



Readiness for Artificial Intelligence Integration and Its Influence on Undergraduate Learning Outcomes in Ibadan Metropolis

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Abstract

The high rates of Artificial Intelligence (AI) development can revolutionize higher education with a higher level of cognitive, affective, and psychomotor learning outcomes. This paper examined how undergraduate students in the Ibadan Metropolis universities were prepared to use AI in their education and its impact on their academic performance. The study, in particular, explored the technological, psychological, and institutional preparedness as the aspects of readiness, and their impact on the learning outcomes of students. The researcher adopted descriptive survey design in a population of 300 undergraduates who were sampled through stratified random sampling. The University Preparedness and Readiness to AI Questionnaire (UPRAIQ) was used to collect data and was analyzed with the help of descriptive statistics, regression analysis, and ANOVA. The research is anchored on the Diffusion of innovations Theory (DOI) Rogers (2003) which describes the diffusion of communication and adoption of new technologies, ideas or practices into a social system over time. Findings showed that students had high scores in technological (weighted mean = 3.11) and psychological preparedness (weighted mean = 3.17) with an average score on institutional preparedness (weighted mean = 2.92). The results were that perceptions and readiness provided an explanation of 51.0 percent of the variation in learning outcomes ($R^2 = 0.510$, $F = 209.73$, $p < 0.001$). The readiness of AI positively affected the cognitive, affective, and psychomotor outcomes in students. The research was able to conclude that although students are mostly prepared to embrace AI tools, the institutional barriers restrict the full actualization of its benefits. The results highlight the value of empowering infrastructure, support measures, and policies to maximize the use of AI in the learning process at Nigerian universities.

Keywords: Artificial Intelligence, Readiness, Learning Outcomes, Technological Preparedness, Psychological Preparedness, Institutional Preparedness, Ibadan Metropolis.

Background to the Study

The fast growth of technologies based on Artificial Intelligence (AI) has changed the work of practically all branches of human life, including the educational one. AI-based solutions, including intelligent tutoring systems, adaptive learning environments,



automated assessment and grading systems, learning analytics, chat-based agents, and virtual laboratories, are becoming increasingly popular in higher education to deliver instructions, boost student learning, and enhance teaching results (Bond, 2024; Baig and Yadegaridekhori, 2024; Letourneau et al., 2025). These technologies will allow customized learning journeys, real-time feedback, encourage higher-order thinking, and experiential and skills-based learning, which makes AI an essential educational innovation driver (Allen and Green, 2023; Wang, 2025). Universities worldwide are considering the application of AI to teaching and learning activities to enhance cognitive learning, transform affective learning, and facilitate learning psychomotor skills in students (Brown and Smith, 2023; Johnson and Moore, 2023; Liang et al., 2025). The empirical evidence suggests that AI-assisted learning systems can enhance critical thinking, problem-solving, motivation, engagement, and practical competence when properly implemented in the instructional practices (Mitchell and Owen, 2023; Oliver and Quinn, 2023; Singh and Sharma, 2025). As a result, AI is being considered as a driving force towards the realization of holistic learning outcomes in the modern systems of higher education.

In third world economies like Nigeria, AI implementation is becoming a trend in the higher learning institutions, especially in cities like Ibadan Metropolis, the home to a number of state and privately run universities. Nevertheless, the success of AI implementation in these settings is conditioned by systemic and contextual factors that are quite different as compared to the developed economies (Chisom & Odu, 2024; Thompson and Uche, 2023). The research into the African and Nigerian education systems shows that there are still some challenges connected to digital infrastructure, access to AI-empowered devices, institutional policy frameworks, and capacity building that might limit the full potential of the benefits of AI in education (Edwards and Collins, 2023; Akintoye and Balogun, 2024; Eze and Fadeyi, 2024). Preparedness to AI integration has thus turned out to be an important factor in successful implementation and productive use in higher learning. The concept of readiness is multidimensional and includes technological preparedness, psychological preparedness and institutional preparedness (Crompton and Burke, 2023; Feng, 2025). Technological preparedness describes the presence of digital infrastructure, reliable internet connectivity, an access to AI-enabled applications and devices, and the technical competence of students in the use of digital tools. It has also been found that poor infrastructure and low technical competence are still key challenges to successful AI implementation in most universities of Nigeria (Dada and Ayeni, 2024; Oguntola, 2024; Nelson and Price, 2023).

