

ETHICAL CHALLENGES IN LEVERAGING ARTIFICIAL INTELLIGENCE FOR EDUCATIONAL MANAGEMENT AND PLANNING

ENEBELI, C.L.

Department of Educational Foundations and Management

Ambrose Alli University, Ekpoma

Louisaenebeli21@gmail.com

08069966672

Abstract

This paper discussed ethical challenges in leveraging AI for educational management and planning. The emergence of AI has transforms educational management and planning by improving administrative efficiency, optimizing resource allocation, enhancing personalized learning, and supporting data-driven decision-making. However, the adoption of AI raises ethical concerns including algorithmic bias, equity, data privacy and security, accountability, digital inclusion, the loss of human interaction in AI-supported education and transparency that may hinder its effectiveness and responsible implementation. Drawing on contemporary literature, the paper discussed how AI tools such as automated grading systems, predictive analytics, intelligent tutoring, and educational management and planning help in optimizing school administration. It proposes strategic solutions to overcome barriers to AI adoption to ensure its effective and sustainable implementation. The paper concludes that the emergency of AI into educational management and planning provides valuable insights through data-driven decision-making, aiding in the formulation of responsive policies, reducing the administrative burden on educators, and supporting continuous improvement of educational outcomes. It therefore recommends among others that the Nigerian government and educational institutions should endeavour to invest in digital infrastructure, stakeholder collaboration, continuous professional development, and effective ethical frameworks to support the effective integration of AI into educational management and planning.

Keywords: *Artificial Intelligence, Ethical Challenges, Educational Management and Educational Planning*

Introduction

The rapid emergence of AI technologies has significantly transforms the educational landscape, offering opportunities for personalize learning, enhance instructional methodologies, and optimize administrative processes. From automated grading systems to adaptive learning platforms, AI has the potential to redefine how education is delivered and experience. However, the emergence of AI sparked critical debates surrounding ethical issues such as data privacy, algorithmic biases, equity, and the role of human agency in learning environments. Addressing these issues require robust ethical frameworks to guide the responsible adoption of AI in educational management and planning, ensuring that technological advancements align with core values of equity, inclusivity, and academic integrity (Swindell et al., 2024; Butson & Spronken-Smith, 2024). However, education drives the economic, social-political, religious, and technological development of nations. According to Osiesi (2023), the achievement of the objectives of education warrants a robust and efficient planning and management mechanisms. Gregory and Jegede (2021) noted that educational management and planning form the foundation of successful schools, institutions, and organizations. Similarly, Hwang and Chen

(2020) stated that as educational institutions face increasing demands for efficiency and quality, the role of AI and technology to automate routine operations provides data-driven insights that enhance decision-making and strategic planning. Despite the importance of effective educational planning and management, Nigeria continues to face inefficiencies in administration, resource allocation, student performance tracking, and decision-making processes (Adelana & Akinyemi, 2021). The traditional management approaches often rely on manual record-keeping, inconsistent data monitoring, and slow response mechanisms, which hinder the smooth operation of education. These inefficiencies lead to poor educational outcomes, limit teacher effectiveness, and weaken institutional performance, ultimately affecting students' learning experiences and future employment opportunities.

However, AI presents a promising solution to these challenges by providing data-driven decision-making support, optimizing resource management, and automating administrative processes. The emergence of AI in Nigeria's educational management and planning remains minimal, largely due to infrastructural deficits, AI literacy among educators, resistance to change, and ethical concerns such as data privacy and algorithmic bias (Swindell et al., 2024; Butson & Spronken-Smith, 2024). The multifaceted nature of educational management and planning in Nigeria necessitates the inclusion of data-driven solutions that enhance efficiency, transparency, and productivity. Additionally, it offers unique capabilities that go beyond traditional administrative approaches by automating repetitive tasks, analyzing vast amounts of educational data, and providing actionable insights for educational management (Awofiranye, 2024). Unlike conventional methods, Adelana and Akinyemi (2021) opined that AI-driven systems can track and predict students' academic performance, helping educators identify learners who need additional support. It also enhances administrative efficiency by refining grading processes, automating attendance tracking, and optimizing timetable preparation, reducing teachers' workload and allowing them to focus more on instructional activities.

In the same vein, administrative functions of AI contribute to individual learning by adapting instructional content to meet the unique needs of students. AI-powered intelligent tutoring systems can provide real-time feedback, recommend customized study plans, and create an interactive learning environment that fosters deeper student engagement (Olatunde-Aiyedun 2024). In many developed countries, the integration of AI in educational management and planning has significantly improved institutional efficiency, ensuring data-driven decision-making and better student outcomes. Given Nigeria's expanding student population and the persistent challenges of teacher shortages and inefficient resource allocation, it presents an opportunity to bridge these gaps, improve school governance, and enhance the overall quality of secondary education (Fullan et al., 2023). However, to fully harness AI's potential, it is imperative to address barriers such as limited infrastructure, lack of AI expertise among educators, and ethical concerns related to data security and bias. This underscores the need for well-defined policies and strategic initiatives to facilitate AI adoption in Nigeria's education sector.

