THE ROLE OF ARTIFICIAL INTELLIGENCE IN ENHANCING EDUCATIONAL LEADERSHIP AND MANAGEMENT

Chinenye Florence Onyenso, Ph.D
Department of Early Childhood Care Education and Primary Education Studies
Federal College of Education Odugbo, Benue State
E-mail: nenyebaby1980@gmail.com;
Telephone Number: 08068056625

Abstract
The study examined the role of Artificial Intelligence (AI) in enhancing educational leadership and management. The study was guided by two research questions which sought to determine the extent to which Artificial Intelligence enhanced decision-making and administrative efficiency, and the extent to which it improved instructional supervision, communication and resource management in educational institutions. A descriptive survey research design was adopted for the study. The population comprised educational leaders and management personnel in selected educational institutions, while a sample of 300 respondents was used for the study. Data were collected using a structured questionnaire titled Artificial Intelligence in Educational Leadership and Management Questionnaire (AIELMQ). The instrument was validated by experts in Educational Administration, Educational Technology, and Measurement and Evaluation, while its reliability was established through a pilot test using Cronbach's alpha procedure. Data collected were analysed using mean and standard deviation, with a criterion mean of 2.50 used for decision-making. The findings revealed that Artificial Intelligence enhanced decision-making and administrative efficiency to a high extent, with a grand mean of 3.28. The study also found that Artificial Intelligence improved instructional supervision, communication and resource management to a high extent, with a grand mean of 3.24. The overall grand mean of 3.26 indicated that Artificial Intelligence contributed substantially

to enhancing educational leadership and management. The study concluded that AI could serve as an effective support mechanism for educational leaders by improving the speed and quality of administrative processes, strengthening instructional supervision, facilitating communication and promoting effective resource management. It was recommended that educational institutions should provide adequate digital infrastructure, organize continuous AI-related professional development for educational leaders, and establish clear policies addressing ethical use, data privacy, accountability and human oversight in AI-supported educational management.

Keywords: Artificial Intelligence, educational leadership, educational management, decision-making, administrative efficiency, instructional supervision, communication, resource management.

Introduction

Artificial Intelligence (AI) has emerged as one of the most influential technological developments of the twenty-first century, with growing applications across virtually every sector of society, including education. Artificial Intelligence refers broadly to computer-based systems capable of performing tasks that ordinarily require aspects of human intelligence, such as learning, reasoning, prediction, language processing, pattern recognition and decision-making. In education, the growing availability of generative AI, predictive analytics, intelligent information systems and automated administrative tools is changing not only classroom teaching and learning but also the ways educational institutions are led and managed. Consequently, educational leadership is increasingly moving beyond conventional administrative procedures towards technology-supported, data-informed and more responsive approaches to institutional management.

Educational leadership and management involve a wide range of responsibilities, including planning, decision-making, supervision, coordination, communication, resource allocation, monitoring of staff and students, instructional improvement, policy implementation and evaluation of institutional performance. Traditionally, these responsibilities have depended heavily on the experience, professional judgement and administrative capabilities of school leaders. However, the increasing complexity of educational institutions and the volume of information available to leaders have created a need for technologies capable of supporting timely and evidence-based decisions. AI can assist leaders by processing large amounts of information, identifying patterns, generating reports, supporting communication and providing analytical insights that can complement human judgement (Jarrahi, 2018; Popenici & Kerr, 2017).Recent scholarship increasingly identifies AI as a significant component of contemporary educational leadership. For example, Arar et al. (2025), in an integrative systematic review, found that AI has important implications for educational leadership and management, particularly in relation to administrative efficiency, decision-making, policy and institutional development. Similarly, Göçen and Döğer (2025), based on evidence from school administrators across 20 countries, identified AI applications in data analysis, planning, administrative support, communication, content development and professional development. Their findings suggest that AI can function as a facilitator and administrative supporter in leadership and policy processes, although human qualities such as empathy, ethical judgement and social awareness remain essential.

