

Role Of Artificial Intelligence In The Planning And Administration Of Primary Schools In Rivers State

By

GEORGEWILL, ISAAC DICK (Ph.D)
Department of Educational Management
Faculty of Education
University of Port-Harcourt

&

Chukwuma, Charity Mgbeodichinma
Department of Educational Management
Faculty of Education
University of Port Harcourt
charitychukwuma88@gmail.com
08037062019

Abstract

This study investigates the role of artificial intelligence (AI) in educational planning and administration in primary schools in Rivers State, emphasizing its potential to enhance decision-making processes within primary schools. The conceptual framework was analytically x-rayed to portray that AI can significantly streamline and optimize educational strategies to foster school goal achievement. The study, therefore, highlights that the integration of artificial intelligence (AI) not only enhances institutional effectiveness but also fosters an adaptive learning environment that accommodates diverse pupils' needs. The study further emphasizes the importance for educational stakeholders to integrate AI technologies as fundamental elements of their strategic planning. It advocates for institutions to invest in AI infrastructure, offer extensive training for educators to utilize these tools effectively, and establish ethical guidelines to ensure the responsible implementation of AI at the foundation level of education. These measures are crucial for optimizing the advantages of AI and cultivating a future-ready environment for educational pursuits and advancement. In addition, Artificial Intelligence in educational planning and administration can lead to effective data analysis and decision making, effective school administration, among others. Some basic challenges were identified in the study, and measures were instantly provided through recommendations. This is the development of a national AI-in-Education framework that mandates the integration of AI into primary schools across the State, setting ethical guidelines for the use AI in planning, teaching, learning, and administration, among others.

Keywords: Artificial Intelligence, Educational Planning and Administration, AI application

Introduction

Education facilitates the social, economic, political, religious, and technological development of any nation. The realization of the goals of education requires huge and efficient planning and administrative mechanisms (Osiesi in Ughenu et al 2025). Gregory and Jegede (2021) acknowledged that educational planning and administration form the bedrock of successful schools, institutions, and organizations. This emphasizes their importance in achieving the objectives of education in Nigerian schools. Very recurring is the fact that educational institutions are faced with growing demands for efficiency and quality; the role of AI and technology has become vital. The adoption of AI in educational planning and administration is transforming how institutions manage processes, engage with stakeholders, and deliver educational content (Ajuwon et al., 2024). AI-driven tools streamline administrative tasks, automate routine operations, and provide data-driven insights that enhance decision-making and strategic planning (Hwang & Chen, 2020).

Regardless of the significance of effective educational planning and administration, schools in Nigeria continue to face significant inefficiencies in administration, resource allocation, student performance tracking, and decision-making processes (Adelana & Akinyemi, 2021). In the past, traditional administrative approaches usually relied on manual record-keeping, inconsistent data monitoring, and slow response mechanisms, which hindered the smooth operation of schools. These inadequacies result in poor achievement of educational outcomes, limit teacher effectiveness, and weaken institutional performance, ultimately affecting students' learning experiences and future opportunities.

Without doubt, Artificial Intelligence seems to provide a promising solution to these challenges by automating administrative processes, optimizing resource management, and providing data-driven decision-making support. The integration of AI in Nigeria's education systems remains minimal, largely due to infrastructural deficits, inadequate AI literacy among educators, resistance to change, and ethical concerns such as data privacy and algorithmic bias (Fullan, et al., 2023). The absence of a structured approach to AI adoption further exacerbates these challenges, leaving many schools reliant on outdated methods that fail to meet the demands of modern education (Ughenu et al 2025). However, if these issues continue without solutions, Nigerian education systems may continue to lag in global educational advancements, reducing

their capacity to equip students with the necessary skills to thrive in an increasingly digital world. But on the contrary, the integration of AI in the education system will provide Nigerians a competitive advantage among committees of nations in the use of modern educational knowledge. However, Artificial intelligence aims for the computer to simulate the intelligence processes that occur within the human mind so that the computer can solve problems and make decisions in a logical and orderly manner. In the same way as the human mind thinks. It also aims to represent accounting programs and improve the basic relationship between its elements. This study, however, sought to investigate the role of artificial intelligence in the planning and administration of tertiary institutions in Rivers State, Nigeria.

