

The Role of Artificial Intelligence in Enhancing Students' Learning Experience: A Case Study of Nnamdi Azikiwe University, Awka

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ABSTRACT

The study examined Artificial Intelligence and its impact on the learning experience of students in Nnamdi Azikiwe University, Awka. Artificial Intelligence has witnessed major developments such as intelligent tutoring systems, automated feedback, virtual assistants, and personalized learning platform which have led to major changes in the process of teaching and learning within the domain of education. In this study, it was intended to evaluate the extent to which Artificial Intelligence impacts students' engagement, academic performance, access to learning materials and learning experience generally. The qualitative research method was used, and qualitative data were analyzed by reviewing related literature. The results show that artificial intelligence increases learning experience through personalized learning experience, increased accessibility of academic resources, provision of immediate feedback, and allowing learners to learn at their own pace. Besides, the use of AI systems increases learners' motivation and engagement through creation of interactive and flexible learning environment. However, some issues such as lack of technical facilities, data privacy issues, lack of digital literacy, and over-reliance on AI technologies might affect effective implementation. In summary, artificial intelligence is an important technology that increases learners' experience and can be used for innovative learning experience at Nnamdi Azikiwe University, Awka.

Key Word: Artificial Intelligence, Students' Learning Experience, Educational Technology, Personalized Learning, Academic Performance, Nnamdi Azikiwe University, Awka

INTRODUCTION

The technologies that have influenced the current educational process in a significant way include artificial intelligence (AI). AI implementation in the current education process has developed from the use of computers in education to intelligent tutors, adaptive learning, automated testing, learning analytics, virtual assistants, and even to generation AI such as ChatGPT. The mentioned technologies are changing the process through which students learn, interact with educational materials, get feedback, and organize themselves. In terms of higher education, AI can provide an opportunity for institutions to design flexible and learner-centered learning environments that respond to various learning patterns (Treerayapiwat, Diteeyont, & Jongsermtrakoon, 2024).

One of the major advantages of AI in relation to learning for the students is personalized learning. With the help of AI systems, students' learning processes can be analyzed and areas that require special attention may be highlighted along with the recommendation of learning resources according to the requirements of students individually. Thus, students will be able to learn according to their own pace and need not completely depend on the uniform style of teaching. It is reported in recent studies that AI-driven learning can contribute to efficient engagement and learning (An, Koh, & Liu, 2026). The emergence of generative AI makes AI even more relevant to higher education. For instance, technologies such as ChatGPT could assist learners to generate ideas, explain difficult theories, summarize the material, practice questions, and receive immediate answers to their academic questions. One review on the use of ChatGPT in education reports that there were benefits associated with learning, skill development, immediate feedback, and engagement of students, although there are ethical and pedagogical concerns (Montenegro-Rueda et al., 2023). The above features become particularly important for universities since students require access to study materials that are not delivered during classroom sessions.

In the context of Nigeria, the integration of AI into higher education has become very significant as various universities have been trying to cope with digital transformation and learning through technology. According to recent studies on Nigerian universities, the use of AI in higher education has the potential to affect students' involvement, performance and overall quality of the educational process (Olatunde-Aiyedun, 2024). Nevertheless, the success of AI is contingent upon the presence of adequate technological resources, digital literacy and institutional support. Without proper access to reliable internet connectivity, digital devices and technical expertise, AI-driven learning opportunities will not be equally distributed among all students.

Despite the possible advantages associated with AI, there are also critical challenges involved with AI. These include issues like data privacy, inaccuracies in information, cheating in academics, reduction in independent thinking, and dependency on AI outputs. According to UNESCO (2023), it is essential to adopt human-centric, ethical, and equitable ways of implementing AI in education systems concerning data privacy, regulation, and appropriate institution-based policies.

