

Exploring the Factors Influencing Artificial Intelligence Adoption for Career Preparedness among Undergraduates in Nigerian South East Public Universities

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ABSTRACT: *Artificial Intelligence (AI) is reshaping global economies, necessitating AI-literate graduates. This study examined AI adoption factors among 400 undergraduates across ten public universities in South East Nigeria using a descriptive survey design. Findings reveal high individual agency and positive perceptions of AI's utility and ease of use. However, adoption is severely hindered by institutional deficiencies, including poor infrastructure, a lack of formal training, and limited faculty encouragement. The study concludes that AI adoption in this region is a bottom-up phenomenon driven by student initiative rather than institutional frameworks. To bridge this gap, the study recommends a comprehensive curriculum overhaul to include AI modules, significant investment in campus broadband and tech hubs, and the provision of subsidised AI certification programmes for final-year students. Addressing these systemic barriers is essential to ensuring Nigerian graduates remain competitive in an increasingly automated global labour market.*

Keywords: Artificial intelligence (AI), AI Adoption, Career Preparedness, Digital Literacy.

INTRODUCTION

Artificial intelligence (AI) is reshaping global economic structures and labour markets, increasing demand for specialized roles in data science, AI development, and cybersecurity (Mykytas, 2025; Kaur, 2025). This shift requires adaptable, digitally literate graduates who can work with AI systems, making AI skills a key differentiator in employability (Ramos et al., 2025). However, many graduates feel partially prepared for AI-driven change, highlighting a gap between labour-market demands and traditional education models (Mykytas, 2025; Ramos et al., 2025).

Nigeria faces high youth unemployment, skills gaps, and limited industrial absorption capacity, with graduates often lacking technical and problem-solving skills (Danmaigoro & Ahmad, 2025; Akere & Iwayemi, 2023). Employers identify low technical competence and poor soft skills as barriers to graduate employment (Ezeani, 2018; Akere & Iwayemi, 2023). AI-driven disruptions intensify pressure on Nigerian graduates to remain competitive.

Integrating AI-related technologies into university curricula and industrial training is critical for employability and innovation (Attah et al., 2025; Danmaigoro & Ahmad, 2025). Nigerian graduates need AI literacy, problem-solving, entrepreneurship capabilities, and soft skills to adapt to the Fourth Industrial Revolution (Aruleba, 2025; Akere & Iwayemi, 2023). Curriculum reform, AI integration, and university-industry partnerships are essential for Nigerian graduates to secure decent work and contribute to national development (Attah et al., 2025; Adigwe et al., 2024).

STATEMENT OF THE PROBLEM

While AI proficiency is a cornerstone of modern career readiness, undergraduate adoption in Nigeria faces significant systemic and individual barriers. A paradoxical trend exists where students exhibit high awareness and positive perceptions of AI but lack the technical knowledge, hands-on experience, and resource access necessary for professional application (David-Olawade et al., 2025; Olawade et al., 2025; Hamzat & Ansah, 2025; E., 2025). Determinants like self-efficacy and perceived utility are often neutralised by poor infrastructure, insufficient training, and a lack of institutional frameworks (Falebita & Kok, 2024; Alshammari et al., 2025; Owan et al., 2025). In South East Nigerian public universities, medicine and communication students recognise AI's importance but suffer from low competency due to inadequate curricular inclusion (Muoka et al., 2025). This discrepancy leaves graduates ill-equipped for global workforce demands, necessitating investigation into the factors influencing adoption to improve curriculum and student support (Suleiman, 2024; Yakubu et al., 2025).

This paper examines individual, technological, and institutional factors influencing AI adoption for career preparedness among South East Nigerian undergraduates. Understanding these factors informs curriculum reforms, policies, and support systems to enhance students' employability and competitiveness. The research identifies gaps and strategies to bridge the digital divide, ultimately boosting graduates' global labour market readiness.

