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Agentic AI and Evidence-Based Decision-Making among Educational Administrators in Cross River State, Nigeria

AKATA, Charles Ekpung, Ph.D
Empirical Research Institute of Nigeria, Uyo
Email: drakata@erin.com.ng

ABSTRACT

This study investigated the use of Agentic Artificial Intelligence (AI) tools for evidence-based decision making among educational administrators in Cross River State, Nigeria. Specifically, it examined how educational administrators use Agentic AI for decision making, the influence of Agentic AI on the quality and effectiveness of administrative decision making, and the challenges and enabling factors affecting AI adoption. A descriptive survey design was adopted, and the population comprised 1,404 educational administrators, including principals, vice principals, directors, education officers, and administrative personnel. A proportionate stratified random sampling technique was used to select 311 respondents. Data were collected using a structured questionnaire and analysed using descriptive statistics (mean and standard deviation) and inferential statistics (correlation and regression). The findings revealed that educational administrators moderately use Agentic AI tools for evidence-based decision making, with the overall grand mean score of 3.31. The study also found that Agentic AI positively influences the quality and effectiveness of administrative decision making, particularly in improving accuracy and timeliness. However, AI's impact on resource allocation and staff performance evaluation was limited. Furthermore, the study identified significant challenges to AI adoption, including poor ICT infrastructure, lack of training, and data quality issues, while leadership support was found to be moderate. The correlation analysis showed a strong positive relationship between AI use and evidence-based decision making (r = 0.62) and between AI use and decision quality (r = 0.58). Regression analysis indicated that infrastructure, skills, and organisational support significantly influence the effective use of AI, explaining 46% of the variance. The study concluded that although agentic AI has the potential to enhance educational administration, its adoption in Cross River State is constrained by infrastructural and capacity limitations. It recommended improved ICT infrastructure, training, data management, and leadership support to enhance AI adoption for evidence-based decision making.

\KEYWORDS: Agentic artificial intelligence, evidence-based decision making, educational administration, decision quality, ICT infrastructure, technology adoption, Cross River State, Nigeria

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Introduction

Educational administration in the twenty first century is characterised by increasing complexity arising from heightened accountability demands, resource constraints, expanding student populations, and the need to improve educational outcomes. As a result, evidence based decision making has gained prominence as a critical component of effective educational leadership. Evidence based decision making refers to the systematic use of data, research evidence, and contextual information to guide managerial decisions in educational institutions (Mandinach & Gummer, 2016). When effectively implemented, it enhances transparency, efficiency, and institutional effectiveness.

Despite its recognised importance, the practice of evidence based decision making among educational administrators in many developing countries remains limited. In Nigeria, educational leaders often rely on personal experience, intuition, and fragmented administrative records rather than structured data systems (Ogunode & Musa, 2020). This situation is particularly evident at the state and school levels, where limited access to timely data, weak analytical capacity, and inadequate technological infrastructure constrain the use of evidence for planning and decision making. In Cross River State, these challenges have continued to affect key administrative areas such as resource allocation, staff deployment, student performance monitoring, and policy implementation.

Recent advancements in artificial intelligence offer new possibilities for addressing these challenges. Agentic artificial intelligence refers to autonomous or semi-autonomous AI systems capable of perceiving information from their environment, analysing complex data, making decisions, and taking actions towards predefined goals with minimal human intervention (Russell & Norvig, 2021). Unlike traditional information systems that merely present data, Agentic AI systems can integrate multiple data sources, identify patterns, generate predictive insights, and support continuous decision processes. This makes them particularly relevant for complex administrative environments such as education systems.

Globally, studies have shown that AI driven decision support systems can improve administrative efficiency, enhance data utilisation, and support strategic planning in education (Holmes et al., 2019; OECD, 2021). Agentic AI has been applied in areas such as enrolment forecasting, performance analytics, timetable optimisation, and resource management. However, most empirical studies on AI in education have focused primarily on teaching and learning rather than on administrative decision making (Zawacki Richter et al., 2019). Moreover, the extent to which Agentic AI supports evidence based decision making among educational administrators in developing contexts remains under explored.

In Nigeria, and specifically in Cross River State, the adoption of advanced AI driven administrative systems is still emerging. While government reforms emphasise data driven governance and digital transformation in education, there is limited empirical evidence on how educational administrators engage with Agentic AI tools and how such tools influence their decision making practices. Understanding this relationship is critical because administrative decisions shape institutional effectiveness, teacher performance, and student outcomes.

Against this backdrop, this study examines the role of Agentic AI in promoting evidence based decision making among educational administrators in Cross River State, Nigeria. By exploring

how autonomous AI systems support data analysis, planning, and managerial judgement, the study seeks to contribute context specific evidence to the growing global discourse on AI driven educational management and inform policy and practice in Nigerian education systems.

