Practices of Artificial Intelligence Use in Public Universities in South-West Nigeria

Babatunde Moses Alao and Dauda Aderemi Busari

Abstract

Artificial intelligence (AI), defined as a machine that demonstrates human ability to perform tasks, is gaining popularity globally. AI exploration is increasing in university education, as it enhances academic productivity and simplifies daily tasks, contributing to economic growth. However, concerns about its impact on academic processes and standards are growing, attracting scholarly attention. This study critically examined the extent of AI use among students to evaluate how effectively this usage improves the educational processes and standards in southwest Nigeria. Thorsten Veblen's Theory of Technological Determinism provided the framework. Using a quantitative research design, six universities were selected across southwest Nigeria: three federal universities—University of Ibadan (UI), Obafemi Awolowo University (OAU), and University of Lagos (UNILAG)—and three state universities—Olabisi Onabanjo University (OOU), Ekiti State University (EKSU), and Adekunle Ajasin University (AAU). A total of 1,184 respondents were randomly selected from each university using Taro Yamane's sample size formula. The quantitative data were analysed using descriptive statistics, the Chi-square test, and logistic regression at $p \leq 0.05$. The study found that AI and AI-enabled tools are becoming increasingly widely used; however, there is a significant gap in awareness of useful AI tools for academic improvement, a lack of expertise in handling AI and related tools, and the digital divide remains a major obstacle to AI development in academia. Additionally, privacy concerns continue to hinder AI's prospects. This study recommends implementing improved privacy policies to ensure user safety, bridging the technological divide among institutions, providing AI expertise training, and establishing a comprehensive AI regulatory framework to protect users and stakeholders.

Keywords: AI use, Education, Awareness, Students, AI policy

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1. Introduction

Decades of agitation for scalable, flexible, and personalised Education solutions that meet the diverse needs of learners around the world continue to be inspired by global success stories, thereby improving the AI landscapes across regions. Challenges of uneven AI integration across institutions give those in technologically advanced regions an upper hand, creating a wide gap in access between under-resourced and other institutions (Aladejana et al., 2022; Wang et al., 2024; Oprea & Bara, 2025). Studies show that the utilisation of AI tools is transforming tertiary Education in many African institutions, which remain in the early stages of development, making systemic implementation difficult (Mogaji & Jain, 2020; Ukala & Ukala, 2024). The Nigerian context shows a growing presence of AI-assisted writing tools such as Grammarly, QuillBot, and Copyscape, with over 62% of students surveyed in public universities in Lagos and Oyo States reporting regular use of these tools for grammar correction, paraphrasing, and plagiarism checking (Adebayo & Oyewole, 2023). Despite these advancements, concerns remain regarding equitable access, institutional readiness, and the sustainability of AI integration within higher Education. However, there is a reasonable level of improvement and effort towards championing the cause of regional and national development in the AI landscape, which spans important sectors of the economy, such as Education. However, the extent of progress remains low (Mogaji & Jain, 2020). Being One of the giants in the explorative usage of AI tools, Nigeria, and of course, the southwestern region, having a leading educational role in the country, continued to intensify efforts in the improvement of AI use practice across the region. Despite the efforts in place, the integration of AI tends to face certain fallbacks, such as inconsistent AI use, non-uniformity in AI integration, digital gaps, and lack of expertise in AI use, among others. To this end, this study critically examined the extent of AI and AI-enabled tools usage among students and across the selected universities in South-West Nigeria. It also sought to understand the need for each tool used, the challenges faced, and to determine how this process can be improved in academia in the current digital age. As a 21st-century innovation, AI represents highly intelligent software capable of performing human-like tasks, reshaping and enhancing methodologies to improve teaching and learning outcomes, thereby enhancing productivity and economic buoyancy. One of the most significant impacts of AI tools in higher Education is their potential to transform pedagogy. However, this goal cannot be achieved only by the AI tools characterised by machine vision—enabling a software to identify patterns, forecast outcomes, and modify patterns to fit unexpected circumstances; an expert system—featured to help software replicate human expertise and enhance problem-solving capacity; machine learning—enabling machines with the capacity to utilise existing data for predictive analysis; and natural language processing—emphasising machines' imitation of human language patterns, among others; but also enhanced with the accompanying of AI-enabled tools, which are generative and communicative tools capable of hosting some recipients/participants for an interactive session that may last for minutes or hours as may be required, such as Zoom, Google Meet, Microsoft Teams, and ClassPoint. These tools, AI and AI-enabled tools, are combined to help make the achievement of teaching and learning purposes easier in the current transformative digital age. For the sake of this study, therefore, ten AI tools—ChatGPT, Grammarly, QuillBot, Bard/Gemini, Turnitin, Education CoPilot, DALL-E, Gradescope, Otter.ai, and Others- and four AI-enabled tools—Zoom, Google Meet, Microsoft Teams, and ClassPoint, making a total of fourteen tools, were listed in all.