LITERATURE REVIEW

Conceptualisation

The Concept of AI adoption

AI adoption in higher education is defined as a multifaceted socio-technical process that involves transitioning from initial awareness to the routine integration of artificial intelligence into academic and administrative workflows. This progression is frequently explained through theoretical frameworks such as TAM, UTAUT, DOI, and TOE, which highlight perceived usefulness, ease of use, and facilitating conditions as the primary drivers of behavioural intention (Acosta-Enriquez et al., 2024; Abulail et al., 2025; Al-Kfairy, 2024; Chatterjee & Bhattacharjee, 2020; Shuaiyao & Lei, 2024). Beyond mere technical acceptance, the concept encompasses individual psychological factors like AI literacy and trust, as well as organisational requirements such as system compatibility and strategic alignment with institutional goals (Acosta-Enriquez et al., 2024; Abulail et al., 2025; Chatterjee & Bhattacharjee, 2020). Ultimately, AI adoption is successfully realised when a continuous interaction exists between individual beliefs, technological attributes, and institutional structures, allowing the tools to become deeply embedded within the university ecosystem (Acosta-Enriquez et al., 2024; Abulail et al., 2025; Wallis, 2021).

The Concept of Career Preparedness

Career preparedness is a multifaceted construct that integrates the attitudes, competencies, and behaviours essential for navigating both predictable and volatile labour market shifts through four primary domains: knowledge and skills, motivational resources, environmental supports, and active career-management behaviours (Marciniak et al., 2020). This development is driven by a synergy of internal psychological resources, such as self-efficacy, and external factors like formal training, which align with concepts like graduate employability and 21st-century skills—specifically critical thinking and social capital—to facilitate workforce transitions (Rachmawati et al., 2024; Yuan & Zainudin, 2025; Moore & Thaller, 2023; Healy, 2023). Ultimately, mastering these diverse forms of human and psychological capital leads to superior job-search outcomes, enhanced adaptability, and improved psychological well-being within competitive economic environments (Marciniak et al., 2020; Vijayalakshmi & J, 2025; Grosemans & Cuyper, 2021; Wallis, 2021).

Theoretical Framework

The Technology Acceptance Model (TAM) identifies Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) as the primary drivers of technology adoption, shaping user attitudes and behavioural intentions (Davis et al., 1989; Hussain et al., 2025; Park et al., 2025). PU is consistently the strongest predictor of intention, as adoption rates rise significantly when users believe a system—from AI tools to mobile payments—will enhance their efficiency or outcomes (Siagian et al., 2022; Shyr et al., 2024; Park et al., 2025). This perception is often influenced by external factors like system quality, security, and social norms, ensuring that TAM remains a robust framework across diverse sectors including health, e-commerce, and education (Amir et al., 2020; Li et al., 2024; O'Dea, 2025).

While PU dominates high-performance contexts, Perceived Ease of Use (PEOU) remains vital by influencing intention both directly and indirectly through its boost to perceived usefulness (Denovan & Marsasi, 2025; Hussain et al., 2025; Venkatesh, 2000). Systems that are intuitive and require low effort foster higher intentions, often rooted in an individual's self-efficacy and low anxiety regarding technology (Wicaksono & Maharani, 2020; Liesa-Orús et al., 2022). Ultimately, PEOU helps users transition into viewing a system as useful, though its impact may fluctuate based on task complexity, with users generally prioritising the functional utility of the technology in demanding professional or learning environments (Siagian et al., 2022; Davis et al., 1989; Park et al., 2025).

Empirical Review

Research in Nigerian tertiary institutions shows that digital literacy levels are improving but remain uneven across populations and regions. Recent surveys in southern universities find students increasingly competent in basic skills (internet search, information retrieval, common applications) and now encountering advanced domains such as AI, data analytics, and cybersecurity, which are linked to better learning outcomes and more collaborative, inquiry based learning practices (Okpa et al., 2025; Agina-Obu & Okwu, 2023; Aremu & Udofia, 2025). Distance learners at the University of Lagos report frequent technology use but reveal a clear gap between the perceived importance of e skills and their effective use in academic tasks, indicating that competence is often superficial and self-assessed rather than robustly developed (Adewumi & Oladele, 2023). Secondary analyses across Nigerian university, polytechnic, and college libraries similarly characterize users' skills as fragmented, with stronger informal/social use and weaker academic digital practices such as database searching, critical evaluation, and structured information use (Grace et al., 2026).