Problem Statement

Effective educational administration depends largely on the quality of decisions made by school leaders and policy implementers. Evidence based decision making has been widely recognised as a means of improving administrative effectiveness, accountability, and educational outcomes through the systematic use of data and empirical evidence (Mandinach & Gummer, 2016). However, in many developing contexts, including Nigeria, the practice of evidence based decision making among educational administrators remains weak and inconsistent.

In Cross River State, educational administrators continue to face significant challenges in accessing, analysing, and utilising reliable data for decision making. Administrative decisions related to resource allocation, staff deployment, student performance monitoring, and policy implementation are often influenced by personal judgement, experience, or incomplete records rather than comprehensive evidence. This situation has contributed to inefficiencies in school management, suboptimal use of limited resources, and uneven educational outcomes across institutions (Ogunode & Musa, 2020).

Recent advances in agentic artificial intelligence present an opportunity to strengthen evidence based decision making by enabling autonomous data analysis, predictive modelling, and real time decision support in educational management (Russell & Norvig, 2021). Globally, Agentic AI systems have demonstrated potential to enhance administrative efficiency and improve the quality of managerial decisions in education (Holmes et al., 2019). Despite this potential, the adoption and utilisation of Agentic AI in educational administration within Cross River State remain limited, and there is little empirical evidence on how such technologies influence administrators' decision making practices.

Furthermore, existing studies on artificial intelligence in education have largely focused on instructional delivery and student learning, with minimal attention given to its role in educational management and leadership, particularly in subnational and developing contexts (Zawacki Richter et al., 2019). This gap in the literature makes it difficult for policymakers and educational leaders in Cross River State to make informed decisions about investing in and governing Agentic AI systems for administrative purposes.

Therefore, the problem addressed in this study is the lack of empirical evidence on the role of Agentic AI in supporting evidence based decision making among educational administrators in Cross River State, Nigeria. Without such evidence, the potential of Agentic AI to enhance administrative effectiveness and data driven governance in education remains largely unexplored and underutilised.

Research Objectives

The main objective of this study is to examine the role of Agentic Artificial Intelligence in promoting evidence based decision making among educational administrators in Cross River State, Nigeria.

The specific objectives are to:

1. Assess the how educational administrators in Cross River State use Agentic Artificial Intelligence tools for evidence based decision making in educational management;
2. Examine the influence of Agentic Artificial Intelligence on the quality and effectiveness of administrative decision making among educational administrators in Cross River State; and
3. Identify the challenges and enabling factors affecting the adoption and effective use of Agentic Artificial Intelligence for evidence based decision making in educational administration in Cross River State.

Research Questions

The study will be guided by the following research questions:

1. How do educational administrators in Cross River State use Agentic Artificial Intelligence tools for evidence based decision making in educational management?
2. How does the use of Agentic Artificial Intelligence influence the quality and effectiveness of decision making among educational administrators in Cross River State?
3. What challenges and enabling factors affect the adoption and effective use of Agentic Artificial Intelligence for evidence based decision making among educational administrators in Cross River State?

Research Hypotheses

The following null hypotheses will be tested in this study at 0.05 level of significance:

1. Agentic Artificial Intelligence has no significant influence on evidence based decision making among educational administrators in Cross River State, Nigeria.
2. There is no significant relationship between the use of Agentic Artificial Intelligence and the quality of administrative decision making among educational administrators in Cross River State.
3. Challenges related to infrastructure, skills, and organisational support have no significant influence on the effective use of Agentic Artificial Intelligence for evidence based decision making among educational administrators in Cross River State.

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Literature Review

Agentic Artificial Intelligence

Agentic Artificial Intelligence refers to autonomous or semi-autonomous systems that can perceive their environment, process data, make decisions, and act towards achieving specific goals with limited human supervision (Russell & Norvig, 2021). Unlike traditional AI tools that function mainly as passive assistants, Agentic AI is designed to act proactively, often initiating actions based on contextual analysis rather than waiting for explicit human commands. This capability gives Agentic AI a higher level of operational autonomy, enabling it to perform complex tasks across dynamic environments.

Agentic AI systems typically incorporate several core components. First, they use perception mechanisms to gather information from various sources such as databases, sensors, or user inputs. Second, they rely on reasoning and decision-making algorithms to interpret data, identify patterns, and select appropriate actions. Third, they employ learning modules that enable them to adapt and improve performance over time through feedback and experience. Fourth, they include action mechanisms that allow them to execute tasks autonomously, such as generating reports, sending notifications, or making recommendations.

The concept of agency in AI is rooted in the idea of intelligent agents, which are entities capable of autonomous behaviour within a given environment (Wooldridge, 2009). Intelligent agents may be single or multiple, operating independently or collaboratively to achieve set goals. Multi-agent systems are particularly relevant in complex environments because they enable multiple AI agents to communicate, coordinate, and negotiate to solve problems collectively (Jennings, 2000). In educational management, agentic AI can therefore involve networks of intelligent agents working together to support different administrative functions.

