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ARTIFICIAL INTELLIGENCE IN EDUCATIONAL MANAGEMENT: ETHICAL PERSPECTIVE FOR SUSTAINABLE NATIONAL DEVELOPMENT.

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Abstract

Artificial intelligence is a promising technology that has the potentials of change many facets of the educational system including playing a significant role of actualizing sustainable national development. The incorporation of Artificial Intelligence (Al) in educational management has generally enhanced administrative efficiency, data-driven decision-making, and personalized learning. However, its rapid integration raises ethical challenges concerning fairness, transparency, privacy, and accountability. The paper develops a conceptual review for Artificial intelligence, educational management, AI in educational management, and explores applicability of Al in educational management. The paper emphasizes the importance of fairness and non-discrimination of Al decisions, protection of personal data, and human-centered approaches in decision-making processes. The paper also argues that for Al to be sustainable and trusted in educational systems. It concludes by offering practical suggestions to guide educators, policymakers, and developers to adopt ethical standards that safeguard the rights and dignity of all stakeholders, aligned with core educational values.

Keywords: Artificial Intelligence. Educational Management and National development.

Introduction

The 21st century has witnessed a swift on unprecedented transformation in the field of education, primarily attributed to the technological progress of Artificial Intelligence (AI). Yabolo (2025) lend credence to the above when he articulated that Artificial Intelligence is significantly transforming the field of education, and this has been featured as one of the most pivotal development of the century especially in the realm of management and administration. From predictive analysis for student's performance to automating admissions and evaluating staff performance, Al is offering faster and seemingly more objective solutions. In recent years, the incorporation of Artificial Intelligence into

educational management has revealed its transformative potential in the way educational processes are planned, implemented and evaluated. From using algorithms to analyze large amounts of student data to creating personalized learning platforms, artificial intelligence is presented as a tool that can significantly improve the efficiency and effectiveness of education. However, this rapid technological adoption brings a dual challenge: safeguarding ethical standards and upholding sustainability. As automated systems are introduced that have a direct impact on school administrators, it is necessary to consider the establishment of an ethical framework to govern their utilization in the educational system.

Consequently, ethical values like fairness, accountability, and transparency are vital to ensure that Al systems do not reinforce discrimination or erode human agency. Likewise, sustainability in terms of economic, environmental, and socio-political are essential tools for ensuring that Al innovations in supporting long-term educational goals without exacerbating inequality or resource wastage. Olanrewaju, Adewumi and Sunday (2021) articulated that the complexity and "intelligence" of this technology have led to potentially extensive ethical threats that trigger a pressing need for risk-intensive procedures to ensure the quality of delivery. Indeed, a sense of flexibility that acknowledges human values within the developing momentum of Al is vital to fostering sustainable innovations (United Nations Educational, Scientific and Cultural Organization, 2021). In the wake of such demand, UNESCO launched global standards for Al. This UNESCO document, whilst recognizing the "profound and dynamic" influences of Al, also highlights related flourishing dangers to the cultural, social, and ecological diversity. Notably, it stipulates a universal framework of values for ethics which provides stakeholder-driven guidelines in adopting Al. This historic cross-border agreement marks the globally significant role of ethics in Al. However, it provides a relatively generic framework across disciplines and settings. In fact, for the development and governance of Al technologies, neither laissez-faire nor one-size-fits-all approach is adequate and appropriate across contexts (Yobolo, 2025).

The thrust of this paper attempts to fill these gaps by prescribing a set of ethical principles for trustworthy Al in educational management based on the thematic analysis results. The establishment of unified ethical principles for Al in education gives the study a new opportunity to meet the demands of a widespread digitalization of education. However, without ethical oversight, Al could reinforce systemic bias, compromise students privacy, and erode trust in educational institutions Conceptual Review