Concept of Artificial Intelligence

Artificial Intelligence refers to the development of computer systems capable of performing tasks that typically require human intelligence (AFSA in Niyi et al, 2023). The tasks of artificial intelligence include learning, reasoning, problem solving, perception, and natural language understanding. Artificial Intelligence machineries embrace various techniques and approaches, such as machine learning, deep learning, natural language processing, computer vision, and robotics. These machines permit computers to analyze vast amounts of data, recognize patterns, make predictions, and automate complex processes. Artificial Intelligence has applications across numerous fields, including health care, finance, transportation, customer service, and education. It has everything it takes to transform industries, improve efficiency, and create new opportunities (AFSA in Niyi et al, 2023). Alagbe (2023) viewed Artificial Intelligence as the ability of a machine to copycat the capabilities of the human mind – learning from examples and experience, recognizing objects, understanding and responding to language, making decisions, solving problems, and combining these and other capabilities to perform functions a human might perform, such as greeting a hotel guest or driving a car.

Artificial intelligence exhibited by machines has many applications in today's society. These machines are programs developed to perform specific tasks that are being utilized for a wide range of activities, including medical diagnosis, electronic trading platforms, robot control, and remote sensing. Thus, Artificial Intelligence is an application or program constructed to carry out tasks with human-like intelligence. Ogunode also viewed Artificial Intelligence as a collection of systems, packages, and application designed into digital computer or computer-controlled robots

to carry out assignments and tasks with human-like intelligence. He added that AI programs are designed with human-like intelligence and structured in forms of computers, robots, or other machines to aid in the provision of any kind of service or tasks. This is done to improve the social, economic, and political development of the society.

Educational Planning and Administration

Educational planning and administration is essential as it ensures the success of the educational institutions. Chakma (2019) noted that educational planning and administration, in its broadest sense, is the application of logical and methodical analysis to the process of educational development. This is done in order to increase education's effectiveness and efficiency in meeting the needs and objectives of students and society at large. Educational Planning and Administration is a systematic and intentional process of designing, implementing, and evaluating educational programs, policies, and institutions. It involves planning, management, and monitoring and evaluation to achieve specific educational goals and objectives. Nanbak (2020) submitted that educational planning and administration involves leading the school towards development through optimum use of human and material resources, physical sources, and principles necessary in achieving all the objectives of the school. In other words, it can be said to be a continuous process that takes into account all aspects of the school (policies, material and human resources, activities, equipment, etc.) and integrates them into achieving educational goals. Educational planning and administration encompasses various functions, including needs assessment, goal setting, resource allocation, curriculum development, teacher management, infrastructure management, and monitoring and evaluation. By performing these functions, Educational Planning and Administration ensures that educational programs are effective, efficient, and relevant to the needs of students and society.

Effective Educational Planning and Administration is crucial for improving educational quality, increasing efficiency, enhancing accountability, and supporting educational reform. It optimizes the use of educational resources, reduces waste, and improves productivity (Tatbotndip, 2020). Effective Educational Planning and Administration also promotes transparency, accountability, and responsiveness in educational institutions and systems. Furthermore, it facilitates the implementation of educational reforms, innovations, and policies. By adopting a systematic and intentional approach to effective educational planning and administration,

educators, policymakers, and administrators can work together to create more effective, efficient, and equitable educational systems that benefit students, teachers, and society as a whole. Kalagbor (2017) asserted that the following activities and programmes come under the scope of educational administration at the institutional level:

- (a) Deciding the purposes of the institution or school,
- (b) Planning for academic or curricular and co-curricular activities,
- (c) Preparing the time table and the time schedules for various activities,
- (d) Assigning duties and responsibilities to the staff members,
- (e) Organizing curricular and co-curricular programmes,
- (f) Directing and motivating the staff of the institution,
- (g) Coordinating by efforts of people to achieve the purpose,
- (h) Exercising control over the staff,
- (i) Conducting periodical reviews about the progress, achievements and failures of the institution,
- (j) Taking measures for staff development,
- (k) Maintaining order and discipline,
- (l) Management of materials
- (m) Management of finance,
- (n) Maintaining records and registers up to date,
- (o) Maintaining human relationships,
- (p) Supervision of the work of teachers and other employees
- (q) Giving feedback to the teachers performing well and taking remedial measures for teachers not performing well. Thus, school administration is the internal arrangement of school resources for the implementation of the school programme.

The objectives of school administration according to Ogunode and Jegede (2020) include to: realize the goals of the educational institutions, coordinate the activities and programme of the schools, reduce educational wastage within the educational institution, effectively allocate the limited educational resource for the actualization of the school objective, coordinate the students' extra-curriculum programme in the school, and enhance the professional development of teachers and the non-teaching staff. Thus, the major objective of school administration is to ensure that the

various educational institutions are implemented as planned. School administration ensures that all teaching and non-teaching staff are well supervised to do their work effectively. School administration covers the following: school planning, organizing, controlling, coordinating, and evaluating performance, decision making, curriculum development and planning, school achievements, and management, students' activities, teachers' programme, human capacity development, school-community relationship, academic calendar planning, extra-curricular programme, school discipline programme, school sport, and school examination. It also covers school security.

Application of AI in Educational Planning and Administration

Artificial Intelligence (AI) is a dynamic force capable of changing social interactions, particularly in education. Mureşan (2023) noted that Artificial Intelligence is capable of revolutionizing administrative processes, increasing productivity and capabilities. AI-driven bots can monitor prospective students, facilitate communication between institutions and applicants, guide them in selecting suitable courses, and assist them throughout the enrolment process (Sanusi et al, 2022). Furthermore, AI systems can manage and update student records, including grades and attendance, while also assisting in creating timetables based on available faculty, room slots, and class schedules (Arya, 2024). By automating these tasks, AI reduces the burden on administrative staff, enabling them to focus on more complex matters. Deployment of AI in educational planning and administration can lead to effective data analysis and decision making, effective school administration, resource optimization, student support and intervention, streamlined communication and engagement, and enhanced security and safety. However, the following are ways in which AI can be applied in educational planning and administration in primary schools.

Data Analysis and Decision Making: One of the major functions of school administrators is to make policies and take decisions on school issues. Decision-making involves the process of choosing from alternative courses of action, which is a product of planning. The administrator must have an adequate knowledge of alternative actions available on an issue, who should be involved in decision-making, and the mode of implementation of the decision (Fasasi, 2011). Decision-making at the level of administration is very crucial for the development of the school. AI can be used to make effective decisions in education. Artificial intelligence has the capacity to

help school administrators make the right decisions. Artificial Intelligence can assist administrators in analyzing large volumes of data, such as student performance data, attendance records, and resource allocation.

Effective School Administration: The Administration of a school is saddled with the responsibility of ensuring a stable academic calendar and implementation of programmes as planned. Administrators are to ensure full supervision and implementation of the teaching programme. Administrators are saddled with responsibilities of planning school tables, teachers' schedules, and the school calendar. AI can be used to improve the efficiency of administrative tasks in educational institutions. AI-powered systems can automate routine tasks, such as grading, scheduling, and record-keeping, freeing up educators' time to focus on more impactful work, such as lesson planning and student engagement (Oztok & Zingaro, 2019). Educational institutions have to deal with a lot of administrative tasks, such as scheduling, grading, and record-keeping. AI can automate many of these tasks, freeing up educators' time to focus on teaching and supporting students.