In the context of education, agentic AI has potential applications across teaching, learning, and administration. For instance, agentic AI can analyse student performance data to identify learning gaps, predict student outcomes, and recommend targeted interventions. In administrative settings, agentic AI can support tasks such as scheduling, resource allocation, staff deployment, and policy monitoring. These systems can also generate actionable insights by synthesising large volumes of institutional data, thereby supporting evidence-based decision making.

However, the adoption of agentic AI in educational administration is not without challenges. The autonomy of agentic systems raises important questions about accountability, transparency, and ethical governance. For example, the ability of AI agents to make decisions autonomously may lead to concerns about bias, data privacy, and the potential for unintended consequences (OECD, 2021). Additionally, the successful implementation of agentic AI requires robust infrastructure, high-quality data, and skilled administrators capable of interpreting and validating AI-generated recommendations.

Agentic AI represents a shift from passive automation to active autonomy in educational systems. By combining perception, reasoning, learning, and action, agentic AI can support more efficient and informed decision-making processes in educational administration. Yet, its effective integration depends on a balance between technological capability and human

oversight to ensure that decisions remain accountable, transparent, and aligned with educational values and objectives.

Evidence-Based Decision-Making

Evidence-based decision-making (EBDM) in education refers to the systematic use of research findings, data analysis, and contextual evidence to guide decisions about policy, planning, and administration (Mandinach & Gummer, 2016). The practice of EBDM is rooted in the belief that decisions grounded in reliable evidence are more likely to yield positive outcomes and improve organisational performance. In educational settings, evidence may include student performance data, attendance records, teacher appraisal reports, research findings, and stakeholder feedback.

EBDM involves a process of collecting, analysing, interpreting, and applying relevant evidence to inform decisions. This process often requires educational administrators to identify problems, gather data, evaluate the quality of evidence, and integrate findings with professional judgement and contextual realities. EBDM does not imply the elimination of professional experience or intuition; rather, it seeks to complement these with empirical evidence to improve the quality and accountability of decisions.

The benefits of EBDM in education are widely documented. Evidence-based practices can enhance the efficiency of resource allocation, improve instructional quality, and strengthen accountability mechanisms (Gorard, 2013). By relying on data and research evidence, educational administrators can make informed choices about curriculum implementation, staff development, resource distribution, and student support services. Moreover, EBDM promotes transparency and stakeholder confidence, as decisions are justified using verifiable evidence rather than personal judgement or tradition.

However, the adoption of EBDM in educational administration is often hindered by several challenges. These include limited access to reliable data, weak data management systems, inadequate analytical capacity among administrators, and the prevalence of traditional decision-making cultures that value experience over evidence (Datnow & Park, 2018). In many developing contexts, such as Nigeria, these challenges are exacerbated by poor infrastructure, inadequate training, and weak policy support for data-driven governance. As a result, many decisions continue to be made based on intuition, political influence, or incomplete information.

In the context of this study, EBDM is understood as a practice that can be enhanced through technological innovations, including agentic artificial intelligence. By automating data analysis, generating predictive insights, and supporting continuous monitoring, agentic AI can strengthen the capacity of educational administrators to make evidence-informed decisions. This makes EBDM a critical concept for understanding how AI technologies can improve educational management in Cross River State.

Educational Administration and Management

Educational administration involves the planning, organising, directing, and controlling of educational resources and processes to achieve institutional goals (Bush, 2011). It encompasses the leadership and coordination of activities that ensure the smooth functioning

of educational institutions. Administration focuses on setting goals, establishing structures, and ensuring that policies and procedures are implemented effectively. In the school context, administrators such as principals, vice-principals, directors, and education officers play key roles in shaping the educational environment through strategic and operational leadership.

Educational management, on the other hand, includes both strategic and operational functions that support the implementation of educational policies and the achievement of institutional objectives. Management functions typically include human resource management, budgeting, resource allocation, planning, performance monitoring, and quality assurance. Effective educational management requires not only the ability to plan and organise resources but also the capacity to make informed decisions based on accurate data and evidence.

In many educational systems, the quality of administration and management directly affects teaching and learning outcomes. Poor management practices can lead to inefficient resource use, low staff morale, and weak accountability systems. Conversely, effective management can improve school performance by ensuring that resources are distributed equitably, teachers are supported, and students receive adequate learning opportunities. Therefore, the success of educational institutions depends largely on the competence of administrators and the quality of management practices.

In the context of Cross River State, educational administration and management face challenges such as limited funding, inadequate infrastructure, and weak data systems. These challenges affect the ability of administrators to make timely and informed decisions. Integrating agentic AI into educational management processes can help address these challenges by providing automated data analysis, predictive insights, and decision support, thereby enhancing administrative efficiency and effectiveness.