2. Literature review

There are ongoing efforts to improve the integration of AI into the digital experience in Nigeria's education sector, though not yet up to expectations. Students at various universities have achieved improved learning capacities, which are realisable through the exploration of personalised learning platforms and virtual assistants such as Coursera, edX.org, LinkedIn Learning, Google Classroom, Udemy, uLesson, and MasterClass (Ndupu, 2021). Mhlanga and Moloi (2020) observed significant inequalities in the availability and utilisation of AI tools within and between institutions. In many public universities, access to tools such as Zoom, DALL-E, and Otter.ai is dependent on internet reliability, which remains a major obstacle in many African countries. These infrastructure-related limitations contribute to a digital divide in which only students at urban or well-funded campuses can access the full benefits of AI. Aladejana *et al*. (2022) note that AI adoption was higher in universities located in capital cities and urban centres, where access to stable internet and electricity is more reliable. Students in remote or underserved areas face multiple barriers, including a lack of awareness, an inability to afford paid versions of premium AI tools, and difficulty accessing stable learning platforms. This digital divide not only undermines the equity goals of AI-enhanced Education but also exacerbates existing inequalities in access to higher Education across the continent. The lack of quality assurance and evaluation criteria for AI tools was identified by Ajibola and Ogunyemi (2022). Consequently, some tools like Zoom and other e-learning platforms were adopted during the COVID-19 pandemic to facilitate remote learning without aligning them with pedagogical objectives or compliance requirements. Eze and Nnamani (2022) note that, while many universities have embraced e-learning platforms in response to the COVID-19 pandemic, few have progressed to more advanced digital innovations, such as AI-driven learning analytics, intelligent tutoring systems, and automated assessment platforms. The limited inclusion of AI in institutional digital frameworks is partly due to the absence of technical expertise and institutional research on AI. Instructors often develop their own methods for incorporating tools like Grammarly, Notion, or SlidesAI without guidance from central authorities. As a result, students receive different levels of digital exposure, depending on their department or instructor, reinforcing existing academic inequalities. Universities need to adopt unified digital frameworks that outline approved AI tools, training procedures, and usage guidelines to ensure standardisation across faculties (Aladejana *et al*., 2022). Meanwhile, a follow-up assessment of their long-term relevance, data privacy, and integration with the local Learning Management System (LMS) should have been conducted earlier, thereby predetermining their suitability for deployment in tertiary institutions. The issue is compounded by the fact that many AI tools are subscription-based or offer premium features, making them inaccessible to departments or students who cannot afford them. Without institution-wide licensing or support systems, the risk of educational exclusion is high, especially for disadvantaged students in underfunded programmes. Institutions that have developed centralised procurement and deployment strategies, as noted in some East African universities studied by Aladejana *et al*. (2022), report higher rates of digital inclusion and more consistent learning experiences. Another key empirical finding from the reviewed studies is the lack of standardisation in the use of AI tools across African universities. Okafor and Bature (2023) argue that different departments within the same university often deploy a variety of unrelated AI tools without a unifying institutional policy. For instance, while a department of computer science may utilise advanced platforms like ChatGPT and Gradescope for instructional delivery and assessment, another department, such as philosophy or Education, may rely on traditional manual approaches or outdated learning management systems. This inconsistency creates confusion among students, limits collaborative

learning, and hinders interdepartmental knowledge sharing. Lawal and Adesanya (2023) explored the use of widely available AI tools across institutions such as Lagos State University (LASU), University of Lagos (UNILAG), and Federal University of Agriculture, Abeokuta (FUNAAB). They found a pattern of non-uniformity in institutional responses. The irregularity and non-uniformity of AI use practices remain recurring phenomena in most universities in Nigeria, posing a challenge for proactive action and calling for the provision of a tech-inclined environment and a regulatory framework to limit excessive AI use.

Given the extent to which AI tools are being utilised for educational purposes, empirical reviews pointed to limited and inconsistent usage. Institutions that have initiated AI-based learning solutions often do so without adequate training for academic staff or without reliable digital infrastructure to support their operations. This reality resonates with the experiences of public universities in south-west Nigeria, where many faculties and departments lack the technological competence and resources to deploy AI-powered tools. The integration of AI into daily academic tasks, such as grading, student monitoring, and adaptive learning, remains marginal, hindered by both systemic and technical deficiencies. In supporting AI use practice, the variance in individual and institutional usage should be addressed by expediting certain yardsticks, like awareness of the technologies, expertise and skills for usage, availability of relevant tools, and ensuring the necessity/need for the tools in aiding the overall teaching, learning, and research processes for optimum productivity. Furthermore, the standardisation of AI use across faculties and institutions is critical. This is why AI and AI-enabled tools should be deployed equitably to ensure that all students, regardless of department or socio-economic background, have access to the benefits of digital learning, thereby transforming teaching, learning, and research in Nigeria. These studies collectively demonstrate that AI adoption is shaped by both technological availability and institutional support mechanisms. Technological Determinism Theory (TDT) posits that technology is the principal driver of societal transformation. It explains how technology guides individuals' thinking and action within a particular technological age (Rogers, 2000; Burnett & Marshall, 2003). The application of Technological Determinism Theory is relevant to understanding the growing presence of AI tools in public universities, where academics, for instance, depend on AI technologies for making important academic progress; lecturers and students perform their respective academic activities by exploring the services of AI tools. Also, many classes, seminars, and conferences are being held online via AI-enabled tools such as Zoom, Google Meet, and Microsoft Teams, with participants making significant contributions from their homes.

3. Methodology

3.1 Data collection procedures

A quantitative approach was employed in this study. The quantitative technique involved administering questionnaires to determine which AI and AI-enabled tools were used and the extent of their use for teaching and learning within the university system. The study sampled respondents/participants from six universities: Adekunle Ajasin University (AAU), Ondo State; Ekiti State University (EKSU), Ekiti State; Olabisi Onabanjo University (OOU), Ogun State; Obafemi Awolowo University (OAU), Ile-Ife; University of Ibadan (UI); and University of Lagos (UNILAG), all of which were state and federal government-owned universities in South-west Nigeria, respectively. The choice of the federal universities was predicated on their being the foremost universities in the country with a high rate of student enrolment. The state universities were selected to ensure good representation of public universities across all six states in the region.

The target population was students (undergraduate and postgraduate) in the universities' communities who were actively enrolled in full-time or part-time studies, knew AI and AI-enabled tools, and engaged with them for academic purposes.