Resource Optimization: Resource allocation is another fundamental function of school administrators and planners. Educational resources are divided into two: Human and material resources. It is the responsibility of school administrators to ensure these resources are effectively and efficiently allocated to realize the school's goals and programme. AFSA in Niyi et al, 2023) asserted that AI can help administrators optimize the allocation of resources, such as staff, classrooms, and materials. By analyzing data on student enrollment, class sizes, and scheduling, AI systems can suggest efficient resource allocation strategies to optimize learning environments and support student needs.

Student Support and Intervention: It is also the duty of school administrators to ensure students' support services are fully implemented in the schools. Artificial Intelligence can assist administrators in identifying students who may require additional support or intervention. By analyzing various data points, such as academic performance, attendance, and behavior, Artificial Intelligence systems can flag students who may be at risk of falling behind or facing challenges.

Streamlined Communication and Engagement: Communication in school involves passing of information from one staff member to another staff member or students, parents. The school administrator serves as a link between his educational institution and the government, the

community, and the international bodies (Fasasi, 2011). AI-powered communication systems can streamline communication between administrators, teachers, students, and parents. This can improve efficiency and accessibility in communication, freeing up administrators' time for more complex interactions and strategic decision-making (Niyi et al, 2023).

Enhanced Security and Safety: School administrators are saddled with the responsibilities of ensuring the safety of lives and properties within the school environment; as such, they can deploy AI facilities to enhance school security. AFSA in Niyi et al, 2023) maintained that AI can contribute to school security and safety measures. Teaching and learning can only take place in a peaceful, secure, and conducive environment. AI-powered systems can also analyze social media or online platforms to identify potential risks and proactively address them.

Relevance of Artificial Intelligence in Primary Schools

The relevance of Artificial Intelligence in primary schools cannot be overemphasized. They include:

Enhancing Student Learning and Personalization: Artificial Intelligence facilitates personalized learning experiences by adapting instructional content to individual student needs, strengths, and learning styles. This individualized approach enhances comprehension, retention, and overall academic performance (Olatunde-Aiyedun, 2024).

Automating Administrative Processes: Artificial Intelligence significantly reduces administrative burdens by automating routine processes such as student enrolment, attendance tracking, and grading. AI-powered attendance systems using facial recognition or biometric data improve accuracy while reducing manual workload (Ajuwon et al., 2024). Additionally, AI tools streamline examination grading, ensuring unbiased and efficient assessments (Sanusi et al., 2022).

Supporting Teachers and Professional Development: Artificial Intelligence enhances teacher effectiveness by providing instructional support, generating lesson plans, and offering real-time classroom analytics.

Increasing Accessibility and Inclusion: AI-driven solutions bridge the accessibility gap by providing educational opportunities to tertiary institution students regardless of their socio-economic status or geographical location. AI-powered speech-to-text and text-to-speech applications assist students with disabilities, ensuring an inclusive learning environment.

Enhancing Decision-Making through Predictive Analytics: AI-driven predictive analytics can assist school administrators and policymakers in making data-informed decisions. Machine learning algorithms analyze historical student performance, attendance trends, and resource utilization to forecast future educational needs. This enables efficient budget allocation, staffing projections, and curriculum adjustments, leading to improved institutional planning and administration (Olatunde-Aiyedun, 2024).

Challenges of Artificial Intelligence in Educational Planning and Administration

The role of Artificial Intelligence is numerous. This is no doubt that Artificial Intelligence in primary schools is positively skewed, but it is faced with some challenges. The challenges include:

1. **Bias and Discrimination:** One of the significant limitations of AI in educational administration is the potential for bias and discrimination. Igbokwe (2023) and Mason and Rennie (2018), asserted that AI algorithms may replicate and amplify existing biases and discrimination in educational systems, leading to further inequality and injustice. For example, AI may perpetuate gender or racial biases in student evaluations or admissions decisions. Educational administrators need to be aware of these limitations and work to ensure that AI is used fairly and equitably.
2. **Lack of Transparency and Interpretability:** Another significant limitation of AI in educational administration is the lack of transparency and interpretability. As noted by Veletsianos (2019) and Igbokwe, (2023) that AI algorithms can be complex and difficult to understand, making it challenging for educational managers to evaluate their effectiveness and identify potential errors or biases. This lack of transparency and interpretability can make it difficult for educational managers to make informed decisions and improve their institutions' performance.
3. **Data Privacy and Security Breaches:** A third significant limitation of AI in educational administration is the potential for data privacy and security breaches. As argued by Igbokwe, (2023), the use of AI in educational administration requires access to large amounts of data, including personal information about students, faculty, and staff. This

