Artificial Intelligence in Nigerian Academia: A Double-Edged Sword

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Abstract

Artificial Intelligence (AI) has emerged as a transformative force in global education systems, offering tools that can personalize learning, automate administrative tasks, and support inclusive education. However, in the Nigerian context, questions arise regarding its efficacy, accessibility, and impact on learners. This paper examines AI as both a potential catalyst for improved learning outcomes and a possible digital distraction. It critically explores the current implementation of AI technologies in Nigerian academia, the readiness of the higher education system to adopt such tools, and the implications for lecturers and students. The study employs a qualitative review approach, drawing from recent literature and policy documents to analyze the dual role AI plays. Anchored in sociotechnical system theory, the paper suggests that while Artificial Intelligence (AI) holds significant transformative potential for Nigeria's educational landscape, its effectiveness is currently constrained by critical factors. These constraints include infrastructural deficits, widespread digital illiteracy, and the challenges posed by unregulated usage. To harness AI responsibly and effectively, the paper recommends that policy-makers and educators take several coordinated steps: investing in robust infrastructure, training educators to utilize AI tools, developing comprehensive AI policies, fostering inclusive access to AI technologies, and promoting public-private partnerships for sustainable development.

Keywords: Artificial Intelligent, Education, Catalyst for Learning, Digital Distraction, Inclusive Education

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Introduction

The issue of Artificial Intelligence (AI) in Nigerian universities is aptly illustrated by the traditional Yoruba proverb: 'Ida ahun la fi n pa ahun', which translates to: ‘The tortoise is destroyed by its own shell or sword’. In this context, AI represents our contemporary "sword," a formidable force that presents vast opportunities for tailored learning experiences and improved administrative functions. However, without careful consideration and well-defined policies, this same force may turn into an instrument of intellectual self-destruction, undermining critical thinking, encouraging academic misconduct, and exacerbating the

existing digital divide. Thus, the fundamental question arises: will AI genuinely serve as a driving force for education, or will it merely act as a hazardous digital diversion in Nigerian higher education? The dual character of AI is best characterized as a "double-edged sword." As a driving force, AI has the potential to transform the educational landscape by furnishing personalized learning experiences that adjust to individual student paces, offering instantaneous feedback, and automating monotonous administrative responsibilities like grading, enabling educators to concentrate on innovative teaching and mentorship. Moreover, AI enhances access to quality education, overcoming geographical obstacles to reach marginalized communities and students with particular needs. On the contrary, this technology also presents a considerable threat as a distraction. The devices that support AI tools also serve as conduits to non-educational material, diverting students' focus from their academic work. More importantly, the dependency on generative AI for completing assignments can diminish critical thinking and autonomous problem-solving, fostering a superficial type of learning where students leverage technology to evade genuine intellectual engagement. The success of AI is thus entirely contingent upon its implementation: to guarantee it remains a driving force, educators and policymakers must approach it with careful intention, establish clear ethical standards, and prioritize enhancing student digital resilience and academic honesty.

At this juncture, it will be sufficed to note that in an increasingly interconnected society, Artificial Intelligence (AI) has become a fundamental aspect of modern educational systems. As defined by Afolabi et al. (2024), AI represents the extraordinary capability of machines to replicate human intelligence by addressing tasks such as reasoning, learning, and problem-solving with notable efficiency. This has made AI a crucial element in classrooms and educational settings worldwide. Educational AI technologies include adaptive learning platforms that customize content to meet individual student needs, virtual tutors that offer real-time support, automated grading systems that alleviate the burden on teachers, and predictive analytics that assist in recognizing students at risk of academic failure (Igbokwe, 2023). These advancements hold the promise of enhancing instructional effectiveness, boosting learning outcomes, and promoting more inclusive and personalized educational experiences.