This study adopted a quantitative approach. A total sample of 1,184 students was randomly selected from the faculties of Arts, Education, and Social Sciences of the six selected universities, using proportional-to-size sampling and Taro Yamane's (1967) sample size determination formula for each university. Using multi-stage sampling procedures, a stratified sampling technique was first adopted to select the six universities based on their ownership by the federal and state governments – state (AAU, EKSU, and OOU) and federal (OAU, UI, and UNILAG). In the second stage of the selection, simple random sampling was used to select students. At the third stage of the procedure, a structured questionnaire was administered to the respondents based on a proportional to size procedure in AAU (100), EKSU (184), OOU (248), OAU (161), UI (203), and UNILAG (288), with the aid of computer-assisted software, respectively.

The instruments used in the study were pretested at a university not included in the study, and a face/content validity assessment was conducted to validate them. The dependent variable was AI use, measured across 10 AI tool categories, with responses of "1" for use and "0" for non-use. The sum of AI tool usage was later re-categorised into low usage (scores of 0–5) and high usage (scores of 6–10) to assess the level of adoption across the selected institutions. The independent variables included institution of study (1=EKSU, 2=AAU, 3=OOU, 4=OAU, 5=UI and 6=UNILAG), age in years (1=Bellow 20, 2=21 – 30, 3=31 – 40, 4=41 – 50 and 5=50 years and above), gender (1=Male and Female=2), ethnicity (1=Hausa, 2=Igbo, 3=Yoruba and 4=others), religious affiliation (1=Christianity, 2=Islam, 3=Traditionalists and 4=others-Atheist), and level of study (1=B.Sc/B.A/B.Ed, 2=M.Sc/M.A., 3=M.Phil, 4=M.Phil/Ph.D. and 5=Ph.D). Ethical approval was sought and obtained from the University of Social Sciences and Humanities Research Ethics Committee (UISSHERC), reference number UI/SSHREC/2024/0108. The study strictly adhered to the basic principles of research, including respect for persons, informed consent, voluntariness, anonymity, confidentiality, non-maleficence, and Justice.

3.2 Data Analysis

Using the Statistical Package for the Social Sciences (Version 26.0), the quantitative data were analysed at the univariate level (frequency and percentage distribution tables and graphs) and at the bivariate level (chi-square statistics with p-values < 0.05 and 95% Confidence Intervals).

4. Results and Discussion

4.1 Demographic characteristics of the respondents

Table 1 shows the distribution of the respondents by socio-demographic characteristics. The age distribution of the respondents revealed a pronounced clustering in the younger age group, with a mean of 26.52±5.10 years. The table further indicates that the majority (63.3%), 750, fell within the age group of 21 to 30 years, which supports the mean age of the respondents. In addition, 235 (19.8%) of the respondents were below the age of 20 years, closely followed by those in the age range 31-40 years, 147 (12.4%), 41-50 years, 44 (3.7%), and ≥50 years, 8 (0.7%). This result signifies that the study sample primarily consisted of young adults. Additionally, the gender representation in the sample is relatively balanced, with 50.9% (603) of respondents being male and 49.1% (581) female. In other words, the near-similarity suggests that perspectives from both sexes are adequately represented in the study. On the ethnicity of the respondents, the sample was dominated by the Yoruba ethic group, 991 (83.7%), followed by Igbo, 98 (8.3%), other ethnic groups, 76 (6.4%), and Hausa, 19 (1.6%). The dominance of the Yoruba in the sample could be attributed to the universities' locations. The religious affiliation demonstrated a strong inclination

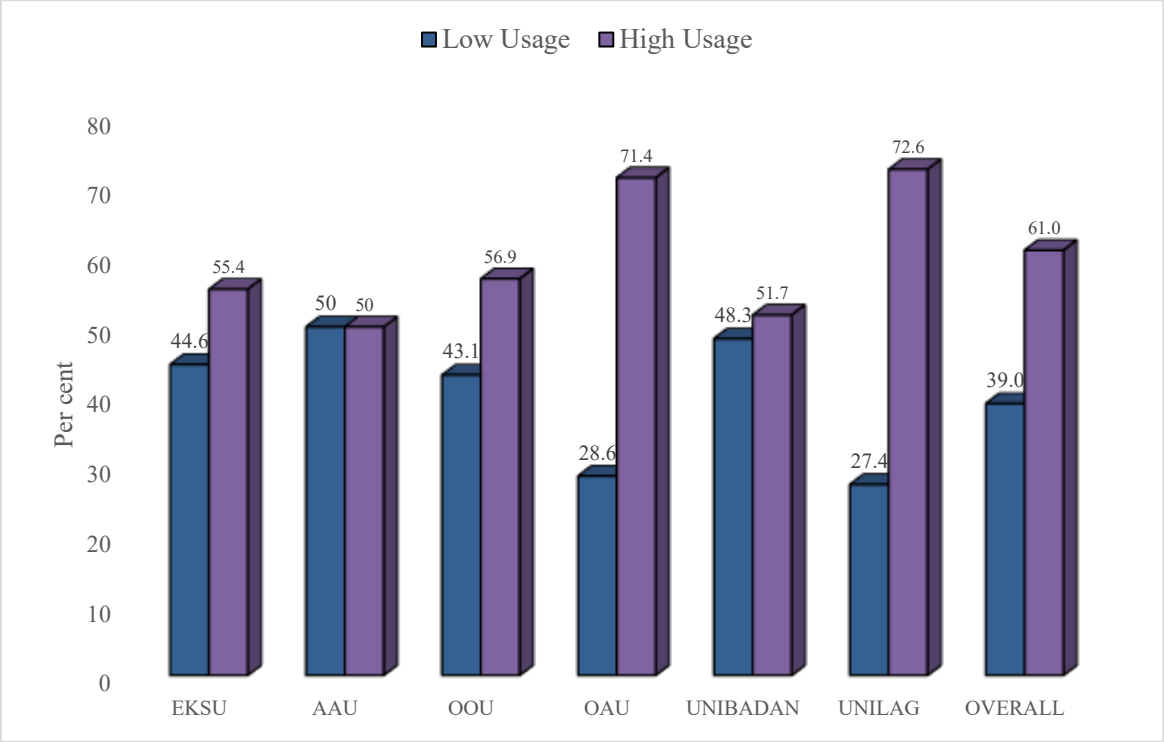
towards Christianity, 895 (75.6%). However, 274 (23.1%) of the respondents practised Islam, 5 (0.4%) were traditionalists, and 10 (0.8%) were of other faiths (including atheists).