Artificial intelligence

Many researchers and educationists have advanced many definition of the concept of Artificial Intelligence. Prominent among them is Chui and Chai (2020), who opined that the concept of Artificial Intelligence (Al) is a field of computer science that place premium interest in designing intelligent computer package that is capable of displaying intelligent attributes found in humans. Also, AI is defined as a field of study of computer science that develops systems that perform tasks that require human intelligence (Juan et al (2024). Panigrahi (2020) submitted that Artificial Intelligence is the science that allows machine to operate things that required intelligence when executed by human. These tasks may include learning, reasoning, problem-solving, perception and understanding of language. The rise of Artificial Intelligence is transforming educational management by streamlining processes and personalizing learning. Its origin dates back to the 50s and it was coined by John McCarthy in 1956 during a conference at Dartmouth College, considered the cradle of this discipline. Al has faced waiting periods followed by cycles of frustration due to a lack of significant progress and reduced funding (Dwived, 2021).

Artificial intelligence development can be classified into several stages. The first phase, known as symbolic Al, focuses on manipulating symbols and rules to solve problems in structured environments. The second phase, which emerged in the 1980s, involved machine learning, which uses data to identify

patterns and make predictions. The third phase still in development is the era of deep artificial intelligence, which uses complex neural networks to perform more complex task

The concept of Educational Management

There are many views concerning the concept of educational management as expressed by many authorities. Educational management is a field of study and practice concerned with the operation, administration, and leadership of educational institutions. It involves the planning, organizing, directing, controlling, and evaluating of human and material resources in educational settings to achieve educational goals efficiently and effectively. According to Obi (2023), educational management is primarily concerned with the judicious utilization of human, materials, time and financial resources towards achieving educational goals and objectives. Bush (2018) also see educational management as concerned with utilization of purpose and aims of education, which influence the planning and allocation of resources. It emphasizes decision-making and strategic leadership to improve school performance and student outcomes. Educational management is a goal oriented activity which involves group efforts, organized work and performance towards the attainment of certain predetermined goals in an educational institution.

Educational management plays a critical role in shaping the effectiveness of education systems. It bridges the gap between educational policy and classroom practice by ensuring that administrative processes are aligned with pedagogical goals. The need for educational management is central to the success, stability, and sustainability of educational institutions. It bridges the gap between policy and practice and ensures that education serves its purpose in individual and societal development.

Efficient use of resources

Efficient Use of Resources: Educational institutions operate within limited financial, human, and material resources. Effective educational management ensures these resources are utilized optimally to enhance teaching and learning outcomes.

- Achievement of Educational Goals: Clear educational goals—such as quality instruction, equitable access, and learner development—require strategic direction and leadership. Educational management aligns institutional objectives with policies, curriculum development, and performance standards.
- Accountability and Quality Assurance: Educational management introduces systems of monitoring, evaluation, and reporting to ensure accountability. It promotes transparency in school administration and helps maintain high standards of education delivery.
- Adapting to Change: With constant changes in technology, pedagogy, and societal expectations educational institutions must evolve. Educational management supports innovation, integrates ICT, and ensures that institutions remain responsive and relevant.
- Policy Implementation and Compliance: Effective educational management helps institutions comply with national policies, educational laws and regulatory requirements. it facilitates communication between stakeholders, including government, teachers, students, and parents.
- Leadership and Motivation: Strong management provides leadership that motivates teachers and learners, fosters collaboration and cultivates a positive school culture.

·Crisis and Conflict Management: In situations of conflict, emergencies, or crises—like strikes, natural disasters, or pandemics—educations1 management provides strategies for continuity, safety and resilience in learning environments.

The Role of Artificial Intelligence (Al) in Educational Management

Artificial Intelligence (Al) in educational management refers to the integration and application of intelligent computational systems to support, automate, and enhance administrative, planning, decision-making, and instructional processes within educational institutions. It involves using machine learning algorithms, data analytics, natural language processing, and intelligent systems to improve the effectiveness, efficiency, and sustainability of educational leadership and governance. According to Luckin Holmes, Griffiths and Focier. (2016), Artificial Intelligence technologies are now widely applied in tasks such as automated admissions, staff evaluations, resource optimization, and behavioral predictions (Holmes Bialik and Fadel, 2022).