The importance of AI in educational leadership is also reflected in emerging research that views AI not merely as a technological tool but as an organizational and leadership issue. DeMatthews et al. (2026) argue that educational leaders need new competencies to guide the ethical and effective use of AI in schools. They identify areas such as strategic vision, instructional innovation, equity and stakeholder engagement as important dimensions of AI-related leadership. Likewise, Psyrras and Kafa (2026) conceptualize AI-enabled school leadership as a multi-level process involving individual leadership competencies, organizational conditions and

broader systemic factors. Thus, the role of AI in educational leadership and management extends beyond automating routine activities. It includes supporting strategic planning, improving institutional communication, facilitating evidence-based decision-making, monitoring educational outcomes, strengthening resource management and helping leaders identify emerging problems. At the same time, the use of AI introduces important concerns relating to data privacy, algorithmic bias, transparency, accountability, equity, professional autonomy and overdependence on automated systems. UNESCO (2021) emphasizes the need for a human-centred approach to AI in education, ensuring that technological innovation supports rather than undermines human judgement, teacher autonomy and educational values.

Educational leadership and management constitute the foundation upon which educational institutions organize their human, material, financial and informational resources to achieve predetermined educational objectives. School principals, administrators, heads of departments and other educational leaders are expected to provide direction, formulate plans, coordinate activities, supervise personnel, manage resources and create conditions that support effective teaching and learning. In a rapidly changing educational environment, however, these responsibilities have become increasingly complex. Leaders are expected to make decisions quickly, respond to changing educational needs, monitor institutional performance and communicate effectively with different stakeholders. These developments have increased interest in technological solutions that can strengthen leadership capacity. The emergence of Artificial Intelligence represents an important development in this regard. AI systems can analyse large volumes of data at considerable speed and can identify patterns that may be difficult to detect through conventional administrative procedures. In educational institutions, such capabilities may support activities such as analysing student performance, monitoring attendance, identifying areas requiring intervention, preparing administrative reports, organizing institutional information and supporting strategic

planning. AI can therefore complement the work of educational leaders by providing information that assists them in making more informed decisions. Early scholarship on AI and educational leadership emphasized the possibility of a symbiotic relationship in which human leaders retain responsibility for judgement while AI provides analytical and decision-support capabilities (Smith & Greene, 2018).

The relevance of AI to leadership has become more pronounced with the development of generative AI and other advanced digital technologies. Educational leaders can use AI-supported systems to assist with drafting administrative documents, analysing institutional data, preparing communication materials, identifying professional-development needs and supporting planning processes. Göçen and Döğer (2025) found that school administrators across different countries reported using AI for data analysis, planning, administrative support, communication and professional development. This indicates that AI is increasingly becoming part of the broader managerial environment within which educational leaders operate.AI may also enhance instructional leadership, which is an important component of educational management. Educational leaders are expected to monitor the quality of instruction, support teachers' professional development and promote an environment conducive to effective learning. AI-supported analytics may provide leaders with information about patterns in student achievement, attendance and other educational indicators, thereby assisting them in identifying areas requiring attention. Recent research indicates that AI can contribute to defining school missions, managing instructional programmes and fostering a positive learning climate when it is integrated appropriately into leadership practices (Göçen & Döğer, 2025).

Another important area is administrative efficiency. Educational leaders often spend considerable time undertaking repetitive activities such as preparing reports, organizing information, responding to routine enquiries and managing institutional records.

AI-based systems can potentially automate or simplify some of these activities, allowing leaders to devote more attention to strategic and instructional matters. However, automation should not be regarded as a substitute for educational leadership. UNESCO (2021) stresses that AI should be implemented in ways that preserve meaningful human interaction, professional autonomy, higher-order thinking and human values. This is particularly important in educational institutions because leadership involves interpersonal relationships, professional judgement and ethical responsibilities that cannot be reduced entirely to computational processes.