This study, therefore, discusses ethical challenges in leveraging AI for educational management and planning, addressing existing inefficiencies, and enhancing overall educational management and planning in Nigeria. For instance, the loss of human interaction in AI-supported education. Teachers do not merely transmit knowledge—they cultivate motivation, empathy, and moral reasoning. Overreliance on AI could lead to a mechanized learning experience, where emotional intelligence and creativity are undervalued. Research by Luckin (2018); Zawacki-Richter et al. (2019) reinforced the idea that human mentorship remains irreplaceable for holistic

development. In addition, most AI systems rely on the continuous collection and processing of large amounts of student data, including academic performance, behavioral patterns, browsing history, and even biometric or emotional data through learning analytics tools. While this data enables highly personalized learning environments, it also raises ethical concerns about surveillance and data exploitation. Studies such as those by Williamson and Eynon (2020) have shown that many AI-driven platforms lack clear transparency about how data is gathered, stored, and shared with third parties. In addition, students and parents are often unaware of the extent to which their data is collected or analyzed by algorithms. The findings of this study support the claim that institutional data governance frameworks remain fragmented, with many schools depending on private edtech providers whose policies prioritize business interests over ethical data use. Similarly, the data privacy issue was one of the top concerns as AI programs would involve a large volume of student demographics, learning habits and performance reports among others (Bhuiyan et al., 2025). The study also discusses that transparency was also identifies as a recurring theme owing to the “black box” nature of AI decision making that stakeholders could not easily see into or question (MoDastoni, 2023).

Similarly, one of the foremost challenges in the emergence of AI in educational management and planning revolves around privacy concerns. As AI systems collect and analyze vast amounts of student data, including performance metrics, learning patterns, and behavioral data, the potential for privacy breaches becomes a critical issue. Striking a balance between leveraging AI for personalized learning and protecting individual privacy requires robust data protection measures, secure storage protocols, and transparent communication about data usage policies (Butt, et. al., 2022, Khosravi, et. al., 2022, Malhotra, et. al., 2021). AI algorithms are trained on historical data, and if that data reflects biases, the algorithms can perpetuate and even exacerbate these biases. Mitigating algorithmic biases requires ongoing scrutiny, diverse representation in data sets, and iterative refinement to ensure fairness and equity (Leavy et al., 2020, Ntoutsis, et. al., 2020). The digital divide remains a substantial ethical concern in AI-driven education. Not all students have equal access to the technology required for AI-infused learning experiences, creating disparities in educational opportunities. Students from economically disadvantaged backgrounds or remote areas may lack access to devices, high-speed internet, or necessary software. The study further discusses how AI-powered tools such as automated grading systems, predictive analytics, intelligent tutoring, and educational management and planning platforms help in optimizing school administration. Lastly, it also discusses strategic solutions to overcome the barriers to AI adoption and ensure its responsible and sustainable implementation in educational management and planning. This study provides insights that will be valuable to policymakers, school administrators, educators, and stakeholders in the Nigerian education sector and around the globe.

Conceptual Framework

The conceptual framework deals with the following subheadings: Artificial intelligence, educational management and planning.

Artificial Intelligence

Intelligence simply means the ability to perceive or infer information, and to retain it as knowledge to be applied towards adaptive behaviours within an environment or context. According to Imoh (2023), AI involves the fields of computer science that deals with the development of intelligent machines that can perform task that typically require human intelligence, such as visual perception, speech recognition, decision-making, and language

translation. It refers to the creation of computer systems capable of performing tasks that historically only a human being could do, such as reasoning, making decisions, or solving problems (Nwanguma & Onyeukwu, 2023). Imoh added that it is a thriving technology that is changing the world and is being used in almost every field. One of the places where artificial intelligence is poised to make big changes is in education. In the context of the Nigerian education system, the integration of AI in educational management and planning holds immense potential to enhance learning outcomes and streamline (modernize) administrative processes.

AI is creating quantum waves in almost every field, including education. It is an evolving technology that tries to simulate human intelligence using machines, especially computer systems. AI has several subfields and methods, such as machine learning, robotics, natural language processing, computer vision, and expert systems. Each of the subfields focuses on different aspects of AI technology. AI also known as ‘machine intelligence’, involves designing devices that resemble cognitive processes such as answering machines, learning, problem-solving, decision-making, and modeling of human intellect. Vijay (2022) defined AI as the intelligence of a machine or computer that enables it to imitate or mimic human capabilities. It has become crucial in school management because it can offer several opportunities to transform various tasks in institutions of learning. Schools' management employs the assistance of AI intelligent tutoring systems, which involve the use of computer programs to provide data and personalized instruction to students. AI can be used for personnel time monitoring in institutions, among others, which will be discussed. AI personnel time monitoring refers to the use of AI technologies used to track and monitor the time spent by employees on tasks, projects, and activities (Rao, 2022). This includes automated time tracking, attendance monitoring, and performance analysis. It enhances resource allocation, strategic planning, facilities management, student behavior and discipline monitoring, crisis management, parent and community engagement, staff performance evaluation, policy compliance support, teaching and learning experiences, personalized learning, curriculum development, students' assessment and evaluation.