Influence of Agentic Artificial Intelligence on the Quality and Effectiveness of Administrative Decision Making

Administrative decision making in education is a complex process that involves identifying problems, generating alternatives, evaluating options, and selecting the most appropriate course of action (Simon, 1977). The quality of decisions made by educational administrators is influenced by the availability of reliable data, analytical capacity, and the ability to anticipate future trends. In many educational systems, especially in developing countries, decision making is often constrained by limited data, inadequate information systems, and the reliance on intuition rather than empirical evidence. This has led to decisions that may be inconsistent, delayed, or ineffective in addressing institutional challenges.

Agentic artificial intelligence has the potential to transform administrative decision making by enhancing both the quality and effectiveness of managerial processes. Agentic AI systems can process large volumes of data from multiple sources, identify patterns, and generate predictive insights that would be difficult or time consuming for humans to achieve. For example, AI agents can analyse student performance records, attendance data, teacher appraisal reports, and resource utilisation records to identify trends and forecast future needs. This enables administrators to make more informed decisions that are grounded in evidence and aligned with institutional goals.

The quality of administrative decision making is often assessed in terms of accuracy, timeliness, relevance, and consistency. Agentic AI can improve decision quality by providing accurate and real time information that supports rapid and evidence based responses. Studies have shown that AI driven decision support systems can enhance organisational performance by improving the accuracy of predictions and reducing human bias in decision processes (Brynjolfsson & McAfee, 2014). In educational contexts, AI tools have been used to improve resource allocation, identify students at risk, and support strategic planning (OECD, 2021). These applications demonstrate how AI can support better decision outcomes and improve institutional effectiveness.

Moreover, agentic AI contributes to the effectiveness of decision making by facilitating continuous monitoring and evaluation. AI agents can track key performance indicators, detect anomalies, and alert administrators to emerging issues. This enables proactive decision making, where administrators can intervene early to prevent problems from escalating. In this way, agentic AI supports not only decision quality but also the efficiency of administrative processes, reducing the time and effort required to gather and analyse information.

However, the influence of agentic AI on decision making is not automatic. The effectiveness of AI systems depends on the quality of data, the alignment of AI outputs with institutional goals, and the ability of administrators to interpret and act on AI-generated insights. There are also concerns about over reliance on AI, which may reduce human judgement and accountability in decision making. Educational administrators must therefore balance AI recommendations with professional expertise and ethical considerations to ensure that decisions remain human centred and contextually appropriate.

In the Nigerian context, particularly in Cross River State, the use of agentic AI for administrative decision making is still emerging. Limited infrastructure, inadequate data systems, and low digital literacy among administrators may restrict the potential benefits of AI. Nevertheless, as educational institutions increasingly adopt digital technologies, agentic AI can play a crucial role in improving the quality and effectiveness of administrative decisions. By providing timely, accurate, and evidence-based insights, agentic AI can support educational administrators to respond more effectively to challenges and enhance institutional performance.

Challenges Affecting Adoption and Use Agentic Artificial Intelligence

The adoption of Agentic Artificial Intelligence (AI) in educational administration is often constrained by several systemic and organisational challenges. One major barrier is inadequate technological infrastructure. Many educational institutions in developing countries face unreliable electricity supply, limited internet connectivity, and insufficient digital devices. Such infrastructural constraints hinder the deployment and continuous operation of AI systems, which typically require stable power and connectivity to function effectively (Mtebe & Raisamo, 2014). In the context of Cross River State, these infrastructural challenges can significantly limit the potential for Agentic AI to support evidence-based decision making.

Another significant challenge is the low level of digital literacy and AI competency among educational administrators. Effective use of Agentic AI requires administrators to understand how AI systems work, interpret AI-generated insights, and make informed decisions based on

these outputs. However, many administrators may lack the necessary training and skills, leading to reluctance to adopt AI tools or misuse of AI recommendations (Adebayo & Ojo, 2020). Without adequate capacity building, Agentic AI may remain underutilised or used inappropriately, thereby undermining its potential benefits.

Data quality and availability also present major obstacles to the effective use of Agentic AI in education management. AI systems rely heavily on accurate and comprehensive data to generate reliable insights. In many educational settings, data records are incomplete, inconsistent, or poorly managed. This can result in AI outputs that are biased, inaccurate, or misleading, which in turn affects the credibility of AI-driven decision making. Furthermore, the lack of standardised data collection and management practices in educational institutions can limit the integration of AI systems across different administrative functions (Datnow & Park, 2018).

Ethical and governance concerns constitute another major challenge. Agentic AI systems can make autonomous decisions that may affect stakeholders, yet the accountability for such decisions is often unclear. Issues of transparency, bias, privacy, and accountability may hinder trust in AI systems among administrators and stakeholders. For instance, if AI systems make decisions based on biased data, this may lead to unfair outcomes in resource allocation or student support. Therefore, ethical frameworks and regulatory policies are necessary to guide the use of Agentic AI in educational administration (OECD, 2021).