Table 1: Distribution of the respondents by socio-demographic characteristics

Demographic Characteristics	Response Categories	Frequency (n=1184)	Percentage (%)
Age in Years Mean=26.52±5.10 years	Below 20	235	19.8
	21-30	750	63.3
	31-40	147	12.4
	41-50	44	3.7
	≥50 years	8	0.7
Gender	Male	603	50.9
	Female	581	49.1
Ethnicity	Hausa	19	1.6
	Igbo	98	8.3
	Yoruba	991	83.7
	Others	76	6.4
Religious Affiliation	Christianity	895	75.6
	Islam	274	23.1
	Traditionalists	5	0.4
	Others (Atheists)	10	0.8
Level of Study	B.Sc./B.A./B.Ed.	995	84.0
	M.Sc./M.A.	132	11.1
	M.Phil.	2	0.2
	M.Phil./Ph.D.	7	0.6
	Ph.D.	48	4.1
Institution of Study	EKSU	184	15.5
	AAU	100	8.4
	OOU	248	20.9
	OAU	161	13.6
	UI	203	17.1
	UNILAG	288	24.3

NB: *B.Sc./B.A./B.Ed.=Bachelor of Science, Arts or Education; M.Sc./M.A.=Masters of Science or Arts; M.Phil.=Master of Philosophy; M.Phil./Ph.D.=Master of Philosophy/Doctor of Philosophy; Ph.D.=Doctor of Philosophy; EKSU=Ekiti State University; AAU=Adekunle Ajasin University; OOU=Olabisi Onabanjo University; OAU=Obafemi Awolowo University; UI=University of Ibadan; UNILAG=University of Lagos*

The stages of Education among the respondents revealed that the majority, 995 (84.0%) were at the stage of Bachelor's (B.Sc./B.A./B.Ed.) programme, followed by 132, 11.1% of them undergoing master's (M.Sc./M.A.), Master of Philosophy, 2 (0.2%), M.Phil./Ph.D. 7 (0.6%) and Ph.D. 48 (4.1%) programmes. The high educational attainment suggests that the respondents may be equipped with knowledge and skills that influence their perspectives on AI. The distribution of the respondents by institutions showed that, 184, 15.5% of them were from Ekiti State University (EKSU), 100, 8.4% from Adekunle Ajasin University (AAU), 248, 20.9% from Olabisi Onabanjo University (OOU), 161, 13.6% from Obafemi Awolowo University (OAU), 203, 17.1% from University of Ibadan (UI) and 288, 24.3% from the University of Lagos (UNILAG). This suggests that UNILAG had the highest representation, which may reflect the high population density of Lagos State, where the institution is situated. Moreover, Figure 1.1 shows the percentage distribution of respondents by level of AI tool use in public institutions. It indicates a clear trend of high and low usage rates across the six institutions. The overall low usage rate of 462 (39.0%) compared with the high usage rate of 722 (61.0%) indicates a general trend where institutions, on average, are more successful in integrating AI utilisation among students and faculty members. In line with high usage, UNILAG 860 (72.6%) and OAU 845 (71.4%) exhibited the highest usage rates, suggesting that students and faculty members actively engaged with AI tools and resources available at these institutions. In the same vein, OOU 674 (56.9%) and EKSUs 656 (55.4%) showed substantially high usage rates, indicating effective integration of AI tools and resources. Conversely, OAU 339 (28.6%) and UNILAG 324 (27.4%) had the lowest usage rates, suggesting that fewer AI resources were underutilised than those of their counterparts in other universities. However, AAU (50.0%) exhibited a balanced usage rate, indicating a need for improvement.



EKSU=Ekiti State University, AAU=Adekunle Ajasin University, OOU=Olabisi Onabanjo University, OAU=Obafemi Awolowo University, UI=University of Ibadan, UNILAG=University of Lagos

Figure 1.1: Percentage distribution of the respondents by level of AI/AI-enabled tools usage in public institutions

4.2 AI tools usage in public universities

Further analysis of the extent of AI/AI-enabled tools usage is presented in Table 2. The table shows the frequency of use for ten different AI tools, measured using the ratings "never", "rarely", "sometimes", "often", and "always". The most-used AI tool was ChatGPT, accounting for 369 (31.2%), while 67 (5.7%) reported they had "never" used it. The second-level usage of AI tools comprised those focused on writing and paraphrasing. While Grammarly had 384, 32.4% of the respondents indicated "never", QuillBot had prominent usage, with 204 (17.2%) indicating "often" or "always". Compared to ChatGPT, Bard/Gemini showed lower usage. Nearly half of the respondents, 548 (46.3%), had "Never" used it, while only 206 (17.4%) used it "often" or "always". This gap implies that ChatGPT has more advantages and recognition than other AI tools. The majority of the other listed AI tools were in the low-usage category: Gradescope 751 (63.4% Never), Otter.ai 738 (62.3% Never), DALL · E 700 (59.1% Never), Education CoPilot 654 (55.2% Never), and Turnitin 652 (55.1% Never). The low usage of these tools suggests that they are either not relevant to the daily workflows of most respondents, require institutional licenses and integration, or that there is a significant lack of awareness of and training on them. For instance, Gradescope is primarily for instructors, and Turnitin is often used at an institutional level, meaning students might interact with it passively without considering it a tool they could use for teaching and learning.