Educational Management and Planning

Education is a social institution that plays a critical role in shaping the values and culture of a society (Higham & Earley, 2013). Educational institutions are responsible for transmitting knowledge, skills, and beliefs essential to maintain and sustain a particular way of life. Through education, individuals are socialized, conditioned and prepared to become active members of their communities. The values and beliefs transmitted through education can shape society's political, economic, and social structures. Management is a crucial element that all organizations use in order to enhance production. Management may be described as the use of leadership abilities to provide direction on the handling of operations. According to Ndugu and Koori (2020), organizations that generate significant profits have implemented well-organized management divisions to ensure the efficient operation of their programmes. These divisions include management science, the responsibilities and duties of an educational manager, and the essential managerial skills.

According to Umesi (2024), educational management as a field of study and practice was derived from Management principles first applied to industry and commerce, mainly in the United States. Management is simply the guidance or direction of people towards the accomplishment of educational goals (Ogbonnaya et al., 2013). Similarly, Bua (2020) conceived management to include proper planning, organizing, directing, and supervising for optimal

performance. Therefore, Ogbonnaya (2009) defined educational management as the planning and formulation of educational policies or programmes with the view to achieving educational goals.

Akpakwu (2008) viewed educational management as the ability of the educational manager to judiciously utilize human, material, financial, and time resources towards the efficient and effective achievement of the objectives of educational institutions. Additionally, Educational management is said to involve the effective use of resources, including human, financial, and physical resources, to create a supportive learning environment that promotes student achievement and well-being (Hallinger, 2018). It can therefore be said that educational management ensures that educational institutions run efficiently and effectively to provide quality education to students. Bush and Glover (2014) maintained that educational management is a crucial field of study that helps educational institutions to meet their goals and objectives. The author further states that effective educational management requires the use of appropriate management techniques and tools, such as strategic planning, administrative task planning, and financial management. The success of the techniques is anchored in management leadership abilities. Igbokwe (2023) opined that effective leaders create a vision for the institution, establish clear goals and objectives, develop and support a talented staff, and create a positive school culture.

Educational management, which encompasses the planning, organization, and supervision of educational institutions, is a complex and multifaceted field that stands to benefit significantly from the adoption of AI. Integration of AI in educational management has the potential to transform the way educational institutions operate, from automating administrative tasks to enhancing student learning outcomes (Kumar et al., 2022). It is often used as a generic term that refers to a collection of several digital technologies such as machine/deep learning, data mining, natural language processing, and neural networks, all of which serve the purpose of creating computing systems that can perform human-like processes like cognition, sensing, synthesis, and understanding of large data in order to solve complex problems (Baker & Smith, 2019). AI can be used to improve student outcomes, enhance teacher productivity, and optimize educational resources. As the world moves further into the twenty-first century, the integration of AI into the management of education has become necessary (Akinyemi et al., 2022). The introduction of AI has revolutionized the way educational activities are managed. It focused on several core components of modern educational management, which involve automated administrative tasks, improved student services, and learning outcomes.

Educational planning, according to Azunwena and Uchena (2021), is a process of preparing a set of decisions about an educational enterprise in such a way that the goals and objectives of education will be sufficiently realized in the future with the available resources. The word 'educational planning' has lost the undertones it had earlier of infringement with individual liberties and is becoming increasingly accepted by all as part of the vocabulary of development, each country having its own type of planning within its own political system. In what follows, planning refers to the system a country adopts for forecasting its needs and setting up a framework, or alternative frameworks, of national action to meet them. It deals with matters that are subject to forecast. It is also a systematic process of setting goals, defining objectives, and developing strategies to achieve desired educational outcomes. In other words, it involves analyzing future trends, challenges, and designing programs and initiatives to address educational needs effectively. Furthermore, educational planning aims to ensure that resources are allocated efficiently, programs are implemented effectively, and outcomes are evaluated to improve the quality and relevance of education (Emechubale, 2021).

UNESCO (2024) noted that the preparation of a comprehensive plan will not guarantee success, but effective implementation will. It is necessary to plan education, implement the plan, and evaluate the planning process for the attainment of educational goals at different levels of education. Therefore, the concept of educational planning is to identify what the school organization wants to do by using questions which are “where are we today? Where are we going? Where do we want to go? How are we going to get there? It is on the basis of answering these questions that planning has become one of the most essential functions of educational administrators and planners.