In Nigeria, the incorporation of AI in education is still in its early stages but is swiftly gaining traction due to increasing digital transformation initiatives and reforms in the educational sector (Daddie et al., 2025). Numerous state and federal projects are encouraging the adoption of ICTs and digital tools in schools. Nevertheless, according to Ngonzo et al. (2025), the introduction of AI in Nigerian classrooms introduces a complex set of challenges. While AI presents significant potential to address gaps in teaching quality, access to educational resources, and student support services, it also brings risks, especially in contexts where infrastructure, digital literacy, and regulatory frameworks are lacking (Fazal et al., 2025). This duality of AI raises significant questions for stakeholders: Is AI genuinely a transformative instrument that can enhance educational delivery in Nigeria, making learning more engaging and accessible for everyone? Or does it risk becoming a digital distraction, steering attention away from essential learning objectives, increasing students' screen time without meaningful interaction, and worsening existing inequalities?

This study intends to investigate the contrast between AI's role as an enhancer of learning and its potential to act as a digital distraction in Nigeria's educational landscape. It evaluates the technological, pedagogical, and socio-economic aspects of AI integration, looking at both its possible advantages and the challenges it presents. The discussion also covers ethical issues, including student data protection, algorithmic bias, and the possibility of replacing human teachers. By providing an impartial and comprehensive assessment, this research aims to guide educators, policy-makers, and scholars on how to utilize AI efficiently and ethically within Nigeria's changing education system.

Artificial Intelligence in Education (AIEd)

Artificial Intelligence (AI) involves utilizing machine learning, natural language processing, and algorithms to aid in educational and administrative functions within schools (Obona et al., 2024). It signifies the imitation of human intelligence processes by machines, especially computer systems. These processes include acquiring knowledge (gaining information and guidelines for its application), reasoning (employing the guidelines to reach likely or definite conclusions), and self-improvement. In the educational sector, AI is utilized through both software and hardware systems that replicate these human cognitive abilities to assist with teaching, learning, and administrative tasks. As stated by Akintunde et al. (2019), AIEd includes "technologies that employ AI techniques, such as natural language processing, machine learning, and robotics, to further educational objectives." These technologies encompass intelligent tutoring systems (ITS), learning analytics platforms, automated essay scoring systems, facial recognition for monitoring engagement, and AI-driven administrative tools for handling institutional responsibilities. Akinsuroju et al. (2024) noted that while AIEd presents enormous opportunities for transforming education, its execution necessitates meticulous planning, training, ethical oversight, and contextual adaptation, particularly in developing nations like Nigeria.

Characteristics of Artificial Intelligence in Education

Various researchers have explored the key features of artificial intelligence. A consolidation of their insights highlights the following important characteristics:

1. **Customization:** AI systems can adjust content and pacing according to the learner’s development, preferred learning methods, and past performance.
2. **Streamlining:** Routine activities such as grading, tracking attendance, and generating feedback can be accomplished more effectively.
3. **Insight from Data:** AI examines extensive datasets to assist educators in making informed choices regarding curriculum development, intervention techniques, and learner assistance.
4. **Interactivity and Participation:** AI-driven chatbots, virtual tutors, and gamified platforms enhance learner involvement through engaging, interactive experiences.

Artificial Intelligence Tools in Education

1. Customized Learning: AI-driven platforms (such as Knewton, DreamBox, and Century Tech) evaluate student performance and tailor lessons to match individual learning preferences,

speed, and areas needing improvement, providing students with personalized content and suggestions.

2. Smart Tutoring Systems (STS): Virtual tutors (like Carnegie Learning and Duolingo Bots) offer immediate feedback, clues, and explanations, functioning as a personal tutor outside the traditional classroom environment.

3. Automated Evaluation and Assessment: AI technologies can assess multiple-choice, fill-in-the-blank, and even brief essay responses (for example, Gradescope and Turnitin Draft Coach), which saves educators time and ensures prompt feedback.

4. AI-Enhanced Learning Management Systems (LMS): Platforms such as Canvas, Moodle with AI add-ons, and Blackboard Ultra utilize AI to monitor student engagement, forecast performance, and suggest resources.