Empirical work consistently links digital literacy to students' academic performance and access to digital resources. Studies on online testing in Lagos and information retrieval in Anambra show that higher digital literacy significantly predicts better performance in computer based assessments, stronger critical thinking, and more effective information retrieval, while low skill students are more likely to underperform and struggle with digital platforms (Aremu & Udofia, 2025; Karofi, 2025; Okonkwo et al., 2025). Research in Nasarawa and Kaduna indicates that both staff and students who possess higher digital literacy make fuller use

of online resources, although usage is constrained by inadequate internet access, computer anxiety, and limited training opportunities (Musa, 2025; Jibrin et al., 2025). University wide and national scope studies demonstrate that digital literacy is a key determinant of how effectively students use digital and internet resources, with libraries playing a central role through training, workshops, and embedded digital literacy programmes that enhance access, evaluation, and academic use of digital information (Omojemite, 2025; Agina-Obu & Okwu, 2023; Oyigan et al., 2026; Mathias et al., 2025).

Across institutions, persistent structural and pedagogical barriers limit the depth of digital literacy. Common challenges include poor or unstable internet connectivity, erratic power supply, shortage of up to date devices, limited formal training, and a lack of curriculum embedded digital literacy components (Okpa et al., 2025; Musa, 2025; Egielewa et al., 2021; Ogunbodede et al., 2023; Oyigan et al., 2026). Lecturers in colleges of education and universities often report adequate basic competencies but lack proficiency in advanced applications (spreadsheets, LMS, data analysis), underscoring the need for systematic professional development (Egielewa et al., 2021; Omoisekejimi et al., 2019; Ogunbodede et al., 2023). Recent intervention and preparedness studies argue for targeted digital literacy training, institutional ICT policies, and sustained infrastructure investment, recommending that digital literacy be treated as a core graduate attribute rather than an optional add on, and calling for coordinated action by institutional management, government, and library units to close persistent gaps (Omojemite, 2025; Musa, 2025; Grace et al., 2026; Omoisekejimi et al., 2019; Oyigan et al., 2026).

RESEARCH METHODOLOGY

Research Design

This study adopts a descriptive survey research design. This approach is selected because it allows for the systematic collection of data from a large group of undergraduates to describe and interpret the current state of AI adoption without manipulating the variables. By using this design, the researcher can effectively capture the attitudes, awareness levels, and perceived barriers regarding artificial intelligence within the academic environment of South East Nigeria.

Population Size

The study's target population includes full-time undergraduate students from federal and state public universities across South East Nigeria's five states (Abia, Anambra, Ebonyi, Enugu, and Imo). Ten universities are represented, including Michael Okpara University of Agriculture, Abia State University, Nnamdi Azikiwe University, and others. This diverse range of academic environments ensures a comprehensive representation of the region's higher education demographic, allowing for a broad understanding of AI adoption among undergraduates in South East Nigeria's public universities. The inclusion of both federal and state universities enables a comparative analysis of AI adoption across different institutional frameworks.

Sample Size of the Study Population

The study selected a total sample size of 400 participants from five states in the South East, equally divided between Federal and State Universities (40 students each), to ensure balanced geographical representation and statistical reliability. This stratified approach allows for a direct comparison between federal and state-funded environments, preventing data skewness and weighting institutional factors equally. The sample size of 400 aligns with the Taro Yamane formula for large populations at a 5% margin of error, ensuring statistically significant and generalizable findings.

Instruments for Data Collection

The primary tool for gathering data is a structured questionnaire titled the AI Adoption and Career Preparedness Questionnaire (AIACPQ). The instrument is designed to evaluate individual, technological, and institutional factors influencing technology uptake. The questionnaire utilizes a 5-point Likert Scale, with response options ranging from Strongly Agree (5), Agree (4), Neutral (3), Disagree (2), to Strongly Disagree (1). This measurement scale allows for a nuanced quantitative assessment of student opinions and competencies.