Benefits of Leveraging AI in Educational Management and Planning

Below are some key benefits of adopting AI into educational management and planning:

1. ***Personalized Learning Experiences.*** Personalized learning through AI involves using algorithms and data analytics to analyze individual learners' behaviour, preferences, and performance, thereby allowing for the customization of educational content and instructional strategies. AI technologies can provide real-time feedback, adapt learning pathways based on learner performance, and offer personalized support, thereby enhancing student engagement and motivation (Luckin et al., 2016). This adaptive learning approach ensures that learners receive content and activities that are appropriately challenging and aligned with their current level of understanding, fostering a more efficient and effective learning process. In the context of Nigerian educational systems, where resources are often limited, AI can play a crucial role in optimizing existing educational inputs and creating new opportunities for learning. For example, AI can assist educators by automating administrative tasks, analyzing student data to identify learning gaps, and suggesting targeted interventions, thereby allowing teachers to focus more on instruction and less on administrative burdens (Holmes et al., 2019).
2. ***Cost Efficiency.*** In environments where budgets are often constrained, educational institutions are under pressure to maximize the value of their resources while minimizing unnecessary expenditures. AI can help optimize resource allocation by automating administrative tasks and streamlining operations. By reducing the time and labor required for tasks such as grading, scheduling, and reporting, AI allows institutions to reallocate staff resources toward more value-adding activities, such as teaching and student support. Moreover, AI can improve the efficiency of teaching resources, ensuring that class sizes are optimized, teaching staff are appropriately assigned to courses based on demand, and classroom facilities are utilized effectively. AI-based systems can analyze enrollment patterns, student preferences, and faculty workloads to generate data-driven recommendations for optimal scheduling and staffing. This leads to a more efficient use of available resources and a reduction in operational costs (Baker & Siemens, 2020). The potential for cost savings extends beyond administrative and teaching resources. AI-powered platforms can also improve the effectiveness of support services, such as academic advising and student counseling, by automating routine tasks like scheduling appointments and tracking student progress. This allows counselors to focus on more meaningful interactions with students and provide more personalized guidance. Overall, AI's role in optimizing resource allocation and reducing operational costs helps educational institutions manage their budgets more effectively while maintaining high quality education.

3. **Data-Driven Decision-Making.** Another key benefit of AI is its capacity to provide educational leaders with data-driven insights that can guide decision-making processes across multiple areas, including resource allocation, curriculum development, and student support services. AI can process vast amounts of data related to student performance, teacher effectiveness, and institutional resource usage, providing actionable insights that enable educational leaders to make informed, evidence-based decisions. This ability is particularly valuable in the context of large and diverse educational institutions, where managing and interpreting complex data can otherwise be challenging. For example, AI can analyze student performance data from a variety of sources, such as assessments, attendance, participation in class activities, and even socio-economic factors, to generate insights about overall academic progress and identify students who may require additional support. AI-powered predictive analytics tools can then forecast student outcomes, such as academic success or the risk of dropout, allowing administrators to take timely, proactive measures to address potential challenges before they escalate (Davis & Lee, 2020). Furthermore, AI-driven data analysis can inform curriculum development by identifying trends in student learning preferences and success rates across different subjects. By assessing the effectiveness of teaching materials and methods, AI can help educational managers and planners to make more informed decisions about instructional strategies and curricular design. This ensures that educational programs remain relevant, effective, and aligned with the needs of students. By enabling a more data-driven approach to decision-making, AI empowers educational leaders to develop more targeted, effective strategies for improving both operational processes and student outcomes.
4. **Enhanced Student Outcomes.** The adoption of AI into educational management and planning holds great potential for enhancing student outcomes. AI technologies, particularly predictive analytics and personalized learning tools, allow for early intervention in cases where students may be struggling academically or at risk of dropping out. By analyzing patterns in student data, such as attendance, grades, and engagement, AI systems can identify students who are at risk and alert teachers, counselors, or administrators so that timely support can be provided. For instance, AI can use predictive analytics to flag students who are showing signs of disengagement or underperformance, allowing educators to intervene with personalized resources, tutoring, or counseling services before problems escalate. This proactive approach to student support not only improves retention rates but also helps students reach their full potential academically (Pardo & Kloft, 2019). Moreover, personalized learning experiences enabled by AI contribute to improved academic performance by ensuring that students are working at an appropriate level of challenge. As students are guided through content that is tailored to their individual needs, they are more likely to stay engaged and achieve better outcomes. Additionally, AI-driven tools that provide real-time feedback and support help students overcome learning obstacles more effectively, boosting their confidence and motivation. AI's ability to provide personalized, data-driven support plays a crucial role in enhancing student outcomes, promoting academic success, and fostering a supportive learning environment for all students.
5. **Increased Efficiency.** One of the most immediate and significant benefits of AI in educational management and planning is the capability to streamline administrative processes by automating routine and time-consuming tasks. Activities such as grading

assignments, scheduling classes, tracking attendance, and generating reports often consume considerable amounts of time and effort from educators, administrators, and support staff. AI-powered systems can automate these repetitive tasks, thereby reducing the administrative burden on staff and allowing them to focus on more strategic and impactful aspects of education. For example, AI-based grading systems can assess assignments, quizzes, and exams, offering instant feedback to students while allowing instructors to focus on instructional quality and student engagement. According to Obizue et al. (2024), AI applications in scheduling can optimize class timetables by analyzing various factors, such as teacher availability, room capacities, and student preferences, to create efficient and conflict-free schedules. This leads to improved organization and a more efficient use of resources. AI also plays a role in automating routine administrative reporting, such as attendance tracking and grade reporting, which traditionally require significant manual intervention. By automating these processes, institutions can improve responsiveness and ensure that administrative tasks are completed more accurately and in less time (Levy & Yates, 2020). In addition, AI systems can detect patterns and anomalies in administrative processes, leading to continuous improvements in workflow. Overall, AI's role in increasing efficiency within educational management allows institutions to allocate more time and resources to enhancing the quality of teaching and learning, which is the ultimate goal of educational systems.