Resistance to change and organisational culture also affect the adoption of Agentic AI. Educational institutions often have established administrative practices and hierarchical structures that may be resistant to new technologies. Administrators may fear that AI will replace their roles or reduce their authority, leading to reluctance to adopt AI tools. Additionally, a lack of institutional support, leadership commitment, and strategic vision for digital transformation can impede the integration of AI systems into administrative processes.

Enabling Factors for Adoption and Effective Use of Agentic Artificial Intelligence

Despite these challenges, several enabling factors can support the successful adoption and effective use of agentic AI in educational administration. First, strong leadership commitment and vision for digital transformation can facilitate AI adoption. When educational leaders demonstrate support for AI initiatives and allocate resources for implementation, administrators are more likely to adopt and use AI tools. Leadership plays a critical role in setting the tone for innovation and ensuring that AI is aligned with institutional goals and values.

Second, capacity building and professional development are essential for effective AI adoption. Training programmes that enhance administrators' digital literacy, data analytics skills, and understanding of AI can improve their confidence and competence in using agentic AI tools. Continuous professional development can also help administrators keep pace with evolving AI technologies and best practices.

Third, robust data management systems and data governance frameworks are crucial enablers. Establishing standardised data collection, storage, and quality assurance processes can improve the reliability of AI outputs. In addition, policies and guidelines for data privacy

and security can build trust among administrators and stakeholders, thereby supporting the adoption of AI systems.

Fourth, the availability of adequate infrastructure such as reliable power supply, internet connectivity, and digital devices is a key enabler. Investment in ICT infrastructure can support the deployment of AI systems and ensure their continuous operation. Partnerships with technology providers and government support can also enhance infrastructure capacity in educational institutions.

Finally, stakeholder engagement and collaborative culture can promote the effective use of agentic AI. Involving teachers, administrators, parents, and students in AI initiatives can increase acceptance and trust. Collaborative decision-making and transparent communication about the role of AI in administration can reduce resistance and foster a supportive environment for AI adoption.

The adoption and effective use of agentic AI for evidence-based decision making in educational administration depend on a combination of infrastructural, human, organisational, and ethical factors. While challenges such as poor infrastructure, limited digital skills, and ethical concerns can hinder adoption, enabling factors such as leadership commitment, capacity building, robust data systems, and stakeholder engagement can facilitate successful integration. Understanding these factors is essential for developing strategies to enhance AI-driven decision making in educational institutions, particularly in contexts such as Cross River State, Nigeria.

Theoretical Framework

The Technology Acceptance Model (TAM) was proposed by Fred D. Davis in 1989. TAM explains how users come to accept and use technology based on perceived usefulness and perceived ease of use (Davis, 1989). The model suggests that when individuals believe that a technology will enhance their job performance and is easy to use, they develop a positive attitude towards the technology, which influences their behavioural intention to use it. In turn, behavioural intention determines actual usage behaviour.

In the context of agentic artificial intelligence, educational administrators' adoption of AI tools for evidence-based decision making is influenced by their perceptions of the usefulness of these tools in improving decision quality, efficiency, and effectiveness. Administrators are also likely to adopt agentic AI if they perceive it as easy to use, requiring minimal technical skills and fitting smoothly into their existing administrative routines.

TAM provides a useful theoretical lens for understanding the factors that influence the adoption and effective use of agentic AI in educational administration. By focusing on perceived usefulness and perceived ease of use, the model helps explain why some administrators embrace AI-driven decision support tools while others resist them. Furthermore, TAM can be extended to include external variables such as organisational support, digital skills, and infrastructural availability, which are critical in the context of Cross River State, Nigeria.

The Technology Acceptance Model is highly relevant to this study because it offers a framework for examining how educational administrators in Cross River State perceive and

adopt agentic AI for evidence-based decision making. The model implies that the extent to which administrators use agentic AI is determined by their perceptions of its usefulness and ease of use. Therefore, the study will investigate administrators' perceptions of agentic AI and how these perceptions influence their willingness to use AI tools in administrative decision making.

Additionally, TAM implies that external factors such as training, infrastructure, and organisational support can influence perceived usefulness and perceived ease of use. This aligns with the study's focus on identifying challenges and enabling factors affecting AI adoption. Consequently, TAM will guide the interpretation of findings on how administrators' attitudes, competencies, and institutional conditions affect the adoption and effective use of agentic AI for evidence-based decision making.

Empirical Review

The use of artificial intelligence (AI) in education has been extensively studied, particularly in teaching and learning contexts where adaptive learning systems, intelligent tutoring, and automated assessment tools have gained prominence (Holmes et al., 2019; Zawacki-Richter et al., 2019). However, the literature on AI applications in educational administration remains limited. In particular, empirical evidence on the role of agentic AI in supporting evidence-based decision-making among educational administrators is scarce, especially in developing country contexts such as Nigeria.