Administration of Research Instruments

The research instruments will be administered through a hybrid approach, utilizing both physical distribution of paper-based questionnaires and digital surveys (such as Google Forms) to maximize reach across various campuses. To ensure a high response rate and data integrity, the researcher may engage research assistants within each selected university to facilitate the process. Participation remains strictly voluntary, and all respondents are assured of their anonymity and the confidentiality of their responses.

Method of Data Analysis

The data collected from the field will be analyzed using descriptive statistics to address the research objectives. The Mean and Standard Deviation will be calculated for each item on the 5-point Likert Scale to identify general trends in AI awareness and adoption factors. A decision rule will be established—typically using a mid-point mean (e.g., 3.00)—to determine the level of agreement or the significance of a particular factor based on the respondents' scores.

DATA PRESENTATION AND RESULTS

A total of 400 questionnaires were administered, with 284 returned (71% return rate) and 116 not returned (29%). The analysis is based on the 284 participants who returned their instruments, providing the data for the results and discussion.

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Table 1: Questionnaire Instrument Return Rate

No. Administered		No. Returned		No. Unreturned	
No.	Percentage	No.	Percentage	No.	Percentage
600	100%	284	71%	116	29%

The table 1 above indicates that out of 400 questionnaire forms administered, 284 were duly filled and returned, representing a return rate of 71%, while 116 forms were not returned, accounting for 29% of the total distribution.

Socio-Demographic Characteristics of the Respondents

The percentages of those who agreed on each item were determined by adding the figures under the columns strongly agree, somewhat agree, while those who disagreed were presented in the figure with strongly disagree and somewhat disagree items. There were those who were neutral, which are under the column (N) neither agree nor disagree.

Table 2: Institution Type of the Respondents

Institution Type	Frequency	Percentage
Federal University	176	62
State University	108	38
Total	284	100.0

Table 2 presents the distribution of respondents based on their institution type. Out of the 284 undergraduates who successfully participated in the study, the majority, totaling 176 respondents (62%), were from Federal Universities. The remaining 108 respondents (38%) were students of State Universities. This distribution ensures that both tiers of public higher education in the South East are represented in the data, allowing for a comparative analysis of AI adoption across different institutional frameworks.

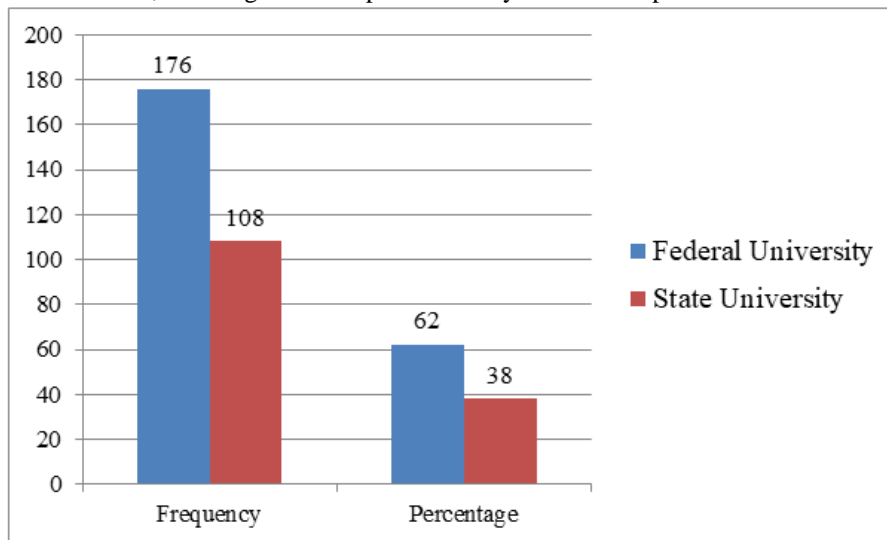


Table 3: Current Level of the Respondents

Institution Type	Frequency	Percentage
100 Level	44	15.49
200 Level	55	19.37
300 Level	48	16.90
400 Level	62	21.83

500 Level	75	26.41
Total	284	100.0

Table 3 shows the distribution of respondents by their current academic level, revealing that the largest group of participants are final-year students at the 500 Level (26.41%), followed by those at the 400 Level (21.83%), indicating that the majority of the data is derived from students nearing graduation and entry into the workforce.