Psychological preparedness is associated with the mental preparedness of students, their confidence, motivation, attitudes, and readiness of students to using AI-driven learning technologies. The attitudes of usefulness, ease of use, anxiety, and trust of AI tools largely affect the willingness of students to use AI tools, even in the presence of technological resources (Alzahrani, 2023; Budhathoki, 2024; Williams and Xu, 2023). Rigorous evidence based on the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) shows that positive attitude and psychological preparedness are good predictors of continued AI use and learning benefits (Li, 2023; Xue, 2024; Acosta-Enriquez and Facil, 2024). The institutional preparedness is the level of enabling policies, curriculum integration strategies, staff and student training programmes, technical support services, and ethical guidelines of AI usage at universities.



The institutional support is especially important in determining the preparedness of students and fair and responsible AI implementation (Alhassan and Boateng, 2024; Vaughn and Walker, 2023). The institutional policy discrepancies, the lack of training opportunities, and the ineffective institutional implementation frameworks can influence the capacity of students to successfully work with AI-enhanced learning opportunities in the Nigerian context (Franklin and Gomez, 2023; Akintoye and Balogun, 2024).

Higher education learning outcomes are typically conceptualized in three areas, including cognitive, affective and psychomotor. Cognitive outcomes are associated with the knowledge acquisition, understanding, analysing, and critical thinking; affective outcomes are the motivation, engaged learning, attitudes, and values of students towards learning; and psychomotor outcomes are connected with the development of practical, technical, and hands-on skills (Oliver and Quinn, 2023; Ojo and Ogunshola, 2024). It is hinted that AI integration can beneficially affect all three areas due to the adaptive learning process, interactive learning experience, and practice in a simulated environment (Ogunyemi and Oseni, 2024; Oyetunde and Salawu, 2024; Muller and Richter, 2023). Although the discussion about the use of AI in the educational spheres is growing, there is still a shortage and inconsistency in empirical research on the readiness of students to AI integration and its impact on the overall learning outcomes of students in Nigerian higher education institutions. Among current researchers, there is a widespread interest in awareness or overall perceptions of AI, and little is done to examine how technological, psychological, and institutional preparedness can combine with cognitive, affective, and psychomotor learning outcomes (Adebayo and Ojo, 2023; Bello and Mensah, 2023; Thompson and Uche, 2023). The gap is most noticeable in the context of Ibadan Metropolis, the differences in context between the different universities are too large to be adequately addressed with localized empirical evidence.

It is against this background that this study explores preparedness towards the integration of the Artificial Intelligence and its impact on undergraduate learning outcomes in Ibadan Metropolis. In analyzing the combined efforts of technological, psychological and institutional readiness to cognitive, affective and psychomotor achievement, the paper will produce empirical evidence with the potential to inform policy formulation, institutional planning and pedagogical practice to maximize AI-based learning in Nigerian higher education.

Objectives

- i. Determine undergraduates' level of technological preparedness for AI.
- ii. Examine psychological readiness for AI adoption.
- iii. Assess institutional preparedness for AI integration.
- iv. Analyze the influence of AI readiness on learning outcomes.

Research Questions

1. What is the influence of technological preparedness on learning outcomes?
2. How does psychological preparedness affect learning outcomes?
3. What role does institutional preparedness play in AI-enhanced learning?



Hypothesis

H₀1: Readiness for AI has no significant influence on learning outcomes.