In the light of these facts, the impact of AI in improving the learning process of students at Nnamdi Azikiwe University, Awka becomes imperative. The study thus explores the impacts of artificial intelligence on the students' learning experience in terms of their engagement, performance, availability of learning resources, and other aspects of learning, keeping in view the issues related to poor technical infrastructure, lack of digital literacy, privacy issues, and excessive dependence on AI technology. This issue becomes more important as there are recent studies conducted among students of Nnamdi Azikiwe University on AI and digital learning (Alaribe et al., 2025).

Statement of the Problem

The fast growth of Artificial Intelligence (AI) has brought about new ways of enhancing teaching and learning processes in higher education. AI-based technologies like intelligent tutoring systems, generative AI tools, automated assessment systems, virtual assistants and personalized learning platforms are able to help students get instant access to academic information, personalized learning support and chances to learn according to their own pace. Nonetheless, even though there are many advantages of using AI in education, the successful application of this technology in universities still raises a lot of issues especially in those developing countries which do not have the necessary infrastructure and support. Studies done in Nigeria's higher education system show that the use of AI is growing, although there are some problems related to academic integrity, student dependency, critical thinking and institutional support.

There is increased use of AI in academic activities by students at Nnamdi Azikiwe University Awka. A recent research study carried out among undergraduate students of the university was aimed at establishing the knowledge, awareness and perception of ChatGPT, which has revealed that generative AI is becoming important in the academic activities of the students. In addition, other research studies carried out at the university have focused on the impact of AI on the learning outcomes and academic performances of the students, which reveal that AI has the potential to assist the students' academic performance. However, just because there is increased use of AI does not necessarily imply that there is improved learning by the students.

An additional issue relates to the fact that AI might be used as a mere means of facilitating the completion of academic work by the learners as opposed to being used as a means of acquiring knowledge and skills. Overreliance on responses generated by AI might negatively affect the motivation of learners to study widely, analyze issues critically, engage in independent research and problem solving. Studies conducted on the adoption of AI in Nigerian universities have noted the same issues concerning the reliance of students and the impact that this might have on their critical thinking and learning.

The other challenge has to do with the unequal access to technological tools needed for effective learning through AI. There can be differences in access by students to smartphones, computers, internet services, electricity, and the related digital skills. Consequently, poor infrastructure can limit the capability of some students to utilize AI technology. In addition to the above challenges, issues of academic dishonesty, unreliable information produced by AI, privacy, and ethical use of AI have generated doubts among both students and lecturers. In case there are no clear guidelines, then there is a likelihood that AI technology will be misused in a way that undermines the integrity of assessment.

For this reason, it is very important to study the effect of Artificial Intelligence in improving the educational process of students at Nnamdi Azikiwe University, Awka especially the impact on their participation in studies, performance, accessibility of learning material and general educational experience. The objective is also to recognize the constraints that may hinder the process.

LITERATURE REVIEW

Artificial Intelligence

Artificial Intelligence is defined as an application of artificial intelligence technology used to generate new content based on user prompts or requests. Whereas conventional systems focus more on analyzing existing data, classification and prediction, Generative Artificial Intelligence is capable of generating content such as human-like text, images, audio, video, computer programming codes, among others. Some of the popular examples of GenAI include ChatGPT, Google Gemini, and many others based on large language models. The growth of GenAI technologies has greatly enhanced opportunities in applying artificial intelligence in education, especially in teaching, learning and research (UNESCO, 2023).

GenAI can also serve as a study aid at higher education institutions through aiding students in comprehending complex ideas, developing ideas, summarizing information, receiving explanations, practicing academic tasks and receiving immediate feedback. According to Daniel et al. (2025), GenAI has huge potential in the support of the development of academic skills at universities. Qian (2025) also mentions that the implementation of GenAI in higher education is more often linked to creativity, critical thinking, learning autonomy and development of interaction skills with AI.