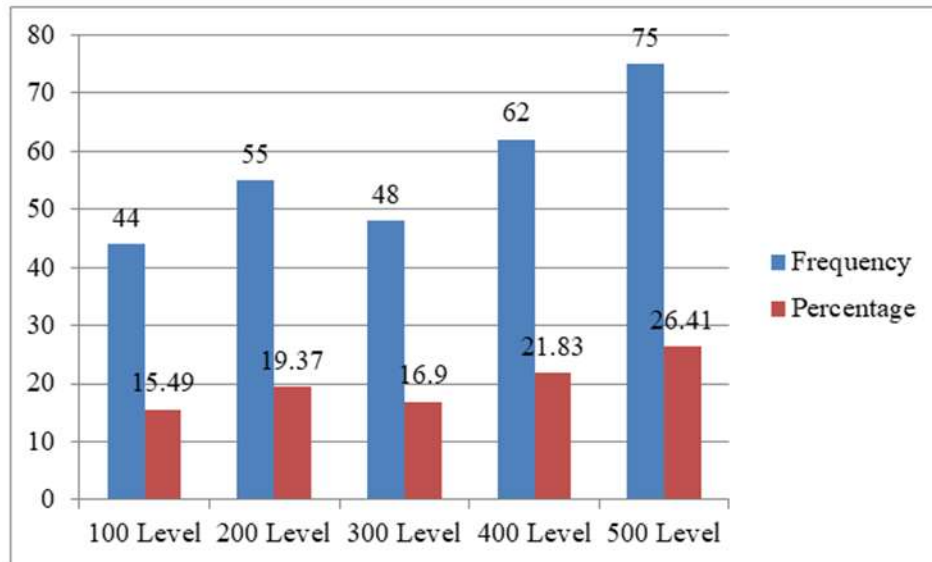


Table 4: Area of Study of the Respondents

Area of Study	Frequency	Percentage
STEM	128	45
No-STEM	156	55
Total	284	100.0

Table 4 illustrates the distribution of respondents based on their academic disciplines, categorized into STEM and Non-STEM fields. The data reveals that 156 respondents (55%) belong to Non-STEM areas (such as Arts, Humanities, Social Sciences, and Management), while 128 respondents (45%) are from STEM backgrounds (including Science, Technology, Engineering, and Mathematics).

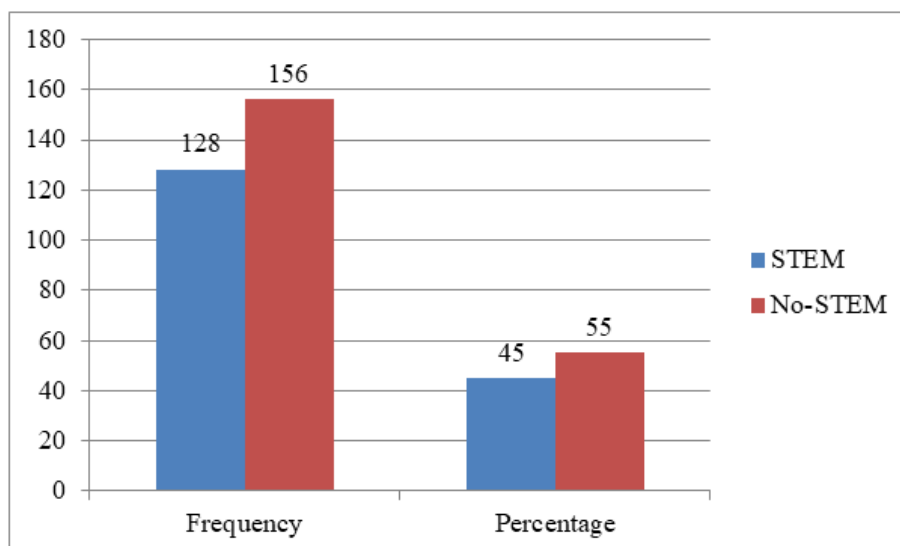
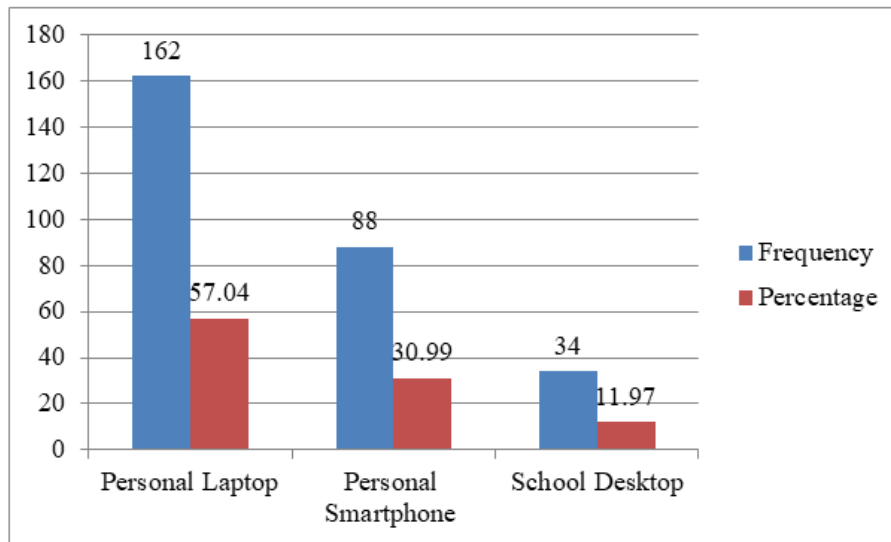