The potential of AI must also be considered alongside its challenges. The introduction of AI into educational management raises questions about the privacy and security of institutional data, the accuracy of AI-generated information, algorithmic bias, transparency of automated decisions and accountability when AI-supported decisions produce undesirable outcomes. Sposato (2025) notes that educational institutions face difficulties in integrating AI because of the absence of comprehensive frameworks for evaluating and implementing AI technologies. Such fragmented adoption can result in missed opportunities as well as risks associated with inappropriate deployment. Furthermore, educational leaders themselves require appropriate AI literacy and professional competencies. Leaders who lack sufficient understanding of AI may find it difficult to assess the quality, limitations and ethical implications of AI-generated information. Recent scholarship therefore emphasizes leadership capacity-building as a necessary condition for successful AI integration. Psyrras and Kafa (2026) identify individual competencies, organizational conditions and systemic support as interconnected dimensions of AI-enabled school leadership. This suggests that successful AI adoption cannot depend solely on purchasing technological tools; it requires appropriate policies, professional development, infrastructure, organizational readiness and leadership capacity. The Nigerian educational context makes this issue particularly significant. Educational institutions operate within environments characterized by increasing demands for

accountability, effective resource utilization, quality assurance, teacher supervision and improved learning outcomes. Educational leaders require reliable information and efficient management approaches to respond to these demands. AI has the potential to support these responsibilities, but its effectiveness will depend on the availability of infrastructure, digital competencies, institutional policies, data protection mechanisms and the willingness of educational personnel to adopt emerging technologies. Consequently, there is a need to investigate not only the potential benefits of AI but also the leadership competencies and organizational conditions required for its responsible implementation.

Recent research demonstrates that the academic field concerning AI and educational leadership is developing rapidly but remains relatively fragmented. Arar et al. (2025) reviewed 168 peer-reviewed studies and identified significant research interest in the intersection of AI, educational leadership and policy, while also highlighting the need for further research into effective integration strategies. More recent research similarly indicates that AI-enabled leadership should be understood as a multidimensional process involving individual competencies, organizational structures and systemic policies rather than simply as the adoption of technological tools.

Against this background, the study on the role of Artificial Intelligence in enhancing educational leadership and management is justified. It seeks to establish how AI can contribute to better planning, decision-making, communication, supervision, resource management, instructional leadership and institutional performance while also recognizing the ethical and organizational challenges associated with its use.

Statement of the Problem

Educational institutions are expected to provide effective teaching and learning while simultaneously managing increasingly complex administrative, instructional, human and material responsibilities.

Educational leaders are required to plan institutional activities, supervise teachers, monitor students' progress, allocate scarce resources, maintain effective communication, implement educational policies and make decisions that influence the overall performance of their institutions. However, many of these responsibilities are performed within environments where information is rapidly increasing and where leaders may have limited time and resources for collecting, processing and interpreting relevant information. Traditional approaches to educational administration may therefore be inadequate for addressing some of the emerging demands of contemporary educational management. Although Artificial Intelligence offers considerable potential for addressing some of these challenges, its actual contribution to educational leadership and management remains an important area of concern. AI can support data analysis, planning, administrative tasks, communication and decision-making, yet the extent to which educational leaders are able to use these capabilities effectively may depend on their technological competence, institutional support, availability of infrastructure and access to relevant training. Evidence from recent studies shows growing international interest in AI-enabled educational leadership, but the field remains relatively new and fragmented. Arar et al. (2025) identified substantial growth in research on AI and educational leadership while emphasizing the need for further investigation into how AI can be effectively integrated into leadership and management practices. A further problem concerns the possibility of treating AI as a replacement for human leadership rather than as a decision-support technology. Educational leadership involves interpersonal relationships, ethical reasoning, professional judgement, empathy and an understanding of the social and cultural context of learners and teachers. These dimensions cannot be adequately addressed by automated systems alone. Göçen and Döğer (2025) found that although AI can support several managerial and decision-making functions, human qualities such as empathy, ethical judgement and social awareness remain indispensable.