Concept of Students' Learning Experience

The learning experience of students is referred to as everything that occurs in the process of students acquiring knowledge, skills, attitude, and competencies through their experiences, perceptions, feelings, and outcomes that occur in an educational context. This encompasses the manner in which students engage with their teachers, fellow students, learning content, technology of instruction, and learning environment. The learning experience of the students is described as one where there is engagement, motivation, participation, access, and the chance for the students to learn on their own. According to Bond et al., (2021), the engagement of the students with technology-based learning has behavioral, affective, and cognitive components.

In education, the learning experience of students has been impacted in a number of ways through the use of digital technologies. Technologies used for online learning, multimedia tools, learning management system, and applications of artificial intelligence provide students with more options of accessing learning material and interacting with the learning content outside the classroom. As mentioned by Martin et al. (2020), although technology-supported learning offers more flexibility and accessibility, the quality of learning experience will largely depend on instructional design, interaction, and technology support.

Furthermore, engagement and academic achievements of students are important elements of learning experience of students. When learning activities seem to be meaningful, interactive and responsive to needs of students, it becomes possible to enhance their motivation to learn. With the help of generative artificial intelligence, it is possible to improve students' learning experience by offering personalized explanations and feedback, and learning resources. Yet, the efficiency of technology in enhancing students' learning experience largely depends not on its availability but on integration into pedagogy (UNESCO, 2023).

Empirical Review

Okafor-Agbala, Awosika, Nwuba, Abumchukwu, and Oramadike (2026) conducted an empirical study examining the perceived impact of Artificial Intelligence (AI) application on the academic motivation of preservice science teachers at Nnamdi Azikiwe University, Awka, Anambra State. This study is pertinent to the current study since it looked at the use of AI technology at the same institution and specifically focused on students' motivation to learn. The research used descriptive survey research design where 500 participants were randomly sampled from the Science Education Department of Nnamdi Azikiwe University. The data were gathered using an adapted questionnaire called AI Application Questionnaire on Students' Academic Motivation (AIAQSAM). The validity of the questionnaire was established through expert validation while reliability was measured through Cronbach's alpha at 0.86. The data were analyzed using mean and standard deviation. The results obtained from the research indicated that the use of artificial intelligence in the classroom had an effect on the academic motivation of the students to a great extent. Three aspects were considered in the research when it came to the academic motivation of the students: the attainment value, the utility value, and the intrinsic value. It indicates that AI can help students view learning as something that is useful, meaningful, and intrinsically enjoyable. It is important because when students view the activity as being beneficial and relevant to them, then they would be ready to spend time and efforts on it. In addition, the students were ready to spend extra money and time on the skills related to AI.

Amaefule, Nwogbo & Christiana (2025) carried out a study on the influence of AI on learning outcomes among students in Nnamdi Azikiwe University. A sample size of 240 was selected from the total population of 34,376 students from four faculties. The data for this study was collected using a structured questionnaire with a reliability coefficient of 0.89 Cronbach's Alpha. The results revealed that AI improved the learning outcomes of the students by allowing them to gain in-depth knowledge of the subject matter, comprehend the key concepts of learning, use effective learning approaches and relate learning concepts from various disciplines. Specifically pertinent to this study is that the 2025 study also showed that AI allowed the students to access various educational resources including textbooks. It is evident that AI can make the task of overcoming the challenges involved in searching for relevant academic resources easier. The students can use AI-powered apps to gain explanations, access information, and analyze various facets of the subject matter.

A study by Nnaemeka and Ogunbadejo (2024) on the awareness, knowledge, perceptions and challenges of ChatGPT use among Nnamdi Azikiwe University, Awka undergraduates was done empirically. It is quite appropriate to use this study in the current study since it involves investigation of the experiences of students with one of the applications of generative AI at their university. For the study, Nnaemeka and Ogunbadejo (2024) adopted a cross-sectional survey design and structured questionnaire as the instrument of data collection. While the total sample size was 370 students, only 300 questionnaires emerged useful for the purpose of data analysis. Respondents were chosen from four faculties through multi-staging of the sampling procedure. According to the above findings, the level of knowledge and application of ChatGPT by the students was very high. This was based on the fact that 84.3% of the participants were knowledgeable about ChatGPT, while 67.03% of them applied the software for academic purposes. Among the activities where the technology has been applied by the participants include assignments writing, editing, research, data gathering, complex academic questions, brainstorming, problem solving, and language-related activities. As observed above, it is quite clear that the AI is an important aspect of the academic work of some university students. However, the major observation that has emerged from the findings is that 63.24% of the participants indicated that they have never received training on how to apply ChatGPT academically.