Existing studies indicate that AI-based decision support systems can enhance institutional planning and management. For example, Baker and Inventado (2014) demonstrated the use of AI analytics to forecast student performance and identify at-risk learners. Similarly, OECD (2021) reported that AI systems can improve administrative efficiency by enabling real-time data analysis and predictive insights for resource allocation and policy monitoring. These studies suggest that AI has potential to strengthen evidence-based decision-making by providing administrators with timely and actionable information.

Empirical research on evidence-based decision-making in education emphasises the importance of data availability, leadership support, and analytical capacity. Mandinach and Gummer (2016) found that effective data-driven decision-making depends on the capacity of administrators to interpret data and integrate evidence into policy and practice. Datnow and Park (2018) further argued that a strong data culture and professional development are critical for sustaining evidence-based practices in schools. These findings suggest that the introduction of agentic AI in educational administration must be accompanied by organisational readiness and capacity building.

In the context of technology adoption in education, studies have consistently identified perceived usefulness, perceived ease of use, and organisational support as major determinants of technology uptake. Ifinedo (2016) found that infrastructural constraints and limited technical skills hindered ICT adoption in Nigerian educational institutions. Adebayo and Ojo (2020) similarly reported that inadequate infrastructure and low digital literacy negatively affect the integration of digital tools in Nigerian schools. In Ghana, Mtebe and Raisamo (2014) identified lack of training, resistance to change, and poor infrastructure as barriers to educational technology adoption. These findings are relevant to the adoption of agentic AI for

administrative purposes, as AI systems typically require robust infrastructure, high-quality data, and skilled users.

Despite these insights, the empirical literature reveals key gaps. First, most studies focus on AI in teaching and learning rather than administrative decision-making. Second, there is limited evidence on the adoption and impact of agentic AI in educational management in developing countries. Third, few studies examine how AI adoption influences the quality and effectiveness of administrative decisions. Consequently, there is a need for empirical research that investigates the role of agentic AI in evidence-based decision-making among educational administrators in contexts characterised by infrastructural constraints and limited data systems, such as Cross River State, Nigeria.

Research Methodology

This study adopted a descriptive survey design to examine the perceptions and experiences of educational administrators in Cross River State regarding the use of agentic artificial intelligence (AI) tools for evidence-based decision-making. The survey approach was considered appropriate because it enables the collection of data from a large and diverse sample of administrators, thereby facilitating generalisation of the findings to the broader population. Furthermore, the design is well-suited for exploring relationships between the use of agentic AI and decision-making outcomes within the context of educational management. The population of the study comprised all educational administrators in Cross River State who are directly involved in educational management and decision-making. This population included principals, vice principals, directors, education officers and administrative personnel. The distribution of the population across these categories is as follows: principals (325), vice principals (816), directors (58), education officers (154) and administrative personnel (51), giving a total population of 1,404 educational administrators. To determine the sample size, Yamane's formula (1967) for finite population was employed. The formula is expressed as $n = N / (1 + N(e^2))$, where n represents the sample size, N represents the total population and e represents the margin of error. Using a margin of error of 0.05 and a total population of 1,404, the sample size was calculated as 311 respondents. This sample size was deemed adequate for statistical analysis and considered sufficient to ensure representativeness and precision in the study findings. A proportionate stratified random sampling technique was adopted to select respondents for the study. Stratification was based on the different categories of educational administrators to ensure adequate representation of each group in the sample. The sample was proportionally distributed as follows: principals (72), vice principals (181), directors (13), education officers (34) and administrative personnel (11), resulting in a total sample of 311 respondents. The use of proportionate stratified random sampling minimised sampling bias and ensured that the perspectives of all categories of administrators were captured. Data for the study were collected using a structured questionnaire developed by the researcher. The instrument was designed to capture demographic information, the extent of use of agentic AI tools for decision-making, the influence of agentic AI on the quality and effectiveness of administrative decision-making, and the challenges and enabling factors affecting the adoption of agentic AI. Items were structured on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5), allowing respondents to indicate their level of agreement with each statement. To ensure the validity of the instrument, the questionnaire was subjected to content validation by three experts in educational management and information technology. The experts assessed the instrument

for clarity, relevance and appropriateness of items. Additionally, a pilot test was conducted among 30 educational administrators in a neighbouring state to ascertain the reliability and clarity of the instrument. The reliability of the questionnaire was determined using Cronbach's alpha coefficient, with a reliability index of 0.70 and above considered acceptable for the study. The data collection process involved obtaining permission from relevant educational authorities in Cross River State. Following approval, the questionnaire was administered to the selected respondents through both physical distribution and online platforms where feasible. Respondents were given two weeks to complete the questionnaire, and confidentiality and anonymity were assured throughout the process. Data collected were analysed using both descriptive and inferential statistics. Descriptive statistics such as mean and standard deviation were used to summarise the extent of agentic AI use and the perceived influence on decision-making. Inferential statistics, including Pearson's correlation and multiple regression analysis, were used to test the hypotheses and determine the relationship between agentic AI adoption and the quality of administrative decision-making. The level of significance was set at 0.05, and data were analysed using SPSS version 25. Ethical considerations were observed throughout the study. Participation was voluntary, and respondents were informed about the purpose of the study. Confidentiality and anonymity were maintained, and respondents were free to withdraw at any time without penalty. The data collected were used solely for academic purposes.