Table 2: Distribution of the respondents by the extent of AI tools usage in public universities

S/N	AI Tools	Extent of AI Tools Usage (%)				
		Never	Rarely	Sometimes	Often	Always
1	ChatGPT	5.7	8.6	25.9	28.6	31.2
2	DALLE-E	59.1	14.8	15.7	5.6	4.8
3	Bard/Gemini	46.3	16.2	20.1	11.1	6.3
4	Gradescope	63.4	12.2	14.9	5.0	4.4
5	Education CoPilot	55.2	13.5	18.0	6.6	6.7
6	Otterr.ai	62.3	12.2	15.6	5.2	4.6
7	Quilbot	43.4	15.5	23.9	10.3	6.9
8	Grammarly	32.4	14.5	26.5	14.2	13.3
9	Turnitin	55.1	14.5	19.1	5.8	5.5
10	Others	35.8	16.1	29.1	10.6	8.4

4.3 Extent of AI-enabled tools usage in public universities

Table 3 presents the distribution of respondents by the frequency of their use of AI-enabled tools. Zoom exhibited a relatively balanced distribution across the frequency categories. While 172 (14.5%) of the respondents reported never using Zoom, a significant proportion, 400 (33.8%), indicated using it "sometimes". This result indicates that Zoom is the most frequently utilised tool, partly due to its popularity and ease of use for online meetings, lectures, and collaborative activities. ClassPoint had a significantly high percentage, 696 (58.8%) of respondents who reported "Never" using it. The remaining categories showed relatively low percentages, indicating low usage. This suggests that ClassPoint may not be as widely known or accessible within the selected public universities. The potential reasons could be a lack of awareness, specialised functionality that is not relevant to all disciplines, or limited institutional support and training for its use. Google Meet displayed a pattern similar to Zoom's, although with a slightly higher percentage of "Always" users: 206 (17.4%). The distribution patterns across "Rarely",

"Sometimes", and "Often" were comparable to those observed on Zoom. The prevalence of Google Meet suggests a strong reliance on virtual communication tools within the selected universities. Regarding the extent of Microsoft Teams usage, 314 respondents (26.5%) reported "Never" using it, higher than the percentages for Zoom and Google Meet. However, the distribution patterns across "Rarely", "Sometimes", "Often", and "Always" presuppose that a substantial portion of the users are actively utilising the AI-enabled tools. The data, however, presented a mixed picture of AI-enabled tool usage in public universities: while tools like Zoom and Google Meet were widely used, use of ClassPoint was low.

Table 3: Distribution of the respondents by the extent of AI-enabled tools usage in public universities

S/N	AI-enabled Tools	Extent of AI Tools Usage (%)				
		Never	Rarely	Sometimes	Often	Always
1	Zoom	14.5	13.3	33.8	25.2	13.2
2	ClassPoint	58.8	11.8	16.6	6.3	6.5
3	Google Meet	13.5	14.2	32.3	22.6	17.4
4	Microsoft Teams	26.5	14.2	27.5	17.3	14.4

4.4 Association between socio-demographic characteristics and level of AI/AI-enabled tools usage in public universities

Table 4 illustrates the association between socio-demographic variables and the level of usage of AI/AI-enabled tools at public universities using the Chi-square test. It reveals that the usage rates of AI/AI-enabled tools varied significantly not only across institutions but also along socio-demographical variables. There was statistically significant association between institution of study (χ^2=40.171, p<0.01) and AI usage levels, indicating that institutional context significantly influences AI usage, as seen in EKSU (44.6% low, 55.4% high), AAU (50.0% low, 50.0% high), OOU (43.1% low, 56.9% high), OAU (28.6% low, 71.4% high), UI (48.3% low, 51.7% high) and UNILAG (27.4% low, 72.6% high). It was also revealed that the use of AI/AI-enabled tools was statistically significantly associated with respondents' age. There was a significant association between age and AI usage (χ^2 = 20.437, p < 0.01). In specific terms, there were observable variations in the levels of usage of AI by age, as demonstrated by those in the groups below 20 years (51.1% low, 48.9% high), 21-30 years (36.7% low, 63.3% high), 31-40 years (33.3% low, 66.7% high), 41-50 years (38.6% low, 61.4% high) and ≥50 years (12.5% low, 87.5% high). This result implies that the younger respondents were less motivated to adopt AI technologies than the older respondents.

In the analysis of AI/AI-enabled tools usage by gender, gender (χ^2=15.742, p<0.01) was significantly associated with AI/AI-enabled tools usage. The male respondents (33.5% low, 66.5% high) were more likely to embrace AI tools than their female counterparts (44.8% low, 55.2% high). In the presentation of the association between ethnicity and levels of AI/AI-enabled tools usage, a significant association was found (χ^2=13.924, p<0.01). The analysis equally revealed that the Hausa (0.0% low, 100.0% high), Igbo (39.8% low, 60.2% high), Yoruba (40.2% low, 59.8% high), and other (32.9% low, 67.1% high) ethnic groups exhibited high levels of AI/AI-enabled tools usage compared to the categories with low levels across the different ethnic groups. Analysis in Table 4 was done to test the following hypotheses:

H_1 There is a significant association between socio-demographic characteristics and the level of AI/AI-enabled tools usage in public universities.