Theoretical Framework

The theoretical framework adopted in this study is mainly based on Constructivist Learning Theory complemented by the Technology Acceptance Model (TAM). This theoretical framework is appropriate in providing a suitable foundation for the explanation of how the use of Artificial Intelligence (AI) can affect students' learning experience at Nnamdi Azikiwe University, Awka. According to Constructivist Learning Theory, learning is an active process in which learners construct meaning through their interactions with the environment, learning materials, and the people involved. According to the theory, learners are not just passive receivers of information; rather, they are active participants that interpret information and solve problems by engaging in meaningful learning activities. Recent literature has embraced the application of constructivist theory in AI-facilitated learning suggesting that Generative AI can offer personalized feedback and learning possibilities through engagement in academic tasks (McGuire et al., 2024).

Constructivist Learning Theory is relevant to this study because the use of AI in the learning process enables students to interact with and learn at their own pace. Students can benefit from AI tutoring software, bots and other applications by being provided with explanations, examples, questions, and feedback according to their personal learning needs. Thus, this type of interaction enables students to explore information, make comparisons and construct knowledge at their own pace. According to Huang et al. (2024), the adoption of a constructivist approach to ChatGPT-enabled learning showed that AI opens up new opportunities for students to actively participate and think. This is consistent with the assumption of the current study, according to which the use of AI technology as a learning tool enables students to engage in the learning process and become more motivated.

TAM also serves as a relevant theoretical basis for the current study. According to TAM, the acceptance of the technology is determined by the perception of its usefulness and ease of use. Thus, in the context of AI technologies in the education process, students are willing to implement those technologies if they perceive them as useful for enhancing academic performance and easy to use. There is recent evidence of the importance of the TAM theory for AI-based education.

The combination of the Constructivist Learning Theory and TAM can, therefore, provide a good conceptual framework to analyze the connection between the AI and learning experience of students. Constructivism describes the manner in which AI could facilitate the learning experience, especially through active engagement, personalized learning, and interactions and feedback, whereas TAM explains the reasons why learners would accept and adopt the AI tools based on their perceptions of usefulness and ease of use. This dual approach is in line with the notion that the application of AI in education should not substitute but complement the human-centered nature of the educational process.

As a result, the framework presumes that the efficient usage of AI could positively impact students' engagement and motivation, their access to scholarly content, and provision of instant feedback for academic performance. Nevertheless, these factors might be influenced by the students' digital competence, technology, perceived usefulness and ease of use of AI, and issues related to privacy and academic integrity. In this way, the framework is relevant for investigating the impact of AI on students' learning experience at Nnamdi Azikiwe University, Awka.

RESEARCH METHODOLOGY

In the current study, the research design that was applied was systematic qualitative content analysis. In the current study, secondary data was used whereby published literature was the main source of data. The data were obtained from credible sources such as peer reviewed journals, government sources, industry reports, conference proceedings and online sources such as Google Scholar and ResearchGate.

The population of the study comprised published literature on artificial intelligence and students' learning experiences among undergraduate students. Using purposive sampling, 20 relevant studies published between 2020 and 2026 that met the inclusion criteria were selected for review. The inclusion criteria covered studies directly related to artificial intelligence, academic writing skills, students' learning experiences, and higher

education. A structured document review guide was used as the data collection instrument to extract relevant information from the selected studies. The collected data were analyzed using qualitative content analysis by systematically coding, categorizing, and identifying emerging themes and patterns. The analysis distinguished between students' perceived benefits of artificial intelligence and objectively reported improvements in learning outcomes as presented in the reviewed studies.