However, their effectiveness depends on how ethically and sustainably they are used:

·Predictive Analytics: Used to forecast student success or dropout risks

·Administrative Automation: Al streamlines routine tasks such as time table scheduling, grading and admissions, allowing managers to focus on strategic initiatives.

·Data-Driven Decision Making: Through learning analytics and predictive models, Al helps administrators anticipate challenges and optimize school performance.

·Personalized Learning Management: Al tools can manage and adapt curricula based on students needs, contributing to better academic outcomes.

·Resource Optimization: Al supports efficient resource planning, such as staffing, budgeting and infrastructure management.

·Monitoring and Evaluation: Al enhances the monitoring of teacher performance, track student progress, and institutional effectiveness in real time.

Artificial Intelligence (Al) for a Sustainable Educational Management

Al plays a transformative role in achieving sustainable educational management and ensuring educational goals are met effectively and inclusively through:

·Efficiency and Resource optimization: Al streamlines administrative tasks-attendance, enrollment, grading— freeing educators to focus on teaching and improving operations sustainable.

·Data-Driven and personalized decision making: Al provides insights through dashboards and predictive analytics, helping optimize resource distribution and improve learning outcomes across diverse learners.

· Inclusion and Accessibility: Through adaptive learning, language tools, and assistive tech, Al helps bridge educational gaps and boosts equity.

·Support for SDGs (particularly SDG 4): Al aligns with the UN's Sustainable Development Goals by ensuring inclusive and quality education for all.

·Enhanced Engagement: Through Interactive Tools Al integrates with gamified learning apps, voice assistants, and AR/VR for more engaging content Increases motivation and reduces boredom. Example Students use immersive simulations to learn about the solar system or ancient history.

·Identifying Learning Gaps Early: Al analyzes students data to detect learning difficulties or gaps early. Enables timely interventions by teachers or automated support systems. Example: An Al dashboard alerts teachers when a student repeatedly struggles with a topic.

·Data governance: Al-based education management platforms can collect, process and analyze large volumes of students data, making it easier to make informed decisions. This includes managing academic records, attendance and test scores.

·Schedule planning: Al-powered tools can help you draft class schedule/timetables more efficiently, considering various variables such as teacher availability, course demand, and student preferences to avoid conflict and maximize resource use.

·Registrations and enrolments: Al systems can manage the enrolment process, making use of chatbots that assist students in real-time, answering questions and guiding them through the steps required to complete their enrolment.

·Educational evaluation and planning: Al can automae the evaluation of exams and papers, using algorithms that provide accurate feedback and allow students to know their performance immediately, fostering a culture of continuous improvement.

·Students records management: Al simplifies the organization, retrieval, and analysis of students data, improving accuracy and efficiency.

Sustainability Challenges and Long-Term Viability

Artificial Intelligence presents enormous opportunities for improving efficiency and decision making. But its sustainable adoption and integration faces several significant challenges:

·Environmental Sustainability: Al systems, especially those relying on cloud computing and large-scale data centers, consume significant energy. Educational institutions must consider greener technologies and energy- efficient algorithms.

·Economic Sustainability: The cost of acquiring, maintaining, training and updating Al systems can be prohibitive for low-income schools or regions, potentially increasing educational inequality unless supported by policy interventions (Williamson & Eynofl, 2020).

·Social Sustainability: Al should enhance inclusive education systems that cater only to data-rich or technologically advanced schools may widen the digital divide, contradicting the principle of education for all (UNESCO, 2021). More so, its overreliance can reduce human interaction and job displacement.

·Organizational sustainability resistance to change; lack of training hinders its long term integration and professional development, without a sustainable training plan, Al tools may become underutilized or misused, leading to ineffective outcomes.

·Policy and regulatory gaps: Absence of clear frameworks and unclear accountability structures undermine sustainable use of Al in education. When a flawed decision is made, it's often unclear who is responsible, either developers, administration or users. Ethical Values of Artificial Intelligence (Al) in Educational management

·Bias and Discrimination: Al algorithms can reflect and even amplify societal biases if trained on skewed data sets. For instance, systems trained on historical academic performance data may disadvantage underrepresented or marginalized students (Holmes Bialik & Fadel., 2021).