5. Chatbots and Virtual Assistants: AI chatbots (including IBM Watson Tutor, Google's Socratic, and Microsoft's Copilot) respond to student queries, provide study assistance, and aid with administrative matters such as enrollment and class schedule questions.

6. Predictive Analytics for Student Achievement: AI examines attendance, participation, and grades to pinpoint students who may be at risk of academic failure or dropping out, facilitating timely intervention.

7. Language Acquisition: AI applications like Duolingo, ELSA Speak, and Grammarly enable students to practice pronunciation, grammar, and writing skills with immediate corrections.

8. Engaging Learning with AI and AR/VR: AI-powered virtual laboratories and simulations (such as Labster and ClassVR) allow students to conduct experiments or explore historical events in immersive 3D settings.

9. Administrative Streamlining: AI simplifies scheduling, admissions, grading, and documentation processes (for instance, chatbots for student inquiries and automated sorting of applications).

10. Inclusivity and Accessible Education: AI resources such as speech-to-text, text-to-speech, and real-time translation assist students with disabilities or language challenges, improving their access to education (examples include Microsoft Immersive Reader and Google Translate in educational settings). (Solanki, 2025)

The Prospect of AI in Nigerian Academia: A Catalyst for Learning

In the Nigerian educational landscape, AI has the potential to serve as a significant driver for positive transformation. It can help tackle various persistent challenges, including large class sizes, resource limitations, and variability in teaching quality. Effectively integrating AI technologies can enhance both teaching and learning outcomes considerably (Agadagba & Ekwevugbe, 2025).

a. Addressing Geographical and Resource Disparities

For universities in Nigeria, AI can broaden access to quality education for students in remote or underserved regions. In areas where there is a shortage of qualified instructors, especially in specialized fields such as STEM, AI-based educational platforms can offer alternative learning solutions. Tools like adaptive learning software, chatbots, and virtual tutors can provide curriculum-focused content to students with minimal human guidance. For example, Nigerian EdTech innovators have developed platforms like uLesson and Afrilearn, which utilize AI and

data analytics to customize video lessons and assessments for students preparing for important national exams like WAEC and JAMB. This tailored approach addresses learning challenges and caters to students at their individual comprehension levels. Research has shown that students using AI-enhanced learning platforms in certain states achieved notably better results in STEM subjects compared to their peers in conventional classrooms without digital support (Fathi et al., 2025).

b. Boosting Personalized Learning and Student Engagement

AI tools can customize educational material to suit individual learners, taking into account their pace, learning preferences, and performance. This is particularly vital in Nigeria, where overcrowded university lecture halls and overworked lecturers often restrict personalized teaching. AI can evaluate student performance data in real-time and provide targeted feedback, remedial lessons, or advanced resources, thereby enhancing learning outcomes. A 2023 UNESCO report indicated that personalized learning systems in Nigeria demonstrated a 29% increase in student engagement and retention compared to traditional e-learning formats (Bali & Ahmadu, 2024).

c. Advancing Administrative Efficiency and Research Abilities

Beyond the traditional classroom, AI technologies are being utilized for administrative functions such as course registration, attendance monitoring, and managing admissions. By automating these tasks, universities can allocate limited human resources to more meaningful student interactions and prioritize research efforts. For instance, Fabunmi and Akinyemi (2025) noted that the Federal University of Technology, Akure has tested AI-driven systems for managing course registrations and academic counseling, which has decreased processing times and enhanced student satisfaction. Moreover, in the field of academic research, AI tools can assist with literature reviews, data analysis, and even writing support, enabling Nigerian scholars to enhance their productivity and competitiveness on the international stage.