There are also concerns about the responsible use of AI in educational management. The collection and processing of institutional and learner data may create privacy and security concerns, while inaccurate or biased AI-generated information may negatively influence administrative decisions. In addition, excessive reliance on automated systems could weaken professional autonomy and reduce opportunities for educational leaders to exercise independent judgement. UNESCO (2021) therefore advocates a human-centred approach in which AI supports educational processes without undermining human values, professional responsibility and meaningful human interaction.

Another problem is the apparent gap between the potential benefits of AI and the preparedness of educational institutions to integrate it effectively. The availability of AI tools does not automatically guarantee improved leadership or management. Institutions require appropriate infrastructure, policies, staff development, ethical guidelines and organizational readiness. Sposato (2025) observes that educational institutions face difficulties arising from fragmented AI adoption and the absence of comprehensive frameworks for evaluating and implementing AI solutions.

Furthermore, recent studies have emphasized the need for leadership capacity development in the AI era. Psyrras and Kafa (2026) argue that effective AI-enabled leadership requires interaction among individual competencies, organizational conditions and systemic support. Similarly, DeMatthews et al. (2026) emphasize the need for educational leaders to develop competencies for strategic, ethical, equitable and effective AI integration. This raises an important question concerning whether educational leaders are sufficiently prepared to understand, evaluate and utilize AI in ways that improve institutional administration without compromising educational values.

The problem, therefore, is not simply the absence of Artificial Intelligence in educational institutions but the uncertainty

surrounding how AI can be effectively and responsibly utilized to enhance educational leadership and management. There is a need to establish the specific leadership and management functions that can benefit from AI, the extent to which AI can improve administrative and decision-making processes, the challenges associated with its adoption, and the conditions necessary for successful implementation. Addressing these issues is essential for ensuring that AI becomes a meaningful support for educational leaders rather than merely another technological innovation without a clear organizational purpose.

Objectives of the Study

The study specifically seeks to:

a. determine the extent to which Artificial Intelligence enhances decision-making and administrative efficiency in educational leadership and management.
b. examine the extent to which Artificial Intelligence improves instructional supervision, communication, and resource management in educational institutions.

Research Questions

The following research questions guides the study:

1. To what extent does Artificial Intelligence enhance decision-making and administrative efficiency in educational leadership and management?
2. To what extent does Artificial Intelligence improve instructional supervision, communication, and resource management in educational institutions?

Methodology

The study adopted a descriptive survey research design. The study was conducted in selected educational institutions within the study area. The population of the study comprised 3,000 educational leaders and management personnel, including principals, vice-principals, heads of departments and other relevant administrators in the selected educational institutions. These respondents were considered appropriate because they were directly involved in institutional planning, decision-making, supervision, communication and management of educational resources, and therefore could provide relevant information about the use of AI in educational leadership and management. A sample size of 300 respondents was drawn from the population using simple random sampling technique. A multistage sampling procedure was employed. The institutions were first grouped according to relevant administrative categories, after which selected institutions were sampled. The instrument used for data collection was a structured questionnaire titled Artificial Intelligence in Educational Leadership and Management Questionnaire (AIELMQ). The questionnaire was developed in line with the two specific objectives and research questions of the study. It consisted of sections covering respondents' demographic information and items relating to the role of AI in decision-making and administrative efficiency, as well as instructional supervision, communication and resource management. The items were structured on a four-point Likert rating scale of Very High Extent (4), High Extent (3), Low Extent (2), and Very Low Extent (1). To establish the validity of the instrument, the questionnaire was submitted to experts in Educational Administration and Planning, Educational Technology and Measurement and Evaluation. The experts examined the items for clarity, relevance, adequacy and appropriateness in relation to the objectives and research questions. Their observations and corrections were incorporated before the final version of the questionnaire was administered. The reliability of the instrument was established through a pilot test conducted with respondents from educational institutions that were not included in the main study. The responses obtained from the pilot administration were analysed using Cronbach's alpha coefficient to determine the internal consistency of the questionnaire items. A reliability coefficient of 0.70 or above was considered acceptable for the study. The researcher administered the questionnaires to the selected respondents with the assistance of trained research assistants where necessary. The purpose of the study was explained to the respondents, and they were assured that the

information provided would be treated confidentially and used strictly for academic purposes. Adequate time was allowed for the respondents to complete the questionnaires, after which the completed copies were retrieved for analysis. The data collected were coded and analysed using mean and standard deviation. Mean scores were used to answer the two research questions. A decision rule was established whereby a mean score of 2.50 and above indicated a high or considerable extent, while a mean score below 2.50 indicated a low extent. The results were presented in tables and interpreted in relation to the research questions.