Significance of the Study

This research is important in several aspects. It has an academic contribution to the scarce body of empirical research on AI preparedness in higher education in Nigeria, by investigating the complementary effect of technological, psychological, and institutional preparedness on cognitive, affective, and psychomotor learning outcomes. In policy terms, the results can guide policy makers in education to work out structures that enhance infrastructure, capacity of the faculty and enabling policies to maximize AI-driven learning. In the case of universities, the research identifies institutional support gaps and provides specific recommendations on particular interventions, including improving ICT infrastructure, offering AI-enabled applications, and adopting ethical standards and sensitization of personnel and students. The student-driven importance can be noted in the possibility to develop confidence, motivation, and technical competence and thus provide more individual and efficient learning experiences that will improve academic achievement and employability. At a social level, the study highlights the importance of AI in making undergraduates digitally ready to face the Fourth Industrial Revolution (4IR), who will create digitally competent and innovative graduates with the ability to use new technologies to solve real-world problems. In general, the research offers empirical data filling the gap between the AI preparedness and learning outcomes, which can be used to recommend AI-enhanced education to students, educators, institutions, and policymakers to improve AI-enhanced education in Nigeria.

Brief Literature Review

The Readiness to Artificial Intelligence in Concept

The concept of Readiness of Artificial Intelligence (AI) in higher education is a multidimensional concept, which illustrates the extent to which students and institutions are ready to embrace, apply, and make use of AI-based learning solutions. It involves technological preparedness, psychological preparedness and institutional preparedness, which cumulatively will determine the outcome of AI adoption in teaching and learning experiences. Technological preparedness is the presence of digital infrastructure, access to AI-enhanced devices and learning platforms, adequate internet connectivity and technical proficiency of students in using such technologies (Ally, 2020; Ajiye and Omokhabi, 2025). Studies indicate that the capacity of students to use AI tools is a very sensitive factor that is very reliant on the of functional hardware, software, and connectivity. As an example, to operate effectively, adaptive learning software, virtual laboratories, and intelligent tutoring systems need to have strong technological infrastructure (Kukulska-Hulme, 2019). In Nigeria, although urban universities (like Ibadan Metropolis) tend to have more advanced infrastructure than rural institutions, there are still access and digital literacy differences and this could also affect the adoption of AI (Ajeje and Ukpabi, 2025).



The issue of psychological preparedness is associated with the psychological readiness of the students to work with AI technologies. It consists of attitudes to AI, motivation, self-efficacy, and intention of using AI in learning (Venkatesh et al., 2016). Research indicates that those students who see AI as useful, user-friendly, and helpful in the learning process tend to be more active and gain cognitive, affective, and psychomotor advantages (Sa and Serpa, 2021). On the other hand, effective use can be obstructed by fear of technology, lack of confidence, and negative attitudes despite the availability of technological resources (Ifenthaler and Yau, 2020). Psychological preparedness also overlaps with cognitive and affective outcomes since motivated and confident students are better performers, and they are more likely to be engaged in AI-enhanced learning (Woolf, 2019). Institutional preparedness is the ability of universities to facilitate the integration of AI with policies, curriculum modifications, faculty learning, technical assistance, and availability of AI-enabled learning environments (Luckin et al., 2016). An organization that is well prepared offers an enabling environment which has formal guidelines on the use of AI, lecturers on professional development, and the orientation of students on AI tools. It has shown that institutional support does not only make technology adoption easy but also promotes positive psychological willingness on the part of students (Ajiye, 2024). The institutional preparedness in Nigerian universities is relatively high and different universities have institutional integration of AI which is organized and other Universities can only have pilot AI integration.

Artificial Intelligence Learning Outcomes

Traditionally, learning outcomes can be grouped into three domains, including cognitive, affective, and psychomotor (Bloom, 1956; Anderson and Krathwohl, 2001). With the help of AI technologies, every field can be positively impacted by the means of interactive, adaptive and personalized learning experiences. Cognitive Outcomes: These are the skills that pertain to acquisition of knowledge, understanding as well as higher order thinking skills. The AI tools (intelligent tutoring systems and adaptive learning software) help students process complicated information, solve problems, and apply the concepts in practice (Pane et al., 2017). Research has indicated that students who work with the AI-assisted platforms have a better understanding, critical thinker, and better grades. Affective Outcomes: Affective outcomes include the attitudes of students, their motivation and emotional involvement in learning. Artificial intelligence can ensure individualization of learning, immediate feedback and progress monitoring, which increase motivation and promote self-directed learning (Sa and Serpa, 2021). The emotional interest is especially important in keeping the students interested and determined in the academic activities. Psychomotor Outcomes: Psychomotor outcomes are associated with the development of practical skills and the possibility to use the knowledge in practical activities. Virtual laboratories, AI-based simulations, and exercises allow students to train, hone, and learn skills in a controlled environment, and then transfer those skills to practice in the real world (Ifenthaler and Yau, 2020). Studies have shown that the technical confidence and flexibility of students increase greatly due to organized AI interaction.