data is vulnerable to cyber-attacks and other security breaches, potentially exposing sensitive information and undermining the trust and confidence of stakeholders.

4. **Lack of Ethical and Legal Guidelines:** One of the primary challenges of AI in educational administration is the lack of ethical and legal guidelines. AI algorithms can produce biased and discriminatory results, and it is essential to ensure that AI is used ethically and transparently. It is important to have guidelines that protect student privacy, ensure data security, and prevent AI from being used for surveillance purposes (Igbokwe, 2023).
5. **Lack of Technical Expertise and Resources:** The shortage of AI staff and experts is another problem that hinders the deployment of AI for educational administration in Nigeria. Attah in Niyi et al (2021) lamented that about “90 percent of our lecturers are not computer literate. Therefore, the government needs to redefine its tertiary educational system to accommodate these new developments.
6. **Job Displacement:** AI in educational administration also raises concerns about job displacement. AI can automate administrative tasks, and there is a fear that this will lead to job losses for educators and administrators. It is essential to ensure that the use of AI does not lead to job displacement but rather supports educators in their work (Igbokwe, 2023).
7. **High Cost of Maintenance:** AI facilities are very expensive and capital-intensive in terms of maintenance. Due to poor funding of educational institutions, they cannot guarantee effective maintenance of these AI facilities in schools.
8. **Power Problem:** Many cities and communities in Nigeria today do not have access to a stable power supply. The problem of unstable power supply is hindering students and teachers from integrating digital technologies into their teaching and learning programs.
9. **Unstable Internet Services:** Another issue that may hinder effective application AI in educational administration in Nigeria is the problem of poor internet services. Many public educational institutions are in rural areas where there are no internet facilities, and many institutions cannot afford to provide constant internet services in their respective institutions.

Conclusion

The integration of AI into the planning and administration of primary schools in Rivers State, Nigeria, holds immense potential for transforming education to prepare the foundation of education. By automating administrative processes, enhancing personalized learning, and providing data-driven insights, AI can improve its knowledge and learning outcomes. However, challenges such as poor electricity supply, unstable internet service, and high cost of maintenance, among others, were some challenges identified and discussed in the study. These must be addressed through targeted policies, professional training, and gradual but compulsory AI adoption strategies for all teachers, education planners, and school administrators. With a strategic and ethical approach, AI can revolutionize primary education in Rivers State, Nigeria, ensuring a more efficient, inclusive, and innovative learning environment.

Recommendations

1. It is recommended that educational planners develop a national AI-in-Education framework that mandates the integration of AI into primary schools across the State.
2. The primary school's curricula, while setting ethical guidelines for using AI in planning, teaching, learning, and administration, should include policies on teacher training, pupil data protection, and equitable AI adoption across all regions.
3. School administrators should deploy AI-powered school administration systems to streamline administrative tasks such as automated pupil attendance tracking, AI-assisted timetable scheduling, and predictive analytics for academic performance monitoring, ensuring data-driven decision-making.
4. Teaching staff should incorporate AI-driven assessment tools such as automated grading systems and intelligent tutoring assistants to provide instant, personalized feedback to students, helping to identify learning gaps and improve instructional strategies.
5. It is recommended that education stakeholders (government, NGOs, and the private sector) establish a national AI education fund to support the procurement of AI-enabled educational tools, provide internet access in underserved schools, and sponsor AI literacy

programs for pupils and staff. This ensures inclusive and sustainable AI integration in Nigeria's primary schools.

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