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Perceived Influence of Artificial Intelligence Usage on Students' Academic Performance in Nnamdi Azikiwe University Awka, Anambra State

By

Chinweude Clara EFOBI
Psychology Department, School of Education Federal College of Education (Technical), Umunze.
1efobichinweude@gmail.com (08068922805)

Amuche Uju EZINWA
Department of Educational Foundations, Faculty of Education Nnamdi Azikiwe University, Awka, Anambra State
au.ezinwa@unizik.edu.ng (08066004618)

Nonye Pricila OGUEJIOFOR, Ph.D
Psychology Department, School of Education Federal College of Education (Technical), Umunze

Chioma Modesta ORANETO, Ph.D
Mathematics Department, School of Sciences Federal College of Education (Technical), Umunze

Abstract
The advancement of digital technologies has significantly transformed the landscape of higher education worldwide. Artificial Intelligence (AI) has emerged as one of the most powerful innovations in this regard, offering tools that can enhance learning, teaching, assessment, and student support. In Nigeria, particularly in Anambra State, the integration and utilization of AI technology in tertiary institutions remain relatively underexplored, despite its potential to improve students' academic performance. This study examined the perceived influence of artificial intelligence technology on students' academic performance in Nnamdi Azikiwe University Awka, Anambra State. Three research questions guided the study. The study adopted a descriptive survey design. The population of the study consisted of 30,919 which includes all the 400 level students at Nnamdi Azikiwe University Awka, Anambra state. The sample comprised 400 students obtained through multi-stage sampling procedure using simple random sampling technique. An instrument titled "Artificial Intelligence Usage and Academic Performance Questionnaire (AIUAPQ)" was used to generate data. The instrument was validated and trial tested to determine the reliability coefficient which gave 0.86 as the index. Data were analyzed using mean. Results revealed that AI usage among students is moderate but uneven, with significant potential to enhance academic achievement if institutional and infrastructural barriers are addressed. The findings underscored the need for targeted institutional policies, capacity building, and digital infrastructure to support AI-driven education. It was recommended among others that regular training workshops should be organized to enhance students' technical skills in AI usage and awareness programme should be carried out to sensitize students on the academic benefits of AI technologies.

Keywords: Academic performance, Artificial intelligence, Perceived influence, Student, Usage.

Introduction

Globally, the rapid evolution of technology has revolutionized educational systems and processes. Among these innovations, Artificial Intelligence (AI) stands out as a transformative force that is increasingly being utilized to drive innovations in teaching, learning, assessment, and research. AI has redefined the dynamics of teaching and learning, introducing new possibilities for personalized instructions, student support, assessment and knowledge acquisition. AI is broadly defined as the simulation of human intelligence in machines programmed to think, reason, and act in ways that replicate human cognitive functions (Ifeanyi & Eze, 2020). Artificial intelligence in the context of this study refers to digital technologies, software, and application designs to stimulate human intelligence

in performing academic tasks. AI applications such as intelligent tutoring systems, adaptive learning platforms, plagiarism detection software, and predictive analytics for student performance are reshaping how knowledge is delivered and how learners engage with academic task (Ifeanyi & Eze, 2020). In technologically advanced societies, tertiary institutions have leveraged on these tools to optimize students 'learning experiences and enhance academic performance.

Tertiary institutions comprised of universities, polytechnics, and colleges of education. In some tertiary institutions, the use of AI technology is still evolving. Tertiary institutions are centers where students are expected to acquire advanced knowledge and skills and where AI technologies have the potential to significantly transform the learning environment. The Nigerian tertiary institutions are gradually adopting digital learning technologies, but the utilization of AI remains uneven and limited compared to global trends (Okoye & Nwafor, 2022). While AI-powered applications such as plagiarism detection software, adaptive e-learning systems, and academic support platforms are increasingly available, anecdotal observations suggest that students' awareness and usage levels remain relatively low. The use of artificial intelligence is of immense benefits especially

The potential of AI to significantly boost students' performance seems to be fully realized within the Nigerian tertiary education system. Students' academic performance, refers to measurable learning outcomes in terms of grades, knowledge acquisition, and skill development, while usage of AI technology, entails the degree to which students apply AI-based tools and platforms in their learning processes. The interaction between these variables is critical because effective utilization of AI can bridge learning gaps, improve engagement, and foster independent study habits (Onyema & Eze, 2021). There is increasing evidence that AI, when effectively utilized, can significantly enhance students' academic performance by offering personalized learning, improving access to resources, and supporting innovative forms of assessment (Chukwuma, 2023). While awareness of digital tools is growing among students, the actual integration and consistent usage of AI in academic pursuits seems to be limited.