Preparation of AI and Learning Outcomes

Empirical studies suggest a positive relationship between readiness for AI and learning outcomes. Technological preparedness ensures students can access and utilize AI resources effectively, while psychological readiness drives engagement and motivation. Institutional preparedness reinforces both dimensions by providing the necessary support and guidance. Collectively, these factors enhance cognitive, affective, and psychomotor outcomes (Luckin et al., 2016; Ajiye & Omokhabi, 2025). In the context of Nigerian universities, research indicates that undergraduates who are well-prepared in all three readiness dimensions exhibit higher performance, engagement, and skill acquisition when interacting with AI-based learning tools (Ajiye, 2024).

Theoretical Framework and Applications

The research is anchored on the Diffusion of innovations Theory (DOI) Rogers (2003) which describes the diffusion of communication and adoption of new technologies, ideas or practices into a social system over time. The theory suggests five major features, including relative advantage, compatibility, complexity, trialability, and observable, as the factors that determine the adoption of innovations. When referring to the situation in Nigerian universities, DOI offers a valuable perspective on how the willingness of undergraduates to integrate AI and, consequently, their use of AI tools influences their cognitive, affective, and psychomotor learning performance. The preparedness on technologies is similar to perceived attributes of DOI. Those students who have access to digital devices, reliable internet connectivity, and AI-powered platforms have an opportunity to enjoy the relativity of AI, such as personalized learning, adaptive feedback, and simulation-based practice, and, consequently, improve their cognitive performance. The group of their technical competence makes the AI tools appear less complex and, thus, allows engaging them more and helps to build practical skills. Furthermore, trialability, which can be supported by offering AI an opportunity to practice in their learning, e.g., in a virtual lab or a practice assignment, can give students an opportunity to learn to use AI applications step by step.

The principle of compatibility can be observed in psychological preparedness, which implies the confidence, motivation and positive attitudes of students towards technology. The students with a view that AI aligns with their learning preferences, academic goals, and studying habits will be more willing to actively engage in AI tools, which will result in the creation of affective outcomes, including enhanced motivation, engagement, and satisfaction. A psychologically equipped student will be more willing to make constructive choices than to incorporate AI in their learning process resulting in a long-lasting adoption of behavior. The social system component of DOI is institutional preparedness, which involves the presence of ICT infrastructure, training courses, policy support, and the support of lecturers and peers. These institutional supports will see to it that the adoption of AI will be monitored, ethical, and well incorporated, so that students can observe the successful implementation by others, which will strengthen their confidence, and encourage cognitive and affective learning outcomes. The



institutional preparedness will offer the framework that students need to advance through the innovation-decision process of DOI, awareness and persuasion to decision, implementation and confirmation, and finally to active participation of AI technologies.

Using DOI to the present study, the preparedness of the students is likely to promote the usage of the AI tools, which will lead to improved learning results. The availability of AI-based resources and the ability to experiment enhance cognitive performance in the form of problem solving and critical thinking. Affective outcomes are supported by positive attitudes, self-efficacy, and peer-observed success, whereas psychomotor skill development and technical competence are supported by the use of AI simulations and virtual labs. This theory is especially suitable to the current research since the theory encompasses personal, technological, and institutional variables, which provide a comprehensive way of examining the impact of readiness on AI adoption and vice versa in terms of cognitive, affective, and psychomotor learning achievements among Ibadan Metropolis undergraduates.