Data Presentation and Analysis

Extent to which Artificial Intelligence enhances students' engagement and motivation in learning at Nnamdi Azikiwe University, Awka.

Artificial Intelligence (AI) has been used increasingly as an effective mechanism towards ensuring students' engagement and motivation in higher education institutions. In Nnamdi Azikiwe University, Awka, through applications like ChatGPT and others, the usage of AI enables the learners to interact with the learning material, get prompt responses, and investigate academic areas of interest based on their preferences. In like manner, empirical research carried out has indicated that the perception of AI by learners has an effect on the academic engagement of such learners via the factors of motivation and self-efficacy.

Influence of Artificial Intelligence on Students' Academic Performance and Access to Academic Learning Materials at Nnamdi Azikiwe University, Awka

Academic Performance of Students can be influenced by Artificial Intelligence through offering personalized academic assistance, explanations, feedback and different forms of academic learning materials. In Nnamdi Azikiwe University, Awka, Efobi et al. (2026) conducted a study on how AI use influences the academic performance of the students through descriptive survey research involving 400 students at the institution. The findings revealed that there is moderate and uneven AI use which could significantly influence academic performance. There were recommendations of need for improvement of the digital infrastructure and training of the students for more effective learning.

Another benefit associated with the utilization of AI is that students can now access academic information through the use of technologies. In the article published by Nnaemeka and Ogunbadejo (2024), it is stated that there is a great level of awareness and utilization of ChatGPT by students of Nnamdi Azikiwe University. Students were involved in the use of AI technology to gather information, conduct research, get explanations and other academic work. Therefore, AI can be used as an additional source of information apart from textbooks, lectures, and other traditional sources of information. Nevertheless, it should be stated that students need to carefully assess AI-based information since inaccurate answers will have negative effects on academic learning.

Challenges Associated with the Use of Artificial Intelligence in Enhancing Students' Learning Experience at Nnamdi Azikiwe University, Awka

In spite of the advantages offered by Artificial Intelligence in education, there are certain difficulties that might hinder its effectiveness in improving the learning process of the learners in Nnamdi Azikiwe University, Awka. First, one of the biggest problems that the learners might face is the lack of digital literacy and training. According to Nnaemeka and Ogunbadejo (2024), most undergraduates who were able to make use of ChatGPT did not receive any proper training in their usage for educational purposes. It might result in a case where the learners are unable to verify the information generated from the application and use the technology appropriately. Besides, the over-reliance on AI technology might also hinder learners' ability to think independently and conduct proper researches. Moreover, insufficient technological infrastructure, access to the internet, and poor institutional support might hinder some students from benefiting from AI equally. This issue was noted by Efobi et al. (2026) who stated that the usage of AI tools by the students at Nnamdi Azikiwe University was low and uneven, and the role of the digital infrastructure and capacity building is very important. Consequently, proper implementation of AI depends on the availability of infrastructure, digital literacy, institutional policies, and ethical usage of AI.

DISCUSSION OF FINDINGS

i) From the findings provided above, it is evident that artificial intelligence (AI) has been a vital tool in enhancing student motivation and engagement in higher learning institutions. The study that was carried out by Okafor-Agbala et al. (2026), empirically investigating the impact of artificial intelligence (AI) applications on the academic motivation of pre-service science teachers at Nnamdi Azikiwe University, Awka, Anambra State revealed that the use of AI in classroom significantly motivated the academic performances of the students to a very great extent.