Tertiary institutions might be grappling with challenges such as limited infrastructure, inadequate ICT funding, low digital literacy, and skepticism about technology adoption. Studies reveal that many students rely on traditional learning resources and often face challenges such as poor internet connectivity, limited exposure to AI-driven platforms and inadequate institutional support (Nwosu & Eze, 2022). In many institutions, infrastructural limitations, unreliable internet access, and inadequate training seems to be hindrances to effective utilization. Ezinwa, et al. (2025) emphasized that many students face difficulties due to a lack of technical skills required to effectively utilize Artificial Intelligence tool.

While numerous studies have explored ICT integration in Nigerian education, particularly in Anambra state, relatively fewer have focused specifically on AI usage and its influence on students' academic performance in federal tertiary institutions, especially Nnamdi Azikiwe University, Anambra State. This gap is significant given that AI applications are fast becoming integral to academic success in many advanced systems. A systematic inquiry into this issue in the Anambra State context is therefore both timely and necessary.

Furthermore, existing research on ICT adoption in Nigeria has largely focused on general digital technologies rather than the specific impact of AI on students' academic outcomes. This creates a knowledge gap in understanding whether and how students in Nnamdi Azikiwe University Awka, Anambra State are leveraging AI for academic success. If this gap remains unaddressed, stakeholders risk underutilizing a powerful tool that could contribute significantly to academic quality, competitiveness, and innovation in higher education. This study therefore seeks to systematically examine the influence of Artificial Intelligence technology usage on students' academic performance in Nnamdi Azikiwe University Awka, Anambra State.

Purpose of the Study

The purpose of this study is to assess the utilization of artificial intelligence technology on students' academic performance in federal tertiary institutions in Anambra State. The study specifically seeks to:

1. determine the extent of artificial intelligence usage by students in Nnamdi Azikiwe University, Awka.
2. examine the perceived influence of artificial intelligence usage on students' academic performance in Nnamdi Azikiwe University, Awka.

3. identify the challenges hindering effective usage of artificial intelligence by students in Nnamdi Azikiwe University, Awka.

Research Questions

The following research questions guided the study:

1. To what extent do students use artificial intelligence in Nnamdi Azikiwe University, Awka?
2. What are the perceived influence of artificial intelligence usage on students' academic performance in Nnamdi Azikiwe University, Awka?
3. What challenges hinder the effective usage of artificial intelligence by students in Nnamdi Azikiwe University, Awka?

Methodology

The study adopted a descriptive survey research design, considered suitable for collecting data from a large population with the aim of describing the existing status of AI utilization in relation to students' academic performance. The population comprised 30,919 which include all the final year undergraduate students (Students' Affairs of NAU) at Nnamdi Azikiwe University Awka. Multistage random sampling procedure was used to ensure representation across the faculties in Nnamdi Azikiwe University Awka. At the first stage, simple random sampling technique by balloting was employed to select 4 faculties (Faculty of Education, Management Sciences, Arts and Engineering respectively) out of 16 faculties at Nnamdi Azikiwe University Awka were randomly selected. In the second stage, simple random sampling technique was used to select one department from the sampled faculties. At the final stage, simple random sampling technique was also used to select 100 students from each department, giving rise to a sample size of 400 students that were used for the study. The instrument for data collection was a structured questionnaire titled Artificial Intelligence Utilization and Academic Performance Questionnaire (AIUAPQ). The questionnaire consisted of four sections: demographic information, utilization of AI, perceived influence on academic performance, and challenges of utilization. Items were structured on a modified four-point Likert scale of Very High Extent, High Extent, Low Extent and Very Low Extent, Very High Influence, High Influence, Low Influence and Very Low Influence, Strongly Agree, Agree, Disagree, and Strongly Disagree. The instrument was validated by two experts, one from Educational Measurement and Evaluation at Nnamdi Azikiwe University, Awka and the other from Electronic and Computer Engineering at the same university. The reliability of the instrument was established using Cronbach Alpha, which yielded an index of 0.78, 0.81, and 0.86 respectively, indicating high internal consistency. The researcher, with the help of trained assistants, administered the questionnaire directly to the students. Data were analyzed using mean to answer the research questions. A cut-off mean of 2.50 was adopted for decision making.