Methodology

The research design was a descriptive survey design that is suitable in the review of the perceptions, preparedness, and experience of undergraduates on the topic of Artificial Intelligence (AI) implementation in learning. The target population comprised of undergraduate students in the universities of Ibadan Metropolis, where a sample of 300 students was chosen based on stratified random sampling to have a proportional sample across the faculties and the level of study. The University Preparedness and Readiness for AI Questionnaire (UPRAIQ) was used to collect the data; it included sections focused on technological preparedness (e.g., access to devices and digital literacy), psychological preparedness (e.g., confidence, motivation, and attitudes toward AI), institutional preparedness (e.g., infrastructure and policy support), and learning outcomes (cognitive, affective, and psychomotor) segment. The instrument was found to be reliably good with a Cronbach alpha that is greater than 0.80. The levels of preparedness and learning outcomes were evaluated using data analysis in the form of descriptive statistics (frequencies, percentages, means, and weighted means). Also, the hypotheses were tested by means of multiple regression analysis and ANOVA and the degree to which the relevance of AI preparedness affected the learning outcomes. Results interpretation was based on the thresholds: 3.00 and above (High), 2.50 to 2.99 (Moderate), and 2.50 and below (Low).



Results

Table 1: Demographics Section

Demographic Variable	Category	Frequency	Percent (%)
Gender	Male	155	52.0
	Female	143	48.0
Institution Type	Public Universities	245	82.2
	Private Universities	53	17.8
Level of Study	100 Level	56	18.8
	200 Level	81	27.2
	300 Level	95	31.9
	400 Level	66	22.1
Age Group (years)	16-19	62	20.8
	20-23	142	47.7
	24-27	72	24.2
	28 and above	22	7.3
Total Respondents	-	298	100.0

Source: Researchers' Fieldwork, 2025

The study sampled 298 undergraduates, with a nearly equal gender distribution of 155 males (52.0%) and 143 females (48.0%), indicating balanced representation and minimizing gender bias. Most respondents were from public universities (245; 82.2%) compared to private institutions (53; 17.8%), reflecting the higher enrollment in public tertiary institutions within Ibadan Metropolis. Respondents were fairly distributed across academic levels, with the highest representation from 300 Level (95; 31.9%), followed by 200 Level (81; 27.2%), 400 Level (66; 22.1%), and 100 Level (56; 18.8%), capturing a mix of students at different stages of study. Age-wise, nearly half of the participants were between 20 and 23 years (142; 47.7%), while smaller proportions fell into the 24-27 years (72; 24.2%), 16-19 years (62; 20.8%), and 28 years and above (22; 7.3%) categories, showing that the sample mainly comprised traditional-age undergraduates. Overall, the demographic profile demonstrates diversity in gender, institution type, academic level, and age, supporting the reliability and generalizability of the study's findings on AI readiness and its influence on learning outcomes.



Table 2: Technological Preparedness of Undergraduates for AI in Learning

S/ N	Item	SA (%)	A (%)	D (%)	SD (%)	Mea n	SD
1	I have access to a personal computer or smartphone capable of running AI tools.	142 (47.7)	101 (33.9)	35 (11.7)	20 (6.7)	3.23	0.91
2	I have reliable internet access to use AI applications.	118 (39.6)	104 (34.9)	46 (15.4)	30 (10.1)	3.04	0.99
3	I am confident in my ability to operate digital devices independently.	125 (41.9)	117 (39.3)	37 (12.4)	19 (6.4)	3.17	0.92
4	I possess the basic technical skills needed to use AI applications for learning.	122 (40.9)	116 (38.9)	40 (13.4)	20 (6.7)	3.14	0.93
5	I can troubleshoot minor issues when using technology for learning.	107 (35.9)	115 (38.6)	51 (17.1)	25 (8.4)	3.02	0.96
6	I regularly use digital platforms (e.g., Google Classroom, LMS) for academic work.	112 (37.6)	123 (41.3)	41 (13.8)	22 (7.4)	3.09	0.95
7	I believe my current level of technological knowledge is enough to use AI tools effectively.	110 (36.9)	119 (39.9)	45 (15.1)	24 (8.1)	3.05	0.95

Weighted Mean = 3.11

Source: Researcher's Fieldwork, 2025

Key: 4 = Strongly Agree (SA), 3 = Agree (A), 2 = Disagree (D) and 1 = Strongly Disagree (SD).

Threshold: Mean value of ≥ 3.00 (High), 2.5-2.99 (Moderate) and ≤ 2.50 (Low)

Table 2 shows that undergraduates reported a high level of technological preparedness (weighted mean = 3.11). The highest rated item was access to personal computers/smartphones (mean = 3.23), while the least rated was troubleshooting minor issues (mean = 3.02). This suggests that while most students have devices and basic skills, their deeper problem-solving competence with technology is still developing.