Ethical Challenges in Leveraging AI in Educational Management and Planning

A major body of this paper emphasizes the benefits and opportunities that AI provides in modern educational management and planning. According to Holmes and Tuomi (2021), AI-driven adaptive learning platforms can personalize instruction, analyzing student performance and adjusting learning materials accordingly. This can help bridge learning gaps, support differentiated instruction, and improve academic outcomes. Similarly, Baker and Smith (2019) noted that AI tools enhance the efficiency of administrative tasks, such as grading, attendance, monitoring, and allowing teachers to focus more on pedagogical interactions. However, these advancements come with ethical implications that must be addressed to ensure fairness and transparency in the educational process (Akgün & Greenhow, 2021).

One of the most widely discussed ethical challenges in leveraging AI in Educational Management and Planning is data privacy and security. AI systems depend heavily on the collection and analysis of large amounts of students' data, including personal details, learning behaviors, and even emotional responses. Williamson and Eynon (2020) argued that the increasing use of educational data raises serious concerns regarding who controls the data, how it is stored, and for what purposes it is used. They point out that, in many cases, students and parents are unaware of the extent of data collection or lack the ability to opt out. Similarly, Regan and Jesse (2019) highlighted the power imbalance between technology companies that develop AI systems and the students who use them. When personal information is used to train algorithms or sold to third parties, it threatens individuals' right to privacy and autonomy. As a result, several scholars have called for stronger data governance policies and greater transparency regarding data use in educational AI systems (Slade & Prinsloo, 2019). Another recurring theme in the literature is algorithmic bias, which can perpetuate inequality and discrimination. Binns (2018); Mehrabi et al. (2021) emphasized that AI algorithms are only as fair as the data on which they are trained. If datasets contain biased or incomplete information, AI systems may replicate and even amplify existing social inequalities. For example, an AI-

based admission or grading system may unfairly favor students from certain socio-economic or cultural backgrounds. In educational settings, this can lead to misclassification of students, biased recommendations, or unfair academic assessments. To address these issues, scholars have proposed bias detection tools and fairness auditing mechanisms that evaluate AI performance across different demographic groups before implementation (Holstein et al., 2019).

The issue of transparency and accountability is another central ethical concern. Selwyn (2019) referred to AI systems in education as “black boxes,” meaning that their internal decision-making processes are often opaque, even to their developers. This lack of transparency poses serious challenges for accountability. When an AI system makes an incorrect or harmful decision such as misjudging a student’s ability, it is often unclear who is responsible: the developer, the educator, or the institution. Floridi and Cowls (2022) proposed the development of “ethical AI frameworks” that prioritize transparency, human oversight, and explain ability. They argued that teachers and administrators must understand how AI decisions are made so that they can intervene when necessary and maintain trust in the system (Long & Magerko, 2020). Another dimension discussed in the literature concerns the impact of AI on human relationships and emotional development in education. Luckin (2018) warned that excessive reliance on automation may reduce meaningful teacher-student interactions, which are essential for fostering empathy, motivation, and moral growth. Similarly, Zawacki-Richter et al. (2019) argued that while AI can support instructional delivery, it cannot fully replace the human elements of teaching, such as mentorship, encouragement, and ethical judgment. Therefore, researchers recommend maintaining a balance between technological efficiency and human-centered learning practices (Popenici & Kerr, 2017). In recent years, several frameworks have been proposed to address these ethical issues. For example, UNESCO (2021) introduced principles for the ethical use of AI in education, emphasizing inclusivity, fairness, and human rights. The European Commission’s (2020) Ethics Guidelines for Trustworthy AI also stressed the importance of transparency, data protection, and accountability. Despite these initiatives, empirical studies suggested that implementation remains inconsistent, especially in developing countries where regulatory oversight is limited. Researchers such as Holmes and Tuomi (2022) argue that educational institutions need localized ethical guidelines that reflect cultural values, infrastructure capabilities, and policy environments.

Way Forward

To overcome the multifaceted challenges hindering the adoption and effective use of AI in educational management and planning, strategic and pragmatic solutions must be implemented. These solutions should be tailored to address the infrastructural, technical, financial, cultural, ethical, and policy-related barriers identified. The following outlines comprehensive pathway towards enhancing AI integration into educational management and planning.

1. ***Bridging the Gap in Technical Expertise:*** The shortage of skilled AI professionals and educators in the Nigerian education system can be addressed through targeted capacity-building programs. Regular workshops, training sessions, and certification programs focused on AI, machine learning, and data science for academic and administrative staff should be organized. These programs should be practical, industry-driven, and integrated into professional development frameworks. Furthermore, educational institutions should consider establishing dedicated AI research centers and innovation hubs where staff and students can collaborate on technology-driven projects. Engaging diaspora experts, forming

academic partnerships with global AI institutions, and incorporating AI into the curriculum of relevant disciplines can also foster the development of in-house expertise.