Results

Table 1: Respondents' mean ratings of the extent students use artificial intelligence
N: 400

S/N	Item	Mean	Decision
1.	Use of AI powered search tools (eg,ChatGPT)	3.26	High Extent
2.	Use of plagiarism detection software	2.05	Low Extent
3.	Use of adaptive learning platform	2.11	Low Extent
4.	Use of AI collaborative learning	2 .14	Low Extent
5.	Use of predictive analytics for study patterns	2.32	Low Extent
	Cluster Mean = 2.38		

Table1 shows that the mean score for 1 out of the 5 items is above the cut-off mean score of 2.50. This means that the respondents agreed with the statement on the use of AI powered search tools. Mean score for the remaining items (item 2 to 5) were below the cut-off mean, which shows that the extent of respondents' use of plagiarism detection software, adaptive learning platform, AI collaborative learning and predictive analytics for study patterns is low.

Table 2: Respondents' mean ratings of the perceived influence of artificial intelligence usage
N: 400

S/N	Item	Mean	Decision
6.	AI Improves access to diverse learning resources	3.34	High influence
7.	AI supports independent study	3.25	High influence
8.	AI helps in time management	2.98	High influence
9.	AI improves research and assignment quality	3.29	High influence
10.	AI enhances grade and overall performance	2.87	High influence
	Cluster Mean =3.15		

Table2 shows that the mean score for all the items are above the cut-off mean score of 2.50. This means that the respondents agreed with all the statements as perceived influence of artificial intelligence.

Table 3: Respondents' mean ratings of the challenges that hinder the effective usage of artificial intelligence
N: 400

S/N	Item	Mean	Decision
12.	Poor internet connectivity	3.41	Agree
13.	Inadequate institutional support	3.26	Agree
14.	Limited access to device	3.12	Agree
15.	Cost of data subscription	3.35	Agree
Cluster Mean =3.22			

Table3 shows that the mean score for all the items are above the cut-off mean score of 2.50. This means that the respondents agreed with all the statements as challenges that hinder the effective usage of artificial intelligence.

Discussions

The findings revealed that the extent of artificial intelligence usage among students in Nnamdi Azikiwe University Awka, Anambra State is low. This finding aligns with Okoye & Nwafor (2022), who reported that Nigerian tertiary institutions are gradually adopting digital learning technologies, but the utilization of AI remains uneven and limited compared to global trends.

The study also found that artificial intelligence usage as perceived by the students, has a high influence on students' academic performance, particularly in terms of access to resources, independent study, and quality of assignments. This corroborates the observations of Chukwuma (2023), who emphasized that AI-driven platforms enhance learning flexibility and student engagement, thereby contributing to better academic outcomes.

However, challenges such as poor internet connectivity, inadequate institutional support, the high cost of data, and low digital literacy remain significant barriers. Similar concerns were raised by Ezinwa, et al. (2025), who highlighted that many students face difficulties due to a lack of technical skills required to effectively utilize Artificial Intelligence tool.

Conclusion

This study examined the perceived influence of artificial intelligence usage on students' academic performance in Nnamdi Azikiwe University Awka, Anambra State. The results indicate a low extent of AI usage, a high influence of AI on academic performance, and significant challenges hindering effective adoption. It was concluded that while AI has substantial potential to improve academic outcomes, its benefits cannot be fully realized without addressing infrastructural, financial, and policy-related barriers

Recommendations

Based on the findings, the following recommendations were made:

1. Institutional Support: Federal tertiary institutions should establish policies and infrastructures that promote AI adoption in learning and research.

2. Capacity Building: Regular training workshops should be organized to enhance students' technical skills in AI utilization.
3. Affordable Access: Partnerships with telecom companies should be pursued to provide affordable internet and data for students.
4. Government Funding: Government agencies should prioritize funding for AI-related digital infrastructure in higher education institutions.
5. Awareness Campaigns: Awareness programme should be carried out to sensitize students on the academic benefits of AI technologies.

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