ii) It is evident from the analysis of results that the use of Artificial Intelligence can affect the academic performance of the students due to the provision of personal academic help, explanation, feedback, and access to various learning resources. In the case of Nnamdi Azikiwe University, the role of AI in the improvement of learning outcomes can be observed in the study conducted by Amaefule, Nwogbo, and Christiana (2025). The findings showed that AI improved the learning outcomes of students by aiding them in having a better understanding of the subject matter, understanding concepts, finding out appropriate methods of learning and connecting various subjects. More importantly for the present study, it was found that the use of AI allowed the students to have access to different educational resources such as books. iii) From the findings of the analysis carried out, it is clear that although there are advantages of the use of Artificial Intelligence in education, certain challenges might arise which may hinder its usefulness in improving the learning experience of students at Nnamdi Azikiwe University, Awka. One of such challenges is low digital literacy and training. This is based on the study by Nnaemeka and Ogunbadejo (2024) who carried out an empirical study on awareness, knowledge, perceptions and challenges associated with the use of ChatGPT by the undergraduate students of Nnamdi Azikiwe University, Awka. The relevance of this study to the current research is that it sought to evaluate the students' use of a particular generative artificial intelligence tool at the same institution. The study revealed a high level of awareness and usage of ChatGPT by the students. To be specific, 84.3% of the respondents reported that they were aware of ChatGPT, while 67.03% reported that they have used it academically. Students made use of ChatGPT for purposes such as assignment writing and editing, research, information gathering, explanations to difficult academic questions, brainstorming and problem-solving and language related tasks.

CONCLUSION

It is concluded from this study that the use of Artificial Intelligence (AI) has a lot of potential for the improvement of students' learning process at Nnamdi Azikiwe University, Awka. According to the literature review on the subject matter, the increased use of AI in the field of education has revolutionized the conventional teaching-learning process by offering personalized, flexible and interactive learning experience to the students. Such AI technologies as intelligent tutoring systems, generative AI applications, automated feedback systems, virtual assistants and personalized learning platforms could help students to receive academic assistance outside the conventional classroom setup.

Furthermore, it is concluded from this study that the use of AI would be able to boost the engagement and motivation of students through offering them an interactive learning environment where students could receive instant responses and gain knowledge of various academic concepts as per their requirements. AI-enabled learning process could also contribute to students' access to the academic resources through helping them find the information and understand the complex concepts and acquire explanations beyond what is available in the form of textbooks and lecture notes in the conventional classroom.

While considering all the above benefits, it is necessary to point out that the use of AI in students' learning process is hampered by a number of barriers. Insufficient technological infrastructure, unreliable internet access, poor digital literacy skills, fear of data leaks, academic dishonesty, inaccuracies in generated information and over-reliance on AI technologies are among such barriers that may hinder its educational potential. Thus, it is clear that AI should not be considered as a substitute for lectures or students' independent efforts in terms of learning.

In general, it is possible to state that Artificial Intelligence is a promising technology for enhancing students' learning experience at Nnamdi Azikiwe University, Awka. With its effective implementation, it will become possible to achieve individualized learning, better access to academic resources, increased level of engagement and motivation, instant feedback and increased flexibility of the learning process.

RECOMMENDATIONS

Based on the findings and conclusion of the study, the following recommendations are made:

There is need to improve the digital structure of Nnamdi Azikiwe University. There is need for reliable internet connections, computer laboratories, electricity provision and other technological amenities for the effective application of AI based educational programs.

Training of students and lecturers on the application of AI should be done regularly. They should be trained on how to use AI tools appropriately, ethically and responsibly in teaching, learning, research and academic activities including prompt formulation, information verification, responsible use of generative AI and identification of AI errors.

Integration of AI in teaching and learning process should be made. Lecturers should be encouraged to make use of AI applications during classes, assignment, tutorials and examinations but without compromising the normal teaching process.

Policies on AI should be developed in the institution. The policies should include issues like academic integrity, plagiarism, examination process, responsible use of generative AI, data privacy and acknowledgment of AI-assisted academic work.

Students should be encouraged to use AI as an assistant in their learning process but not as a replacement for the learning process. Students should verify the information provided by AI, check authoritative academic sources and build their research and problem-solving skills.

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