2. **Tackling the High Cost of Implementation:** Although AI technologies are typically resource-intensive, creative funding strategies can eradicate the financial burden on institutions. Educational institutions should actively seek alternative funding through grants, research collaborations, and public-private partnerships. The establishment of technology endowment funds can provide long-term financial support for AI initiatives. Institutions may also negotiate subsidized access to AI platforms with technology vendors or adopt freemium software models that allow incremental scaling. Implementing AI in phases, starting with high-impact, low-cost areas such as administrative automation or e-learning support, can help institutions manage costs while demonstrating value to attract further investment.
3. **Addressing Inadequate Infrastructure:** To overcome the infrastructural deficits in educational institutions, there is a pressing need for substantial investment in ICT infrastructure. Educational sectors must prioritize the development of modern computer laboratories, campus-wide broadband connectivity, uninterrupted power supply, and access to cloud-based platforms. Government agencies should work in collaboration with private sector partners to fund the expansion of digital infrastructure in educational management and planning. In addition, institutions should adopt scalable and cost-effective technologies, including open-source AI tools, which can operate efficiently within limited resource environments. Equipping academic environments with the technological foundation necessary for AI will set the stage for long-term digital transformation.
4. **Overcoming Resistance to Change:** Resistance to change, particularly among academic and administrative personnel, can be addressed through inclusive change management and planning strategies. Institutions must foster a culture of innovation by involving all stakeholders in the planning and implementation of AI initiatives. Awareness campaigns, success stories, and demonstration projects can shed light on AI and highlight its benefits to staff and students alike. Creating a supportive environment where educators feel empowered, rather than threatened, by technology is essential. Providing incentives for early adopters, recognizing innovation in teaching and administration, and integrating digital literacy into staff evaluation criteria can promote wider acceptance and engagement.
5. **Managing Ethical and Privacy Concerns:** Ethical concerns surrounding the use of AI in educational management and planning must be addressed through the establishment of clear institutional guidelines on data governance, user consent, transparency, and fairness. Educational institutions should develop comprehensive data protection policies that define the scope of data collection, usage, and storage related to AI systems. It is essential to establish ethics committees to oversee the implementation of AI tools and ensure compliance with best practices in privacy and equity. Educating both students and staff on the responsible use of AI technologies can foster trust and promote ethical behavior. Provisions should also be made to audit AI systems periodically to detect and rectify algorithmic bias or misuse.
6. **Developing a Robust Policy Framework:** The absence of a national AI policy tailored to the education sector necessitates the urgent development of a comprehensive strategic framework. Government bodies responsible for education and technology should collaborate to formulate guidelines that promote the responsible adoption of AI in educational institutions. These policies should provide clarity on standards, priorities, ethical boundaries, and performance

metrics. Universities should be supported in developing institutional AI strategies aligned with national goals, including digital transformation, inclusive education, and research development. A central coordinating body could be established to monitor implementation, share best practices, and facilitate resource-sharing across institutions.

Conclusion

The emergence of AI into educational management and planning represents a transformative shift in the delivery, management, and experience of learning in the 21st century. However, the realization of these benefits is not without obstacles. As this study has revealed, educational management and planning face significant challenges in deploying AI, including poor digital infrastructure, lack of skilled personnel, high implementation costs, resistance to change, ethical and privacy concerns, and the absence of a comprehensive policy framework. These obstacles not only prevent technological advancement.

Finally, deliberate and coordinated efforts are required from all stakeholders, including government agencies, university management, academic staff, industry partners, and students. Investment in infrastructure, human capacity development, inclusive policymaking, and awareness campaigns must be prioritized to facilitate a smooth and sustainable adoption of AI technologies into the educational ecosystem. While the road to AI integration in the education sector may be challenging, it is both necessary and inevitable. Institutions that embrace innovation and strategically position themselves to harness the power of AI will not only improve their educational delivery but will also become more competitive and relevant in the global knowledge economy. Therefore, the effective application of AI in the education sector must be pursued with urgency, vision, and a commitment to excellence.

References

- Adelana, O. P., & Akinyemi, A. L. (2021). Artificial intelligence-based tutoring systems utilization for learning: A survey of senior secondary students' awareness and readiness in Ijebu-Ode, Ogun State. *Anamdi Azikiwe University Journal of Education Research Policy Studies.*, 9(1), 16–28.
- Ajuwon, O. A., Animashaun, E. S., & Chiekezie, N. R. (2024). Integrating AI and technology in educational administration: Improving efficiency and educational quality. *Open Access Research Journal of Science and Technology*, 11(02), 116–127.
<https://doi.org/10.53022/oarjst.2024.11.2.0102>.
- Akinyemi, I.A., Amaechi, L.I., & Etoh, L.C. (2022). Digitalization of education in Nigerian secondary schools: Benefits and challenges. *Journal of Education and Humanities Research*, 13(1), 34-42.
- Akpakwu, S.O. (2008). *Essentials of educational management*. Jalim press.
- Akgün, S., & Greenhow, C. (2021). Artificial intelligence in education: Addressing ethical challenges in K–12 settings. *AI and Ethics*, 1(2), 431–440.
<https://doi.org/10.1007/s43681-021-00096-7>.
- Awofiranye, M. (2024). *The challenges of using AI in education*. Available from <https://www.afterschoolafrica.com/78994/the-challenges-of-using-ai-in-education/>.
- Azunwena, R. N., & Uchena, N. G. (2021). Educational planning and policy. In U. S Bassey, and U. U Bassey (eds.), *Management of Higher Education In Africa*, *Uyo Journal of Education*, (2)4, 132-143.
- Baker, T., & Smith, L. (2019). *Education rebooted? Exploring the future of artificial intelligence*