Table 5: Device Access of the Respondents

Area of Study	Frequency	Percentage
Personal Laptop	162	57.04
Personal Smartphone	88	30.99
School Desktop	34	11.97
Total	284	100.0

The study reveals a significant reliance on private technology, with Personal Laptops (57.04%) and Smartphones (30.99%) being the primary devices used for AI adoption, while School Desktops (11.97%) are underutilized (Chekwube et al., 2025). This suggests students are investing in personal hardware, highlighting a gap in university-provided infrastructure and indicating AI adoption is driven by individual efforts rather than institutional support.



DATA ANALYSIS

Table 6: Analysis of the mean scores on the individual, technological, and institutional factors influencing the adoption of Artificial Intelligence (AI) tools for career preparedness among undergraduates in public universities in South East Nigeria

ITEMS	SA	A	N	D	SD	EX	Total R	\bar{x}	Remark
(Individual) I am confident in my ability to learn and apply new AI tools to tasks related to my future career.	115 (5)	125 (4)	28 (3)	10 (2)	6 (1)	284	1,185	4.17	Accepted
(Individual) I believe that mastering AI technologies is a personal responsibility for my professional growth.	148 (5)	95 (4)	22 (3)	11 (2)	8 (1)	284	1,216	4.28	Accepted
(Individual) My previous digital skills make it easier for me to experiment with advanced AI applications.	92 (5)	118 (4)	40 (3)	20 (2)	14 (1)	284	1,106	3.89	Accepted

(Technological) I find that AI tools (e.g., SciSpace, ChatGPT, Gemini, Canva AI) are user-friendly and easy to navigate.	105 (5)	132 (4)	30 (3)	12 (2)	5 (1)	284	1,167	4.11	Accepted
(Technological) Using AI tools significantly increases my productivity and the quality of my academic work.	128 (5)	112 (4)	26 (3)	10 (2)	8 (1)	284	1,195	4.21	Accepted
(Institutional) My university provides consistent access to the necessary infrastructure (e.g., electricity and Wi-Fi) to use AI.	20 (5)	48 (4)	52 (3)	92 (2)	72 (1)	284	704	2.48	Rejected
(Institutional) My lecturers encourage the use of AI tools as part of our preparation for the labour market.	32 (5)	65 (4)	70 (3)	72 (2)	45 (1)	284	819	2.88	Rejected
(Institutional) There are formal training programmes or workshops in my school focused on AI literacy for students.	15 (5)	38 (4)	58 (3)	105 (2)	68 (1)	284	784	2.76	Rejected
Grand Mean	3.59								