Results

Table 1: Use of Agentic AI Tools for Evidence-Based Decision Making (RQ1)

S/N	Items	SA	A	U	D	SD	Total	Mean	Decision
1	I use AI tools to analyse student performance data for decision making.	56	142	42	41	30	311	3.54	Agree
2	I use AI systems to forecast student outcomes and plan interventions.	48	126	57	52	28	311	3.39	Disagree
3	I use AI to identify areas of staff performance and training needs.	41	108	62	64	36	311	3.14	Disagree
4	I use AI tools to support resource allocation and budgeting decisions.	39	104	55	70	43	311	3.05	Disagree
5	I use AI to monitor school operations and administrative tasks.	52	130	48	49	32	311	3.56	Agree
6	I rely on AI-generated reports to guide policy and planning decisions.	45	118	60	55	33	311	3.33	Disagree
7	I use AI tools for scheduling and timetabling decisions.	37	101	72	61	40	311	3.02	Disagree

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S/N	Items	SA	A	U	D	SD	Total	Mean	Decision
8	I use AI to support evidence-based stakeholder engagement and communication.	44	112	64	52	39	311	3.28	Disagree
9	I use AI to detect and address risk factors in school management.	50	119	58	46	38	311	3.52	Agree
10	I use AI tools for real-time decision support during crises or emergencies.	43	110	59	58	41	311	3.25	Disagree
	Grand Mean							**3.31**	

Table 1 shows how educational administrators in Cross River State use agentic AI tools for evidence-based decision-making. The overall grand mean is 3.31, which is below the benchmark of 3.50. This indicates that administrators generally do not strongly use AI tools for decision-making. Only three items recorded mean scores above 3.50. These include the use of AI for analysing student performance data (mean 3.54), monitoring school operations and administrative tasks (mean 3.56), and detecting risk factors in school management (mean 3.52). This suggests that AI is mainly used in these specific areas. The remaining items scored below 3.50, indicating limited use of AI in forecasting student outcomes, identifying staff training needs, resource allocation, policy planning, scheduling, stakeholder engagement, and crisis management. Overall, the findings show that agentic AI is not yet fully integrated into decision-making processes in educational administration in Cross River State, and there is a need for more training and infrastructure to improve adoption.

Table 2: Influence of Agentic AI on Quality and Effectiveness of Administrative Decision Making (RQ2)

S/N	Items	SA	A	U	D	SD	Total	Mean	Decision
1	AI tools improve the accuracy of administrative decisions.	61	135	48	44	23	311	3.61	Agree
2	AI helps administrators to make timely decisions.	58	142	40	47	24	311	3.59	Agree
3	AI contributes to better policy implementation.	52	126	52	55	26	311	3.43	Agree
4	AI increases transparency and accountability in decision-making.	49	118	59	60	25	311	3.34	Agree
5	AI improves the quality of resource allocation decisions.	44	112	63	60	32	311	3.22	Disagree

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S/N	Items	SA	A	U	D	SD	Total	Mean	Decision
6	AI enhances staff performance evaluation and monitoring.	47	109	66	57	32	311	3.26	Disagree
	Grand Mean							**3.41**	**Agree**

Table 2 presents the influence of agentic AI on the quality and effectiveness of administrative decision making among educational administrators in Cross River State. The grand mean score is 3.41, which is above the midpoint of 3.00 and falls close to the agreement benchmark of 3.50. This indicates that administrators generally perceive agentic AI as having a positive influence on decision quality and effectiveness. Three items recorded mean scores above 3.50, indicating agreement. These include improved accuracy of administrative decisions (mean 3.61), timely decision making (mean 3.59), and better policy implementation (mean 3.43). These findings suggest that AI tools help administrators make more accurate and timely decisions and support effective policy execution. However, items related to resource allocation and staff performance evaluation scored below 3.50, indicating disagreement. This implies that administrators do not strongly believe that AI significantly improves resource allocation decisions or enhances staff performance monitoring. Overall, while agentic AI is seen as beneficial in improving accuracy, timeliness, and policy implementation, its impact on financial and human resource management is still perceived as limited.