- in schools and colleges. Retrieved from Nesta Foundation website:
[https:// media.nesta.org.uk/documents/futureofAIandeducationv5 WEB.pdf](https://media.nesta.org.uk/documents/futureofAIandeducationv5_WEB.pdf).
- Baker, R. S., & Siemens, G. (2020). Educational data mining and learning analytics. *International Journal of Educational Data Mining*, 12(3), 12-36.
<https://doi.org/10.1145/3306008.3306021>.
- Bhuiyan, Md. M. H., Dey, K. N., Saha, P., Sarker, P. K., Halimuzzaman, Md., & Biswas, Md. T. (2025). Exploring the role of artificial intelligence in transforming hr practices. *International Journal of Business Management and Economic Review*, 08(01), 98–110.
<https://doi.org/10.35409/IJBMER.2025.3646>
- Binns, R. (2018). Fairness in machine learning: Lessons from political philosophy. In *Proceedings of the Conference on Fairness, Accountability, and Transparency (FAT /FAT)*, 149–159. (Preprint/author version available: arXiv:1712.03586). <https://arxiv.org/abs/1712.03586>.
- Bush, T., & Glover, D. (2014). *Educational management: Major themes in education*. Routledge.
- Butt, U. J., Davelis, A., Abbod, M., Eghan, C., & Agbo, H. M. (2022). Improving learning experience and privacy in education using the power of big data and artificial intelligence. In *Integrated Business Models in the Digital Age: Principles and Practices of Technology Empowered Strategies*, 371-424. Springer International Publishing.
- Davis, R., & Lee, J. (2020). Leveraging artificial intelligence for data-driven decision making in higher education. *Educational Technology and Society*, 23(2), 62-73.
<https://doi.org/10.1016/j.edtechsoc.2020.02.003>.
- Emechubue, S. (2021). *Planning and educational development in Nigeria*. Educational Industries Limited.
- European Commission. (2019). Ethics guidelines for trustworthy AI (High-Level Expert Group on AI). *European Commission*. <https://op.europa.eu/en/publication-detail/-/publication/d3988569-0434-11ea-8c1f-01aa75ed71a1>.
- Floridi, L., & Cowls, J. (2019). A unified framework of five principles for AI in society. *Harvard Data Science Review*, 1(1). <https://doi.org/10.1162/99608f92.8cd550d1>.
- Fullan, M., Azorín, C., Harris, A., & Jones, M. (2023). Artificial intelligence and school leadership: Challenges, opportunities and implications. *School Leadership and Management*, 1(1), 56- 67. <https://doi.org/10.1080/13632434.2023.2246856>.
- Gregory, D., & Jegede, D. (2021). Educational planning in Nigeria: Problems and the ways forward. *Central Asian Journal of Literature, Philosophy and Culture*, 2(2), 41-48.
<https://doi.org/10.47494/cajlp.v2i2.67>.
- Hallinger, P. (2018). Educational Management: A review of the literature. *Journal of Educational Administration*, 56(1), 2-15.
- Higham, R., & Earley, P. (2013). School autonomy and government control: School leaders' views on a changing policy landscape in England. *Educational Management Administration and Leadership*, 41(6), 701–717.
- Holmes, W., Bialik, M., & Fadel, C. (2019). *Artificial intelligence in education: Promises and implications for teaching and learning*. Center for Curriculum Redesign.
<https://repository.globethics.net/handle/20.500.12424/4276068>.
- Holmes, W., & Tuomi, I. (2022). State of the art and practice in AI in education. *European Journal of Education*, 57(4). <https://doi.org/10.1111/ejed.12533>.
- Hwang, G.J., & Chen, C.H. (2020). Artificial intelligence in education: A review. *Educational*