- ·Transparency and Explain ability: Al models used in education – particularly deep learning models—often operate as "black boxes." This raises concerns about explainability, especially when such models influence critical decisions about students or staff.
- ·Accountability and Oversight: Assigning responsibility for Al decisions in education is complex. Human oversight remains crucial to ensure that Al serves as a toot rather than a substitute for ethical judgment (Morley & Elhala, 2020).

Application of Artificial Intelligence in Educational Management

Artificial Intelligence is no longer a luxury in the field of educational management as it has become one of the pillars of educational development in developed countries. Application of Artificial Intelligence in educational management is one of the most important means of developing school materials and digital systems for schools interconnected data networks. Its method is to establish large-scale neural networks that can anticipate weaknesses and how to treat them, as well as to contribute to information management and address problems (Chen, Zou & Hwang, 2020). The reformulation and crystallization of educational curricula in line with students' interests allow us to reach the shortest paths to deliver study materials and develop students' abilities to communicate with systems similar to humans. It is prepared and equipped to deal immediately with humans in all linguistic and social situations in a way that enhances communication and improves social skills.

Artificial intelligence in education is more complex in the sense that it is characterized by using non-digital coding. It relies on "only one and zero," which means that it can make complex decisions, be used in different fields of study and solve problems even with incomplete data (Hwang and Wah., 2020). The use of Artificial Intelligence in educational management saves time and effort and provides an alternative reality for students as it allows students to grow accustomed to confrontation and to keep up with modern technology. Artificial Intelligence also presents questions to students in a way that reveals the weaknesses of each learner and prepares their mental outlook. It explores how students learn and helps them choose the right questions. It also provided a catharsis for them; experiences have shown that students find it easier to engage in dialogue without the teacher. A study by Zovko and Gudlin (2019) explained the most important applications of Artificial Intelligence in educational management.

- ·Smart content is when educational robots can create digital content with the same degree of ingenuity as their human counterparts, and Artificial Intelligence can help in digitizing textbooks or creating applicable digital interfaces for learning.
- ·Characterizing learners and predicting their performance (profiling and prediction) includes determining enrolment decisions, course scheduling, dropout rates, and school attendance, as well as identifying student models and academic achievements to support learners in a timely manner.
- ·Intelligent educational robots perform learning tasks better than humans can because they are able to employ and integrate human knowledge in various fields through machine learning by borrowing from advanced technologies. At the same time, the capabilities of independent teaching, assistant teaching, and teaching management available with artificial intelligence via educational robots add intelligence and interest for learners' activities and to become an excellent platform for training learners on abilities and comprehensive knowledge
- ·Intelligent tutoring systems include teaching course content and diagnosing strengths and weaknesses, providing automatic feedback, and determining appropriate educational materials for learners according to their needs.

·Assessment and evaluation involve evaluating tasks with high levels of accuracy and consistence. It includes the correction and automatic monitoring of grades, providing feedback, assessing students' understanding and judging the extent of their academic integration and evaluating teaching.

Conclusion

From the above discussion, the writers conclude that the application of Artificial Intelligence in educational management is proven to be effective in improving and developing education, simplifying basic teaching tasks, assisting educational managers in solving educational problems of wastages and others. Despite the immense contribution of AI to educational management, without upholding the ethical values of prioritizing fairness, developing legal framework, adequate training in data literacy, incorporating feedback loops, transparency and continuous evaluation of unintended consequences, the goals of education for sustainable national development will amount to wastage.

Suggestions

In view of the above discussion and conclusions, the paper made adequate suggestions which includes;

1. Organizations including educational system should over relied on AI considering that it is part of human rationality.
2. There should be adequate training and re-training of personnel's to handle integration and development to aid achieving goals
3. Government should provide ethical framework regulations to guide it operations in educational system
4. There should be routine check and frequent update of the systems based on the educational needs
5. Government through stakeholders should provide enabling environment to sustain the system especially in terms of energy generation.

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