H_0 There is no significant association between socio-demographic characteristics and the level of AI/AI-enabled tools usage in public universities.

Table 4: Association between socio-demographic characteristics and level of AI/AI-enabled tools usage in public universities using the Chi-square test

Demographic characteristics	Response categories	Level of AI Usage (%)		χ^2	p-value
		Low	High		
Institution of study	EKSU	44.6	55.4	40.171	0.001**
	AAU	50.0	50.0		
	OOU	43.1	56.9		
	OAU	28.6	71.4		
	UI	48.3	51.7		
	UNILAG	27.4	72.6		
Age in years	Below 20	51.1	48.9	20.437	0.000**
	21-30	36.7	63.3		
	31-40	33.3	66.7		
	41-50	38.6	61.4		
	≥50 years	12.5	87.5		
Gender	Male	33.5	66.5	15.742	0.000**
	Female	44.8	55.2		
Ethnicity	Hausa	0.0	100.0	13.924	0.000**
	Igbo	39.8	60.2		
	Yoruba	40.2	59.8		
	Others	32.9	67.1		
Religious affiliation	Christianity	40.7	59.3	11.842	0.000**
	Islam	35.8	64.2		
	Traditionalists	0.0	100.0		
	Others (Atheists)	0.0	100.0		
Level of study	B.Sc./B.A./B.Ed.	39.9	60.1	4.447	0.349
	M.Sc./M.A.	36.4	63.6		
	M.Phil.	0.0	100.0		
	M.Phil./Ph.D.	14.3	85.7		
	Ph.D.	33.3	66.7		

Significant at p<0.05 p<0.01***

EKSU=Ekiti State University, AAU=Adekunle Ajasin University, OOU=Olabisi Onabanjo University, OAU=Obafemi Awolowo University, UI=University of Ibadan, UNILAG=University of Lagos

4.5 Socio-demographic characteristics and level of usage of AI/AI-enabled tools in public universities

It is evident that ethnic background significantly impacts the level of AI tool usage. Religious beliefs also affect levels of AI/AI-enabled tools usage. As indicated in the table, there was a statistically significant association between religious affiliation (χ^2=11.842, p<0.01) and levels of AI tools usage. There were high levels of Christians (40.7% low, 59.3% high), Muslims (35.8% low, 64.2% high), traditionalists (0.0% low, 100.0% high), and others (0.0% low, 100.0% high) who adopted the use of AI/AI-enabled tools compared to their counterparts in the low adoption or usage categories. On the contrary, while other demographic variables were significantly associated with the levels of AI tools usage across the selected institutions, there was no statistical association between the level of study and the levels of AI tools usage (χ^2=4.447, p=0.349). Although there was no statistically significant association between study level and AI tool usage, there were still observable differences by study level. These varied from those who had B.Sc./B.A./B.Ed. (39.9% low, 60.1% high) to M.Sc./M.A. (36.4% low, 63.6% high), M.Phil. (0.0% low, 100.0% high), M.Phil./Ph.D. (14.3% low, 85.7% high) to Ph.D. (33.3% low, 66.7% high). Thus, there is a complex connection between the use of AI tools in higher Education institutions and demographic characteristics. To determine the likelihood of AI tool use across institutions and the socio-demographic characteristics of the respondents, further analysis was performed using logistic regression models. Table 5 presents the results on the relationship between institutions, socio-demographic characteristics (covariates), and AI tools usage in two models. The Chi-square values for Model 1 and Model 2 were 40.940 (df=5, p=0.000) and 64.502 (df=15, p=0.000), respectively, indicating a high level of statistical significance. The -2 Log likelihood increased from 1542.870 to 1478.369 (from Model 1 to Model 2), indicating improved model fit, as well as the Nagelkerke R-squared values (0.046 and 0.116), demonstrating a moderate explanatory Power in the context of the institutions and demographic characteristics of the respondents. Analysis in Table 5 was done to test the following hypotheses:

H_1 There is a significant relationship between socio-demographic characteristics and the level of usage of AI/AI-enabled tools in public universities.

H_0 There is no significant relationship between socio-demographic characteristics and the level of usage of AI/AI-enabled tools in public universities.

Table 5: Relationship between socio-demographic characteristics and level of usage of AI/AI-enabled tools in public universities using logistic regression

		Model 1			Model 2		
Demographic characteristic	**Response categories**	**uOR**	95% C.I. for Exp(B)		**aOR**	95% C.I. for Exp(B)	
			Lower	Upper		Lower	Upper
Institution of Study	EKSU	1.000			1.000		
	AAU	0.804	0.493	1.310	0.804	0.484	1.337
	OOU	1.059	0.721	1.556	1.140	0.757	1.716
	OAU	2.010**	1.283	3.148	1.969**	1.224	3.169
	UI	0.861	0.577	1.285	0.838	0.554	1.274
	UNILAG	2.127**	1.441	3.139	2.138**	1.413	3.236
Age in Years	Below 20	1.000			1.000		
	21-30	1.802**	1.341	2.423	1.594**	1.165	2.181
	31-40	2.087**	1.361	3.201	1.873*	1.162	3.019
	41-50	1.657	0.858	3.202	1.531	0.747	3.139
	≥50 years	7.304	0.885	60.299	4.979	0.564	43.962
Gender	Male	1.000			1.000		
	Female	0.622**	0.492	0.787	0.644**	0.503	0.825
Ethnicity	Hausa						
	Igbo						
	Yoruba						
	Others						
Religious Affiliation	Christianity	1.000			1.000		
	Islam	1.231	0.930	1.630	1.071	0.787	1.457
	Traditionalists						
	Others (Atheists)						
Level of Study	B.Sc./B.A./B. Ed.	1.000			1.000		
	M.Sc./M.A.	1.162	0.797	1.693	1.145	0.744	1.763
	M.Phil.						
	M.Phil./Ph.D.	3.983	0.478	33.212	4.527	0.524	39.121
	Ph.D.	1.328	0.719	2.452	1.371	0.706	2.661
Chi-square		40.940			64.502		
Df		5, p=0.000			15, p=0.00		
-2 Log likelihood		1542.870			1478.369		
Cox and Snell R-squared		0.034			0.085		
Nagelkerke R-squared		0.046			0.116		
Number	1184						