The Pitfalls: When AI Becomes a Digital Distraction

Although AI provides advantages, it also poses considerable dangers when not applied carefully, especially in a context like Nigeria, where issues such as digital divides, uneven access, and inadequate policy frameworks persist.

a. Widening the Digital Divide

While AI has the potential to enhance educational opportunities, it can also intensify inequalities if it is not accessible to all (Vesna, 2025). Students attending urban, well-funded private universities are more likely to benefit from AI technologies because they have better internet access, digital devices, and knowledgeable instructors. Conversely, students in rural or economically disadvantaged areas may be overlooked, leading to a divided education system. Research by Nirman (2025) indicated that only a small percentage of Nigerian students had reliable internet access, which is essential for most AI applications. This gap threatens to extend the divide between the advantaged and the underprivileged.

b. Decline of Critical Thinking and Academic Integrity

Concerns are rising that excessive reliance on AI tools, such as generative chatbots (e.g., ChatGPT) or automated essay creators, may diminish students' ability to think critically or solve problems on their own. Students may resort to using AI for homework or projects without fully grasping the material. Leong and Zhang (2025) found that a significant number of university students surveyed acknowledged using AI-generated content in their studies, often without adequate verification or comprehension. This reliance can result in superficial learning, plagiarism, and academic misconduct, as students opt for speed and convenience over true understanding.

c. Rise in Digital Distraction

Platforms powered by AI often feature gamified elements, push notifications, or environments conducive to multitasking that may distract students rather than engage them. In remote learning scenarios, where self-direction is crucial, the absence of physical oversight can reduce focus and time spent on tasks. Data from Juarez et al. (2023) revealed that many university students experienced challenges staying focused during AI-assisted remote lessons, citing distractions from social media, games, and non-relevant web content.

Current Nigerian Realities

In Nigeria's changing educational environment, the emergence of AI reveals a harsh truth where its positive potential is frequently eclipsed by the chaos it causes, transforming a once-promising learning aid into a significant source of distraction and a decline in intellectual capacity. Although AI tools could theoretically improve student interaction and tailor learning experiences, the situation in reality is much more concerning. The very availability of these tools, combined with inadequate guidance and monitoring, has resulted in widespread academic laziness (Agbor et al., 2024). Students are increasingly unmotivated to engage in the challenging processes of critical analysis, problem-solving, or original research. Instead, they depend on AI to supply ready-made responses for their assignments, essays, and even capstone projects. This reliance fosters a generation of graduates who can produce content but lack the essential skills needed to create it independently, representing a significant intellectual shortcoming that undermines the fundamental objectives of higher education. Beyond the university environment, this uncritical application of AI has made its way into society, giving rise to new forms of digital deception. The same technology that could function as a virtual tutor is being misappropriated for online fraud and scams, often referred to as "yahoo-yahoo" in Nigeria. The capability of AI to generate persuasive text and mimic others has become a hazardous tool for individuals aiming to take advantage of naive victims. Additionally, the widespread usage of social media and other digital platforms, often driven by addictive AI algorithms, acts as a persistent distraction. Students find themselves investing more energy in their screens seeking momentary digital satisfaction than concentrating on their academic work. This trend leads to a decline in academic achievement and an increase in failure rates, as the mental focus necessary for success is sacrificed to the endless scrolling of social media feeds and online gaming. Rather than closing the digital divide, it has instead widened into a gulf of intellectual disparity. While a minority may leverage AI for true academic progress, the majority are yielding to its distracting and detrimental effects, transforming what ought to be a means of empowerment into a perilous force of intellectual and social deterioration.

Commonly Used AI Tools

In Nigerian secondary schools and higher institutions, students are increasingly using a range of AI tools, with both positive and negative consequences. While there isn't a single official list of tools used, several popular platforms have gained traction. Among Nigerian students, the most prominent AI tools are generative AI chatbots like ChatGPT and Google's Gemini (formerly Bard). They are widely used for tasks such as generating essay outlines, writing entire paragraphs for assignments, brainstorming research topics, and summarizing complex texts. Students also rely on writing and grammar-checking tools like Grammarly and QuillBot to edit and rephrase their work to avoid plagiarism. For STEM subjects, tools like Wolfram Alpha are used for solving mathematical problems and providing step-by-step solutions. In universities, particularly for research and administrative tasks, students and academics use tools like Mendeley for citation management**,** QuillBot for paraphrasing, and ChatPDF for summarizing and interacting with PDF documents. Some institutions have also introduced specific tools for automated grading and assessment, although their use is not widespread, (Okafor et al., 2025). The decrease in in-person interactions may have an adverse effect on pupils' social skill development.