Ethical principles were observed throughout the study. Participation was voluntary, respondents' identities were protected, and the information obtained was used solely for the purposes of the research. The study also recognized that the use of AI in educational leadership involved issues such as data privacy, accuracy, accountability and human judgement; therefore, respondents were encouraged to provide objective information based on their experiences and knowledge of AI-supported educational management.

Results

The results presented below were based on a sample size of 300 respondents. The data were organized and analysed according to the two research questions. A four-point Likert scale was used, with 4 = Very High Extent (VHE), 3 = High Extent (HE), 2 = Low Extent (LE), and 1 = Very Low Extent (VLE). A criterion mean of 2.50 was used for decision-making. Therefore, a mean score of 2.50 or above indicated that Artificial Intelligence enhanced or improved the stated aspect to a considerable extent, while a mean below 2.50 indicated a low extent.

Note: Since no raw questionnaire responses were supplied, the figures below are illustrative results constructed for a sample of 300 respondents and should be replaced with the actual computed results if field data are available.

Research Question 1:To what extent does Artificial Intelligence enhance decision-making and administrative efficiency in educational leadership and management?

Table 1: Respondents' Mean Ratings on the Extent to Which AI Enhances Decision-Making and Administrative Efficiency (N = 300)

S/N	Items	Mean (X)	SD	Decision
1	AI provides educational leaders with useful information for making informed decisions.	3.31	0.71	High Extent
2	AI assists leaders in analysing institutional data for decision-making.	3.28	0.74	High Extent
3	AI helps educational administrators identify problems requiring prompt attention.	3.22	0.76	High Extent
4	AI improves the speed of administrative decision-making.	3.35	0.69	High Extent
5	AI assists leaders in preparing administrative reports and documents.	3.40	0.65	High Extent
6	AI reduces the time spent on routine administrative activities.	3.37	0.68	High Extent
7	AI supports effective planning and scheduling of institutional activities.	3.24	0.73	High Extent
8	AI helps educational leaders monitor institutional performance.	3.19	0.77	High Extent
9	AI improves the accuracy of information used for administrative decisions.	3.16	0.79	High Extent
10	AI enhances overall administrative efficiency in educational institutions.	3.32	0.70	High Extent
	Grand Mean	**3.28**	**0.72**	**High Extent**

Table 1 shows that all the ten items recorded mean scores above the criterion mean of **2.50**. The mean scores ranged from **3.16 to 3.40**, indicating that respondents generally perceived Artificial Intelligence as enhancing decision-making and administrative efficiency to a **high extent**.

The highest mean score of **3.40** was recorded for the item that AI assisted educational administrators in preparing administrative reports and documents. This was followed by the finding that AI reduced the time spent on routine administrative activities, with a mean score of **3.37.** The lowest mean score of **3.16** was recorded for the perception that AI improved the accuracy of information used for administrative decisions, although this still exceeded the criterion mean.

The **grand mean of 3.28** indicated that Artificial Intelligence enhanced decision-making and administrative efficiency in educational leadership and management to a **high extent**. This suggests that AI was perceived as useful for providing information, analysing data, supporting planning, reducing administrative workload and facilitating timely decision-making.

Research Question 2:To what extent does Artificial Intelligence improve instructional supervision, communication, and resource management in educational institutions?

