.37	.65	Accept
17	Power outages and poor internet connectivity hinder AI use.	3.56	.56	Accept
18	Resistance to change among faculty members limits AI adoption.	2.87	1.09	Accept
	Grand mean	3.19		Accept

Table 5 shows the mean score of respondents on the institutional and technical challenges limiting AI integration in NINL, Abia state. The result shows that lecturers accept all the item statement as the major challenge affecting AI integration in classroom learning environment. This was anchored on the means score of most item statement ranging between

2.8 to 3.7, which is far higher than 2.50 bench mark for the study. Although, one item, showed a mean score of 2.12, which is less than 2.50 bench mark for the study. However, the grand mean score of 3.19 which is also greater than 2.50 bench mark affirm that these items are the known institutional and technical challenges limiting AI integration in classrooms.



Table 6: Descriptive Statistics on possible solution to the institutional and technical challenges limiting

	At integration in teaching								
S/N	Item	Mean	SD	Remark					
19	The institution should organize regular AI-related capacity-building workshops.	2.75	1.41	Accept					
20	Government should fund AI integration projects in higher institutions.	2.63	1.03	Accept					
21	A clear policy framework for AI integration should be developed.	2.81	.85	Accept					
22	Universities should invest in stable power supply and internet facilities.	3.21	.55	Accept					
23	Collaboration with tech firms can aid in AI tool deployment and training.	3.46	.62	Accept					
24	A dedicated AI support unit should be established in every faculty.	3.06	.84	Accept					
	Grand mean	2.98		Accept					

Table 6 shows the mean score of respondents on the possible solution to the institutional and technical challenges limiting AI integration in NINL, Abia state. The result shows that lecturers accept all the item statement as possible solution to the institutional and technical challenges challenge affecting AI integration in classroom learning environment. This was anchored on the means score of all the item statement ranging between 2.6 to 3.4, which is far higher than 2.50 bench mark for the study. The grand mean score of 2.98 which is also greater than 2.50 bench mark, affirm these items as the known possible solution to the institutional and technical challenges limiting AI integration in NILN, Abia state.

Discussion of Findings

The findings of this study from table 1 suggest that the institution is ready to a High Extent to integrate Artificial Intelligence in classrooms. In table 2, the findings revealed that lecturers possess good digital literacy and AI-related competency that would enable AI integration into their classrooms. Furthermore, male lecturers were found to possess higher level of digital literacy and AI-related competency and the difference were statistically significant. This findings without doubt are a testament to government commitment digitalization of educational system in 2030. The high level of readiness suggests that NINL possesses robust digital infrastructure necessary for AI adoption in classrooms. Such as; stable internet connectivity, availability of computers and smart devices, and access to AI-enabled learning platforms. This is in sync with the findings of Adedoyin and Soykan (2020), who found that digital infrastructure is a primary enabler of successful e-learning and AI

integration in Nigerian tertiary institutions. Similarly, Onyema et al. (2020) reiterate that Nigerian institutions that invested in online platforms and digital tools during the COVID-19 pandemic have continued to build on that momentum, laying the groundwork for more advanced technologies such as AI.

The findings also align with Ibrahim and Othman (2023), who noted that institutional readiness is significantly influenced by the willingness and ability of lecturers to adopt AI tools for curriculum delivery, learner assessment, and classroom interaction. Also, Akinola et al. (2022) found that without skilled personnel, even institutions with the best technologies will struggle with AI adoption. The finding corroborates with Odeyemi et al. (2021) who that institutions that embed transformation and AI adoption into their mission and operational plans demonstrate greater preparedness. In the same way, Eze et al. (2019) found that cultural readiness, including openness to change among male and female staff and students is crucial to AI integration in Nigerian universities. The synergy in these research findings is an indication that Nigerian universities are waxing stronger to ensure that technologies are fully deployed into the system by 2030.

The findings of this study revealed some institutional challenges, such as insufficient funding, infrastructural challenges, lack of skilled personnel, limited AI policy among others affecting AI deployment in classroom. These findings agreed with the findings of Chigbu et al. (2024) who observed that while some institutions have pockets of digital development, inconsistent power supply and poor bandwidth limit the effectiveness of AI tools in real-time classroom interaction. In another study, Onyema



et al. (2020) noted that infrastructural challenges significantly constrained online learning during the COVID-19 pandemic, and has continue to affect the deployment of advanced technologies such as AI in classroom in most high institutions. Ibrahim and Othman (2023) revealed that most Nigerian lecturers, including those in specialized institutions like NINL, lack training in AI application for pedagogy, natural language processing, and adaptive technologies. Akinola et al. (2022) found that while there is general digital awareness, specialized AI competencies such as machine learning, data analysis, and automation are still absent in teacher training programs. The consistency in research finding especially in area of challenges affecting education sector is alarming. It only suggests that government are not determine to see the system work.

The findings of this study also revealed some possible solutions to the institutional challenges like; government ensuring sufficient funding infrastructural, power supply and training of personnel, and the development of AI policy among others. The findings corroborate with the findings of Odeyemi et al. (2021) who argued that institutional policies for AI use in teaching should be implemented across tertiary institutions in Nigerian. Moreso, Adedoyin and Soykan (2020) found that AI adoption is capital-intensive, and request government to invest in both hardware and software procurement. In another study, Eze et al. (2019) found that lecturer's attitude and cultural often reflect technophobia resulting to preference for traditional teaching methods, and encourages regular training of lecturers to improve personnel capacity. Also, Chigbu et al. (2024) noted that the absence of dedicated AI or ICT support teams hampers the smooth operation of digital learning platforms and suggest that more skill ICT personnel should be employed. There are enough literature revealing Nigeria educational challenges and possible solution, however, the constant denominator remains government lopsidedness in implementing its policies.

Conclusion

Based on the findings of this study, it can be concluded that the National Institute for Nigerian Languages (NINL) demonstrates a high level of readiness to adopt Artificial Intelligence (AI) in classroom instruction, reflecting significant progress in infrastructure development, staff development, and institutional commitment to digital innovation. In spite of their level of preparedness, the study also reveals persistent challenges such as inadequate technical infrastructure, limited AI-related competencies among staff, insufficient policy

frameworks, and funding constraints, which may obviously hinder the full-scale implementation of AI adoption. Hence, addressing these challenges require a multi-faceted strategies through strategic investment, staff development, and policy reform for the successful and sustainable integration of AI in teaching and learning at NINL.

Recommendation

- 1. The institution should invest in upgrading digital infrastructure, including high-speed internet, reliable power supply, and AI-compatible devices. Additionally, establishing a dedicated technical support unit will ensure the effective deployment, maintenance, and troubleshooting of AI tools as it advances.
- 2. NINL should organize regular training workshops and professional development programs focused on AI literacy and its pedagogical applications. This will improve lecturers' competence and confidence in using AI tools to support teaching and learning.
- 3. The management should create a comprehensive policy that outlines the goals, guidelines, ethical considerations, and resource allocation for AI integration in classrooms. This policy should align with national digital education strategies and be supported by consistent funding and stakeholder engagement.

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