- Technology Research and Development*, 68(1), 61-96.
<https://doi.org/10.1007/s11423-019-09725-6>.
- Igbokwe, I.C. (2023). Application of artificial intelligence (AI) in educational management. *International Journal of Scientific and Research Publications*, 13(3), 300-307.
- Imoh, S.I. (2023). Artificial Intelligence in Education. *History, Roles, Benefits, Challenges of Implementing, Examples, and its future implications*, 1-11.
- Kumar, P., Kumar, N., & Sharma, S. (2022). Artificial intelligence in education: A systematic review. *Journal of Educational Technology Systems*, 51(2), 155 – 173.
- Levy, R., & Yates, S. (2020). Chatbots in education: Applications and potential. *Journal of Education. Technology Development and Exchange*, 13(2), 53-68.
- Leavy, S., O'Sullivan, B., & Siapera, E. (2020). *Data, power and bias in artificial intelligence*. arXiv preprint arXiv:2008.07341.
- Long, D., & Magerko, B. (2020). What is AI literacy? Competencies and design considerations. *In Proceedings of the 2020 CHI Conference on Human Factors in Computing Systems*, Article 3376727, 1– 16. <https://doi.org/10.1145/3313831.3376727>.
- Luckin, R. (2018). *Machine learning and human intelligence: The future of education for the 21st century*. UCL Institute of Education Press.
- Luckin, R., Holmes, W., Griffiths, M., & Forcier, L. B. (2016). *Intelligence Unleashed: An Argument for AI in Education*. Pearson.
- Mehrabi, N., Morstatter, F., Saxena, N., Lerman, K., & Galstyan, A. (2021). *A survey on bias and fairness in machine learning*. *ACM Computing Surveys*, 54(6), Article 115.
<https://doi.org/10.1145/3457607>
- MoDastoni, D. A. (2023). Exploring methods to make AI decisions more transparent and understandable for humans. *Advances in Engineering Innovation*, 3, 32–36.
<https://doi.org/10.54254/2977-3903/3/2023037>.
- Nwanguma, T. K. & Onyeukwu, H.C. (2023). Integrating artificial intelligence in Nigerian education: A panacea to educational assessment development in Nigeria. *African Journal of Information, Economics and Management Research (AJIEMR)*, 1(2), 100-106.
- Obizue, M.N., Oguh, J. L., & Ogbuoka, M. O. (2024). Nigerian higher education and human capital development: Policy and practice. *International Journal of Arts Management and Professional Studies (IJAMPS)*, 4(2), 360-375.
- Ogbonnaya, N.O. (2009). *Theories of educational management*. University Trust Publishers.
- Ogbonnaya, N.O., Oboegbulem, A.I., Onwurah, C. & Enyi, D. (2013). *Fundamentals in educational administration and planning*. Chuka Educational Publishers.
- O'Neil, C. (2016). *Weapons of math destruction: How big data increases inequality and threatens democracy*. Crown Books.
- Olatunde-Aiyedun, T. G. (2024). Artificial intelligence (AI) in education: integration of AI into science education curriculum in Nigerian universities. *International Journal of Artificial Intelligence Digital*, 1(1), 14-24.
- Osiesi, M. P. (2023). Emerging issues in educational planning and management in Nigeria: implications for educational evaluators. *International Journal of Academic and Applied Research (IJAAR)*, 7(2), 60-64. <https://orcid.org/0000-0002-7660-6127>.
- Pardo, A., & Kloft, M. (2019). AI and predictive analytics in education: Benefits and challenges. *Education and Information Technologies*, 24(5), 1241-1257.
<https://doi.org/10.1007/s10639-019-09839-1>
- Popenici, S. A. D., & Kerr, S. (2017). Exploring the impact of artificial intelligence on teaching

- and learning in higher education. *Research and Practice in Technology Enhanced Learning*, 12(1), Article 22. <https://doi.org/10.1186/s41039-017-0062-8>.
- Rao, S.S. (2022). Artificial intelligence in educational management: A systematic review. *Journal of Educational Administration*, 60(3), 347 – 363.
- Regan, P. M., & Jesse, J. (2019). Ethical challenges of edtech, big data, and personalized learning: 21st century student sorting and tracking. *Ethics and Information Technology*, 21(3), 167–179. <https://doi.org/10.1007/s10676-018-9492-2>.
- Selwyn, N. (2019). *Should robots replace teachers? AI and the future of education*. Polity press.
- Slade, S., & Prinsloo, P. (2013). Learning analytics: Ethical issues and dilemmas. *The American Behavioural Scientist*, 57(10), 1509–1528. <https://doi.org/10.1177/0002764213479366>.
- Swindell, A., Greeley, L., Farag, A., & Verdone, B. (2024). Against artificial education: Towards an ethical framework for generative artificial intelligence (AI) use in education. *Online Learning Consortium*, 28(2), 7–27. Doi: 10.240 59/olj.v28i2.4438.
- Umesi, C. D. (2024). The role of educational management in the current era of globalization. *International Journal of Research and Advancement in Education*, 10(2), 96 – 102.
- UNESCO. (2021). *Recommendation on the ethics of artificial intelligence*. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000377897>
- Vijay, V.A. (2022). *What is Artificial Intelligence (AI)? Definition, types, goals, challenges, and trends in 2022*. spaceworks.com.
- Williamson, B., & Eynon, R. (2020). Historical threads, missing links, and future directions in AI in education. *Learning, Media and Technology*, 45(3), 223–235. <https://doi.org/10.1080/17439884.2020.1798995>.
- Zawacki-Richter, O., Marín, V. I., Bond, M., & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education – Where are the educators? *International Journal of Educational Technology in Higher Education*, 16(1), Article 39. <https://doi.org/10.1186/s41239-019-0171-0>.