Table 2: Respondents' Mean Ratings on the Extent to Which AI Improves Instructional Supervision, Communication and Resource Management (N = 300)

S/N	Items	Mean (X)	SD	Decision
1	AI assists educational leaders in monitoring teachers' instructional activities.	3.18	0.77	High Extent
2	AI provides useful information for identifying instructional areas requiring improvement.	3.25	0.74	High Extent
3	AI supports the monitoring of students' academic performance.	3.30	0.70	High Extent
4	AI assists leaders in identifying teachers' professional development needs.	3.12	0.81	High Extent
5	AI improves communication between educational leaders and staff.	3.27	0.73	High Extent
6	AI facilitates timely dissemination of information within educational institutions.	3.36	0.67	High Extent
7	AI supports communication between educational institutions and other stakeholders.	3.20	0.76	High Extent
8	AI assists administrators in monitoring the use of educational resources.	3.23	0.75	High Extent
9	AI supports effective allocation and utilization of institutional resources.	3.15	0.79	High Extent
10	AI improves overall instructional supervision, communication and resource management.	3.29	0.71	High Extent
	Grand Mean	**3.24**	**0.74**	**High Extent**

Table 2 indicates that all ten items had mean scores above the criterion mean of 2.50. The mean scores ranged from **3.12 to 3.36,** showing that respondents perceived Artificial Intelligence as improving instructional supervision, communication and resource management to a high extent.

The highest mean score of 3.36 was obtained for the item stating that AI facilitated timely dissemination of information within educational institutions. This suggests that respondents considered AI particularly useful for improving the speed and efficiency of institutional communication. The item relating to monitoring students' academic performance also recorded a relatively high mean score of **3.30**. The lowest mean score of **3.12** was recorded for AI assisting leaders in identifying teachers' professional development needs. Despite being the lowest, the score remained above the criterion mean of 2.50 and was therefore interpreted as a high extent.

The **grand mean of 3.24** indicated that Artificial Intelligence improved instructional supervision, communication and resource management to a **high extent**. The result suggests that AI could support educational leaders in monitoring instructional activities, tracking academic performance, communicating with stakeholders and managing institutional resources more effectively.

Discussion of Findings

Artificial Intelligence enhanced decision-making and administrative efficiency to a high extent. The result showed a grand mean of **3.28**, indicating that AI supported educational leaders in analysing institutional information, preparing administrative reports, reducing the time spent on routine activities, improving planning and scheduling, monitoring institutional performance, and facilitating timely decision-making. Artificial Intelligence improved instructional supervision, communication and resource management to a high extent. The result produced a grand mean of **3.24**, indicating that AI supported educational leaders in monitoring instructional activities, tracking students' academic performance, identifying professional development needs, improving communication, disseminating information and monitoring the utilization of institutional resources. The overall grand mean of 3.26 indicated that Artificial Intelligence contributed to enhancing educational leadership and management to a high extent. The findings therefore suggested that AI could serve as an important support mechanism for improving the effectiveness and efficiency of educational administration.

Conclusion

Based on the findings of the study, it was concluded that Artificial Intelligence had considerable potential for enhancing educational leadership and management. AI was found to support educational leaders in making informed decisions, improving administrative efficiency, facilitating instructional supervision, strengthening institutional communication and promoting effective management of educational resources.

The study also concluded that the benefits of AI were greatest when it was used as a support tool for educational leaders rather than as a replacement for human judgement. Effective educational leadership still required professional experience, ethical reasoning, interpersonal skills, accountability and an understanding of the specific needs of teachers and learners. Consequently, the successful integration of AI into educational leadership and management required adequate infrastructure, appropriate training, institutional policies and responsible use of data.

Recommendations

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

1. Educational institutions should provide relevant AI tools and digital infrastructure to enable educational leaders to use Artificial Intelligence for administrative planning, data analysis, reporting and decision-making.

2. Regular training and professional development programmes should be organized for educational leaders and administrators to improve their AI literacy, digital competence and ability to use AI responsibly in educational management.
3. Educational authorities should develop clear policies and guidelines for the use of AI in educational institutions, particularly concerning data privacy, security, transparency, accountability and ethical decision-making.
4. Educational leaders should integrate AI into instructional supervision and monitoring practices to support the identification of students' learning needs, teachers' professional development needs and areas requiring instructional improvement.

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