Summary of Findings

The analysis of Table 6 reveals a significant disparity between student readiness and institutional support regarding AI adoption in South East Nigerian public universities. Undergraduates possess high levels of individual agency and a positive perception of AI technology, with the most influential drivers being personal responsibility for professional growth (4.28) and tangible productivity gains (4.21), supported by self-confidence (4.17) and user-friendly AI interfaces (4.11) (Chekwube et al., 2025; Serres, 2023). In contrast, institutional support is critically lacking, with weaknesses in infrastructure (2.48), formal training programmes (2.76), and lecturer encouragement (2.88) (Olanrewaju et al., 2021; Musa, 2025). Despite these hurdles, the Grand Mean of 3.59 indicates AI adoption is a bottom-up, student-led phenomenon, with students bypassing institutional limitations to remain competitive (Dangara et al., 2025; Shehu et al., 2025).

DISCUSSION

The study reveals that AI adoption among undergraduates in South East Nigeria is driven by a survivalist mindset, with students viewing AI as a personal investment in future employability (Ngonso et al., 2025). This strong individual agency aligns with findings by Chekwube et al. (2025) and Serres (2023), who note that digital competence is seen as a route to self-reliance in the absence of reliable institutional pathways.

The technological factors identified illustrate a leapfrogging effect, where perceived ease of use and productivity gains override technical barriers, consistent with Essien et al. (2024) and Orok et al. (2024). Students prioritize data spending as a strategic investment in their digital capability (Afolayan et al., 2024), relying on mobile-based tools and informal platforms to compensate for institutional deficits (Okpa et al., 2025; Dangara et al., 2025). The rejection of institutional factors reflects a nationwide systemic crisis in Nigerian public education, with chronic underfunding and infrastructure decay (Olanrewaju et al., 2021; Musa, 2025), leading to a bottom-up, student-led AI adoption phenomenon (Shehu et al., 2025; Dangara et al., 2025).

CONCLUSION

This study sought to investigate the multi-dimensional factors influencing the adoption of Artificial Intelligence (AI) for career preparedness among undergraduates in South East Nigerian public universities. By examining individual agency alongside technological and institutional constraints, the research highlights a significant divergence between student readiness and academic infrastructure.

The findings reveal that undergraduates possess a robust, self-driven motivation to master AI, viewing digital proficiency as a critical survival tool for the global labour market. This proactive mindset demonstrates that students are technologically prepared to leapfrog traditional digital barriers. However, the study identifies a profound pedagogical lag, where systemic failures—ranging from erratic power and poor connectivity to a lack of formal faculty guidance—hamper the full realisation of this potential. Ultimately, AI adoption in this context is a bottom-up phenomenon, occurring in spite of, rather than because of, the university environment.

This research contributes to the literature by reframing AI adoption in developing economies not as a failure of user interest, but as a result of institutional neglect. Practically, the study implies that without urgent intervention, the digital divide will widen. Policy recommendations include the integration of AI-driven modules into the core curriculum and the establishment of campus tech hubs. By addressing these systemic barriers, Nigerian universities can transition from passive observers to active facilitators of a workforce capable of competing in a hyper-competitive, automated global economy.

RECOMMENDATIONS

Based on the findings of this study, which highlight a significant gap between high student motivation and low institutional support, the following recommendations are proposed to bridge the disparity and formalize AI adoption for career preparedness:

- i. **Curriculum Overhauls:** Integrate AI-literacy across disciplines, focusing on practical, domain-specific applications. Update modules to teach AI for data analysis, research, and problem-solving, validating students' existing skills and promoting ethical understanding.
- ii. **Campus Broadband and Tech Hubs:** Invest in reliable electricity and high-speed broadband. Establish AI Tech Hubs for experimentation, providing hardware-as-a-service to alleviate financial burdens and ensure equal access.
- iii. **Subsidised AI Certifications:** Partner with tech firms to offer subsidised certifications for final-year students, boosting employability and bridging the pedagogical gap between academia and industry needs.

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