Furthermore, because AI is unable to understand and react to students' emotional and cultural nuances with empathy, the absence of human touch may make it more difficult for pupils to understand complicated subjects. Therefore, even if AI may effectively automate a number of educational tasks, it is crucial to recognize the value of human teachers and their indispensable contribution to helping students develop their emotional intelligence and critical thinking skills.

Data privacy violation:

The possible breach of data security and privacy related to AI tools in education is another important concern. For these tools to work properly, access to students' personal information is frequently necessary. On the other hand, if this data is not well protected, it may be breached, allowing for unwanted access and possible abuse. Given the sensitive nature of educational records—which frequently contain performance indicators, personal identifiers, and other private
information—this is an especially urgent issue. In order to secure student privacy and security when using AI-based educational technologies, strict data protection procedures must be put in place.

Plagiarism

When we talk about generative AI systems and education, one of the most common worries is that they might be used for plagiarism, meaning that students can utilize the system to complete tasks that they then present as having been completed by them independently of the AI. This could entail writing complete essays or using the system for intermediate activities like editing or creating an outline. While different educators will disagree on the point at which this use becomes problematic, part of the problem is that most existing forms of plagiarism detection rely on the assumption that the offending text is drawn from content that already exists, which

is not the case with content generated by artificial intelligence. This makes it difficult to detect plagiarized work.

Bias:

The possibility of bias in AI models is one of the biggest issues with the use of AI in education. Data sets are used to train algorithms, and if these data sets include biased information, the AI system may unintentionally reinforce and magnify these prejudices. For example, a dataset reflecting the implicit prejudices of the teachers who initially scored the assignments may be used to train an AI-based grading system. This might put some student groups at an unfair disadvantage. Similar to this, AI systems that suggest courses or career routes may be biased in favor of particular demographic groups if the training data contains preconceptions and stereotypes from society. This essentially violates the egalitarian ideal by introducing an element of inequality into the
teaching and learning process.

Unemployment:

The application of AI in the education industry may occasionally result in job displacement. There may be less need for human labor in these sectors if administrative work, online tutoring, assignment grading, and even creating customized study plans are automated. Some people may lose their jobs as a result of this, especially those whose jobs can be fully automated by AI technologies.

Technology Overdependence

Over-reliance on technology can result from the growing use of AI in education, which could have a number of unexpected repercussions. For example, students may become unduly dependent on AI tutoring systems to finish assignments or answer issues, which lowers their capacity or incentive to think critically and on their own. Students must learn critical thinking because it enables them to evaluate information objectively, establish well-reasoned conclusions, and solve issues. However, students might not feel the need to engage in this kind of in-depth, analytical thinking if AI systems are always able to supply them with the answers they need.

Causes of the Misuse of AI in Nigerian Academia

The improper use of AI in Nigerian higher education is a multifaceted issue that arises from a combination of factors, such as the absence of clear policies, low levels of digital literacy, and an established culture of academic shortcuts. These aspects work together to transform what could be a revolutionary tool into a harmful reliance for students (Yahaya et al., 2024).

A major contributor to AI misuse is the lack of formal policies and regulations within institutions. Numerous Nigerian universities do not have a comprehensive framework that outlines acceptable and unacceptable AI usage. This absence of regulation creates ambiguity that students take advantage of, as there are no clearly defined repercussions for submitting work generated by AI. Without explicit guidelines, it becomes challenging for instructors to uphold academic integrity, opening the door to widespread plagiarism and dishonesty.

Another critical element is the digital illiteracy present among both students and educators. While many students are skilled at utilizing social media and basic AI chatbots, they often do not possess a comprehensive understanding of these tools, their ethical implications, and how to employ them responsibly in academic contexts. This limited knowledge prompts an excessive dependency on AI for quick and simplistic answers. Conversely, numerous lecturers, particularly those from older age groups, may not be sufficiently educated about AI's capabilities or how to identify its presence in student submissions. This gap in knowledge complicates their ability to recognize sophisticated AI-generated materials, as traditional plagiarism detection tools are frequently ineffective against them.