Significant at p<0.05 or p<0.01***
EKSU=Ekiti State University, AAU=Adekunle Ajasin University, OOU=Olabisi Onabanjo University, OAU=Obafemi Awolowo University, UI=University of Ibadan, UNILAG=University of Lagos

Model 1 assessed the institutions of study as predictors of AI/AI-enabled tool usage without controlling for respondents' socio-demographic characteristics. It was found that the respondents from OAU (uOR=2.010, 95% CI: 1.283–3.148) and UNILAG (uOR=2.127, 95% CI: 1.441–3.139) were 2 times more likely to use AI/AI-enabled tools than their counterparts in EKSU. With respect to the age of the respondents, those between the ages of 21 and 30 (uOR=1.802, 95% CI: 1.341–2.423) and 31 and 40 (uOR=2.087, 95% CI: 1.361–3.201) were also 2 times more likely to use AI tools than those under the age of 20. The use of AI tools was also found to be significantly related to gender. Compared to their male counterparts, the female respondents had lower odds of using AI tools (uOR=0.622, 95% CI: 0.492–0.787); they were 37.8% less likely to adopt or use AI technologies for their academic work. The results of Model 2, which was adjusted by controlling for socio-demographic variables, showed that the significance of UNILAG (aOR=2.138, 95% CI: 1.413–3.236) and OAU (aOR=1.969, 95% CI: 1.224–3.169) was still maintained as in Model 1, but decreased with OAU. Compared with EKSU, this implies that their institutional status positively affected the adoption and use of AI. After adjusting for age, it was found that the respondents between the ages of 21 and 30 (aOR=1.594, 95% CI: 1.165–2.181) and 31 and 40 (aOR=1.873, 95% CI: 1.162–3.019) were 2 times more likely to adopt and use AI tools than those under the age of 20. Furthermore, while it was observed that ethnicity, religious affiliation and level of study had no significant relationship between AI/AI-enabled tools adoption and usage, gender disparity in AI/AI-enabled tools adoption and usage was found to be consistent in the adjusted model, where females continued to show decreased likelihood (aOR=0.644, 95% CI: 0.503–0.825) compared to their male counterparts in AI tools adoption and usage.

5. Discussion of Findings

The findings provide further evidence of the growing influence of AI technologies on contemporary higher Education practices. The study achieved a balanced gender representation but leaned heavily toward younger participants, who showed the highest enthusiasm for digital Education**.** Younger lecturers and postgraduate students viewed AI tools as essential for research and pedagogy. At the same time, older adults (aged 50 and above) were underrepresented and showed mixed feelings toward AI adoption (Adebayo & Omolade, 2023). Undergraduate students made up over 80% of the sample, with the majority coming from UNILAG, OOU, UI, and EKSU, alongside minimal participation from OAU and AAU. There was ethnic diversity in the study; the Yoruba were the largest group. This indicates that the study was conducted in the south-western part of Nigeria. Other major ethnic groups in Nigeria, such as the Igbo and Hausa, took part in the study, and some minority groups did as well. However, overall, they constituted a minority of the participants. While religious affiliation might not affect the study, the majority of participants were Christians, comprising over 75% of respondents. UNILAG and OAU lead in the adoption of academic AI/AI-enabled tools, with high usage rates of 72.6% and 71.4%, respectively, leaving very few digital resources underutilised. While OOU and EKSU show slightly higher utilisation, they lack the effective integration seen at UNILAG and OAU. AAU performs at an average level and requires significant improvement to catch up. Overall, over 60% of respondents across all six universities highly utilise AI and AI-enabled tools, signaling a strong readiness for modern, 21st-century learning methodologies. However, this uneven integration highlights the need for better resource management and policy frameworks to ensure equitable AI adoption and prevent regional technological inequalities, just as Gadzala (2018) and Aladejana et al. (2022) posited that continued efforts should be made to avert inequalities in AI usage among regions in Africa. Findings showed that ChatGPT is the most popular AI tool among university students due to its versatility in content generation, brainstorming, and writing. In contrast, similar tools like Gemini

and DALL-E remain largely unpopular and rarely used. ChatGPT's widespread adoption stems from its ability to assist with data generation, content creation, the simplification of complex concepts, and the design of assessments (Ajibola & Ogunyemi, 2022; Lawal & Adesanya, 2023). Furthermore, most respondents rarely used QuillBot or Grammarly, whereas ChatGPT was highly popular, versatile, and advantageous. This aligns with findings from Ajibola and Ogunyemi (2022), Lawal and Adesanya (2023), and Adebayo and Omolade (2023), who noted that AI tool adoption varies with individual exposure. Zoom and Google Meet dominate online academic collaboration due to high awareness, accessibility, and institutional support, though usage frequencies vary by individual. Conversely, ClassPoint and Microsoft Teams remain less popular, with ClassPoint suffering from low awareness, technical barriers, and a lack of institutional backing. Zoom and Google Meet outperform both alternatives by offering superior video conferencing features that sustained academic engagement during COVID-19 lockdowns, highlighting how the pandemic, global warming, and the advent of 5G have spurred intense efforts to adopt new technologies in academia (Mhlanga & Moloi, 2020). Ultimately, the unpopularity of tools like ClassPoint stems from the lack of a structured framework defining their academic use (Okafor & Bature, 2023). The study showed that AI tool usage varies significantly by institution. UNILAG and OAU lead in adopting these tools for teaching and learning. Conversely, OOU, EKSU, and UI show lower adoption rates. AAU exhibits the lowest engagement, demonstrating institutional indifference and a lack of support for digital technology integration.