Table 3: Psychological Preparedness of Undergraduates for AI in Learning

S/ N	Item	SA (%)	A (%)	D (%)	SD (%)	Mea n	SD
1	I feel confident in adapting to new technologies like AI in learning.	124 (41.6)	118 (39.6)	37 (12.4)	19 (6.4)	3.16	0.93
2	I am motivated to embrace innovative learning methods.	132 (44.3)	109 (36.6)	38 (12.8)	19 (6.4)	3.19	0.92
3	I believe I can overcome challenges that come with learning new technologies.	128 (43.0)	111 (37.2)	40 (13.4)	19 (6.4)	3.17	0.93
4	I have a positive mindset towards adopting AI in my studies.	135 (45.3)	110 (36.9)	35 (11.7)	18 (6.0)	3.21	0.91
5	I am not afraid of making mistakes while using AI applications.	118 (39.6)	116 (38.9)	42 (14.1)	22 (7.4)	3.10	0.95
6	I am ready to accept AI as part of my learning routine.	126 (42.3)	114 (38.3)	39 (13.1)	19 (6.4)	3.16	0.93
7	I am prepared to invest time in learning how to use AI for my studies.	130 (43.6)	112 (37.6)	37 (12.4)	19 (6.4)	3.18	0.92

Weighted Mean = 3.17

Source: Researcher's Fieldwork, 2025

Key: 4 = Strongly Agree (SA), 3 = Agree (A), 2 = Disagree (D) and 1 = Strongly Disagree (SD).

Threshold: Mean value of ≥ 3.00 (High), 2.5-2.99 (Moderate) and ≤ 2.50 (Low)

Table 3 reveals that students demonstrated a high level of psychological preparedness (weighted mean = 3.17). The most prominent indicator was having a positive mindset towards AI adoption (mean = 3.21). This suggests that students are not only willing but also psychologically confident in embracing AI tools, though fear of making mistakes (mean = 3.10) remains a minor limiting factor.



Table 4: Institutional Preparedness for AI in Learning

S/ N	Item	SA (%)	A (%)	D (%)	SD (%)	Mea n	SD
1	My university provides digital infrastructure that can support AI applications.	109 (36.6)	106 (35.6)	51 (17.1)	32 (10.7)	2.98	0.99
2	My lecturers encourage the use of modern technology in learning.	118 (39.6)	111 (37.2)	42 (14.1)	27 (9.1)	3.07	0.96
3	My institution offers training or orientation on digital and AI-based tools.	95 (31.9)	103 (34.6)	64 (21.5)	36 (12.1)	2.86	1.03
4	There are enough ICT facilities in my university to support AI-driven learning.	91 (30.5)	99 (33.2)	70 (23.5)	38 (12.8)	2.82	1.03
5	My university's policies support technology-driven teaching and learning.	102 (34.2)	104 (34.9)	58 (19.5)	34 (11.4)	2.92	1.01
6	I have access to institutional resources (Wi-Fi, computer labs) to explore AI tools.	97 (32.6)	107 (35.9)	61 (20.5)	33 (11.1)	2.90	1.02
7	My university management is supportive of innovations such as AI in education.	101 (33.9)	106 (35.6)	58 (19.5)	33 (11.1)	2.92	1.01

Weighted Mean = 2.92

Source: Researcher's Fieldwork, 2025

Key: 4 = Strongly Agree (SA), 3 = Agree (A), 2 = Disagree (D) and 1 = Strongly Disagree (SD).

Threshold: Mean value of ≥ 3.00 (High), 2.5-2.99 (Moderate) and ≤ 2.50 (Low)

Table 4 indicates that institutional preparedness for AI adoption is at a moderate level (weighted mean = 2.92). The highest rated aspect was lecturers' encouragement of technology use (mean = 3.07), while the lowest was availability of ICT facilities (mean = 2.82). This implies that although institutions promote technology-friendly practices, infrastructural and policy support remain insufficient for effective AI integration.