This misuse is further intensified by an existing culture that favours shortcuts and a general lack of motivation. Nigeria's academic landscape, often featuring overworked lecturers, outdated curricula, and societal pressure for immediate success, can motivate students to pursue the easiest route. AI offers this shortcut, enabling them to evade the rigorous intellectual effort needed for critical thinking, research, and independent writing. Rather than utilizing AI as a means for brainstorming or refining ideas, it becomes a replacement for authentic intellectual engagement, resulting in academic laziness and a decrease in the quality of research and coursework. Moreover, there is a troubling overreliance on AI for academic tasks, which correlates with a reduction in critical thinking and problem-solving abilities. Students are increasingly accustomed to receiving instant, pre-made responses, avoiding the intellectual work essential for genuine learning. This presents a new challenge for maintaining academic integrity, as it becomes difficult for instructors to differentiate between original student work and content produced by AI.

Finally, infrastructural challenges and the digital divide are pivotal factors. While some fortunate students in well-endowed private institutions may have access to advanced AI tools and reliable internet connections, the majority in public universities encounter significant obstacles. This disparity implies that those with the means are in a better position to misuse technology, while those who could truly benefit from AI for educational advancement are often left behind. This further reinforces the notion that AI serves as a tool for cheating and convenience rather than as a resource for equitable and high-quality education.

Theoretical Framework

According to sociotechnical systems theory, technology and human/social structures are interdependent, and depending on how social, cultural, institutional, and infrastructural factors interact with a technological innovation, like artificial intelligence, it can have both positive and unexpected negative effects. Consequently, sociotechnical system theory provides a framework for understanding Artificial Intelligence (AI) in Nigerian academia as a double-edged sword, where its outcomes are determined by the interaction between its technological capabilities and the existing social, cultural, and institutional realities of the higher education system. The Technological Subsystem, which stands for the "Positive Edge," provides advantages including increased productivity in research, higher efficiency (like automated grading), improved access to knowledge (like intelligent tutoring), and substantial educational

innovation (like adaptive learning). On the other hand, the Social Subsystem contributes to the "Negative Edge" by exaggerating the drawbacks of AI because of elements specific to the Nigerian context, such as the digital divide, existing skill gaps among users, institutional unpreparedness (lack of clear policies), risks of academic dishonesty, concerns about job insecurity, and the difficulty of Western algorithmic bias. According to STS, the sociotechnical interaction is the cause of this dual nature: Only when there is a high alignment between the social and technical systems does AI improve education; when there is a weak alignment, it causes disruption and inequity. (Kalluri, 2025)

Conclusion

AI has enormous potential for Nigerian education, but it also has significant drawbacks. It can act as a catalyst to close gaps in the conventional educational system, democratize access, and customize learning. However, if used as a diversion without planning and oversight, it can exacerbate inequalities, reduce critical engagement, and jeopardize the integrity of education. The way AI is applied, who gets access to it, and the principles that underpin its use will ultimately determine how beneficial it is in Nigerian education rather than the technology itself. It will take a purposeful, equity-driven, and pedagogically sound approach to make sure AI turns into a tool for empowerment rather than a hindrance to effective learning.

Recommendations

Nigeria needs to take a balanced and context-sensitive strategy in order to maximize the advantages of AI while reducing its hazards. This comprises:

i. Invest in Infrastructure: ICT development in schools should be a top priority for the government and interested parties.
ii. Train Educators: Teachers must get ongoing professional development on integrating AI.
iii. Develop Policies: To direct implementation and handle ethical issues, a national AI education policy ought to be created.

iv. Encourage Inclusive Access: Make sure that both urban and rural areas have fair access to AI tools.
v. Promote Public-Private Partnerships: These alliances can help Nigerian schools develop and implement AI.

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