To improve teaching and learning, therefore, OOU, EKSU, UI, and especially AAU must adopt the proactive strategies of UNILAG and OAU. This finding is supported by Chigwada and Chisita (2021), who argued that the absence of digital leadership in many African universities has slowed the adoption and regulation of AI and other advanced technologies. The study found that age significantly influences the usage of AI tools, but with an unexpected twist: older respondents showed higher motivation to adopt AI than younger ones. Notably, individuals aged 20 and below had the lowest motivation levels. This outcome directly contradicts previous research by Adebayo and Omolade (2023) and Yusuf and Lawal (2023), which claims that younger individuals embrace digital technologies with higher enthusiasm while older cohorts remain skeptical. This excerpt highlights that gender significantly influences AI usage in Nigerian universities, with men showing higher adoption rates. Rather than reflecting an inherent lack of interest, this gap is tied to societal structures that play out in Nigeria, as well as systemic algorithmic biases. This could be supported by Chigwada and Chisita (2021) and Kohnke and Zaugg (2025), who affirm that recruitment systems and digital leadership roles exhibit gender and racial biases that now affect educational assessments. On ethnic relations of the respondents as compared to their religious affiliations in determining the usage level of AI/AI-enabled tools of respondents, it was discovered that both variables had a considerably significant association with the level of AI tools or AI-enabled tools usage of the respondents, although these exist with diverse variations. Respondents of Hausa ethnicity had a 100 percent likelihood of using AI/AI-enabled tools, which was far higher than that of those who were Yoruba or Igbo. Similarly, respondents from other ethnic groups also showed a greater tendency to use the tools than those from the Yoruba and Igbo ethnic groups. Findings showed that religion and ethnicity significantly impact AI tool adoption, with atheists reporting 100 percent high usage, while Christians and Muslims exhibit lower adoption due to religious convictions. Conversely, the level of study lacks statistical significance, though descriptive data shows postgraduate students (M.Phil./Ph.D.) utilise AI the most and undergraduate students the least. The lower overall AI usage among respondents at higher study levels might be due to the need for greater rigour and intellectual engagement. Further findings show that students from OAU

and UNILAG are twice as likely to adopt AI and AI-enabled tools as those at EKSU. However, OAU's likelihood decreases slightly when controlling for demographics. Also, respondents aged 21-30 and 31-40 are twice as likely to use AI/AI-enabled tools as those aged 20 and below, a trend that persisted even after adjusting for other variables. From a gender perspective, female students were less likely to use AI tools for academic purposes than their male counterparts, which supports Kohnke and Zaugg's (2025) statement that recruitment systems used AI algorithms that showed gender- and race-based preferences. However, there was no significant relationship between respondents' ethnicity, religion, and level of study and the use of AI tools and AI-enabled tools across the institutions.

6. Conclusion and recommendations

The study found that younger university staff and students are generally more eager to adopt AI and digital technologies, while older members are also increasingly embracing them to keep pace with modern academic demands. AI adoption varies across universities based on factors such as resources, location, leadership support, and regulatory policies, contributing to a shift toward technology-enhanced teaching. Among the institutions studied, UNILAG and OAU were the most technologically advanced, followed by OOU and EKSU. ChatGPT emerged as the most widely used AI tool, while Zoom and Google Meet were the most commonly used AI-enabled platforms. Limited awareness of other digital tools suggests a need for more training and orientation. The study also found that gender influences AI adoption, with male academics and administrators using AI tools more frequently than their female counterparts, indicating a need to address gender gaps. Additionally, differences in AI use were observed across religious groups, as some beliefs discourage the adoption of AI technologies, potentially limiting broader acceptance within universities. This study, therefore, recommends that awareness creation and sensitisation should be a priority in the university's AI systems. As academia becomes more digitalised by the day, this calls for the utmost attention to bringing students and other members of the university community to the appropriate AI tools to explore for their academic prospects. There is a need to embark on intensive capacity-building programmes for enrolled students in the university system, as well as for lecturers, experts, and management, through the financing of periodic training and retraining, workshops, seminars, conferences, webinars, and by offering them access to electronic resources and educational advisory services. Since AI adoption requires expertise to utilise it effectively, there is a need for personal effort to upskill for a better experience exploring AI/AI-enabled tools. There is a need for a female-centred orientation, such as "women in AI mentorship programmes," which could be accessed by female students, academics, and administrators. This would help eliminate gender inequality in AI administration and bridge the digital divide by improving the technological development of lagging institutions to catch up with their highly technologically advanced counterparts in the international community. Leadership has a significant impact on the actualisation of technology-enhanced teaching and learning in public universities in Nigeria. The leadership of public universities must be visionary about achieving a digitally transformative Education. There is a need for inter-institutional collaboration (local and international), where institutions cooperate to support One another by sharing insights into how they can improve technologically through strategic collaborative support programmes, such as fundraising. The ongoing shift in tertiary Education pedagogy calls for a critical look at the formulation of working AI policy, emphasising approved AI and AI-enabled tools and the extent to which these tools can be used across institutions. The policy should also address improvements to privacy policies and ethical concerns to ensure user safety when exploring digital tools in academia.

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