H₀1: There will be no significant relative influence of undergraduates' readiness to use artificial intelligence (technological, psychological, and institutional preparedness) on learning outcomes (cognitive, affective, and psychomotor) in universities within Ibadan Metropolis.

Table 5: Summary of Regression Analysis showing the Relative Contribution of Technological, Psychological, and Institutional Preparedness on Learning Outcomes of Undergraduates in Universities within Ibadan Metropolis Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	11.73	1.104		10.631	0.000
2					
Technological Preparedness	0.524	0.079	0.351	6.633	0.000
Psychological Preparedness	0.382	0.087	0.246	4.391	0.000
Institutional Preparedness	0.297	0.091	0.183	3.264	0.001

a. Dependent Variable: Learning Outcomes (Cognitive, Affective, Psychomotor)

Source: Researcher's Fieldwork, 2025

Table 5 shows the regression analysis results for the influence of readiness dimensions (technological, psychological, and institutional preparedness) on undergraduates' learning outcomes in universities within Ibadan Metropolis. The constant (11.732, $p < 0.05$) is significant, representing the baseline level of learning outcomes when readiness dimensions are absent. Technological Preparedness has the strongest positive and significant influence ($B = 0.524$, $\beta = 0.351$, $t = 6.633$, $p < 0.05$). This suggests that students who are technologically prepared familiar with AI tools, digital platforms, and ICT resources achieve higher learning outcomes. Psychological Preparedness also influence significantly ($B = 0.382$, $\beta = 0.246$, $t = 4.391$, $p < 0.05$). This implies that students' confidence, motivation, and mindset toward AI adoption positively influence their performance, particularly in cognitive and affective domains. Institutional Preparedness makes a smaller but significant influence ($B = 0.297$, $\beta = 0.183$, $t = 3.264$, $p = .001$). This means that when universities provide adequate support such as AI infrastructure, policies, and staff training; students' learning outcomes improve, though the effect is weaker compared to technological and psychological factors. Since all three predictors are statistically significant ($p < 0.05$), the null hypothesis (H_02) is rejected. This means that undergraduates' readiness dimensions; technological, psychological, and institutional preparedness make significant relative influence to their learning outcomes. Overall, technological preparedness is the most influential predictor, followed by psychological readiness and then institutional support. This emphasizes that while institutions must play their part, students' individual technological competence and mindset are the strongest drivers of successful AI-enhanced learning.



Conclusion

The study established that undergraduates in Ibadan Metropolis possess high technological and psychological readiness to integrate AI into their learning. However, institutional preparedness was moderate, highlighting gaps in infrastructure, policy implementation, and support mechanisms. AI readiness, particularly students' perceptions and willingness to adopt AI, significantly influenced learning outcomes across cognitive, affective, and psychomotor domains. The findings underscore that student readiness alone is not sufficient; institutional support is critical for maximizing the potential of AI-driven learning.

Implications of the Study

Educational Policy: The results suggest that policymakers should prioritize investments in digital infrastructure, AI-enabled platforms, and training programmes to enhance institutional readiness.

Curriculum Development: Incorporating AI-based tools into teaching and learning practices can strengthen cognitive, affective, and psychomotor outcomes.

Student Support: Universities need to provide orientation and continuous support to build confidence, motivation, and self-efficacy for AI adoption.

Research and Evaluation: The study provides a foundation for further empirical investigations into AI integration in Nigerian universities, particularly regarding its long-term impact on skill acquisition and employability.

Recommendations

Strengthen Institutional Infrastructure: Universities should ensure reliable internet connectivity, computer labs, and access to AI-enabled devices for students.

Faculty Training: Lecturers should receive capacity-building on AI integration in teaching, including the use of intelligent tutoring systems, virtual labs, and adaptive learning software.

Student Orientation: Implement structured orientation programmes to improve students' digital literacy, problem-solving skills, and psychological readiness for AI adoption.

Policy Formulation: Universities should develop clear policies and guidelines for AI usage, including ethical considerations, assessment protocols, and support frameworks.

Monitoring and Evaluation: Establish mechanisms to continuously evaluate the effectiveness of AI tools on student learning outcomes and adjust strategies accordingly.

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