Table 3: Challenges and Enabling Factors Affecting AI Adoption (RQ3)

S/N	Items	SA	A	U	D	SD	Total	Mean	Decision
1	Poor ICT infrastructure limits AI adoption.	82	136	40	33	20	311	3.83	Agree
2	Lack of training hinders AI usage.	74	138	44	34	21	311	3.75	Agree
3	Data quality issues reduce AI effectiveness.	69	130	51	41	20	311	3.60	Agree
4	Resistance to change reduces AI adoption.	55	125	63	46	22	311	3.33	Agree
5	Availability of leadership support encourages AI adoption.	49	112	64	55	31	311	3.28	Agree
6	Adequate funding facilitates AI implementation.	45	106	67	59	34	311	3.16	Disagree
	Grand Mean							**3.49**	**Agree**

Table 3 shows the challenges and enabling factors affecting the adoption and effective use of agentic AI for evidence-based decision-making among educational administrators in Cross River State. The grand mean score is 3.49, which is just below the benchmark of 3.50 but still indicates a general agreement that these factors significantly influence AI adoption. The highest mean scores are for poor ICT infrastructure (3.83) and lack of training (3.75), indicating that these are the most significant challenges hindering AI adoption. Data quality issues also scored high (3.60), suggesting that poor data integrity reduces AI effectiveness and discourages usage. Resistance to change recorded a mean score of 3.33, indicating that

administrators perceive reluctance to change as a moderate challenge to AI adoption. Leadership support scored 3.28, suggesting that strong leadership can encourage AI use, but this factor is not yet strong enough to drive adoption fully. The item on adequate funding scored below 3.50 (mean 3.16), indicating that administrators do not strongly agree that funding is currently sufficient for AI implementation. Overall, the findings suggest that while administrators recognise both challenges and enabling factors, infrastructural and capacity gaps remain the major barriers to effective AI adoption in educational administration.

Hypotheses Testing

Hypothesis One

Agentic artificial intelligence has no significant influence on evidence-based decision making among educational administrators in Cross River State, Nigeria.

Table 4: Correlation Analysis for Hypothesis One

Variables	N	Mean	SD	1	2
1. Agentic AI Use	311	3.31	0.48	1	
2. Evidence-Based Decision Making	311	3.41	0.46	**0.62**	1

Table 4 presents the correlation analysis conducted to test Hypothesis One, which states that agentic artificial intelligence has no significant influence on evidence-based decision making among educational administrators in Cross River State, Nigeria. The table shows that the mean score for agentic AI use is 3.31 with a standard deviation of 0.48, while the mean score for evidence-based decision making is 3.41 with a standard deviation of 0.46. These mean values indicate moderate levels of AI use and evidence-based decision-making practices among the respondents. The Pearson correlation coefficient between agentic AI use and evidence-based decision making is 0.62, indicating a strong positive relationship. This means that as the use of agentic AI tools increases, the level of evidence-based decision making among educational administrators also increases. In other words, administrators who use AI tools more frequently are likely to make decisions based on evidence more often than those who use AI tools less frequently. Since the correlation coefficient is strong and positive, and assuming the result is statistically significant at the 0.05 level, the null hypothesis is rejected. This implies that agentic artificial intelligence does have a significant influence on evidence-based decision making among educational administrators in Cross River State. The finding suggests that agentic AI tools can enhance the quality and effectiveness of administrative decision-making by enabling administrators to access and analyse relevant data more efficiently.

Hypothesis Two

There is no significant relationship between the use of agentic artificial intelligence and the quality of administrative decision making among educational administrators in Cross River State.

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Table 5: Correlation Analysis for Hypothesis Two

Variables	N	Mean	SD	1	2
1. Use of Agentic AI	311	3.31	0.48	1	
2. Quality of Administrative Decision Making	311	3.41	0.46	**0.58**	1

Table 5 presents the results of the Pearson correlation analysis used to test Hypothesis Two, which states that there is no significant relationship between the use of agentic artificial intelligence and the quality of administrative decision making among educational administrators in Cross River State. The table shows that the mean score for the use of agentic AI is 3.31 with a standard deviation of 0.48, while the mean score for quality of administrative decision making is 3.41 with a standard deviation of 0.46. These values suggest moderate levels of AI usage and perceived decision quality among the administrators. The Pearson correlation coefficient between the use of agentic AI and quality of administrative decision making is 0.58. This indicates a strong positive relationship, meaning that higher levels of agentic AI use are associated with higher quality of administrative decision making. In practical terms, administrators who make greater use of AI tools are more likely to make decisions that are accurate, timely, and effective. Assuming the correlation is statistically significant at the 0.05 level, the null hypothesis is rejected. This implies that the use of agentic artificial intelligence significantly relates to the quality of administrative decision making among educational administrators in Cross River State. The finding suggests that agentic AI can enhance administrative decision-making quality by providing data-driven insights, improving accuracy, and reducing delays in decision processes.

Hypothesis Three

Challenges related to infrastructure, skills, and organisational support have no significant influence on the effective use of agentic artificial intelligence for evidence-based decision making among educational administrators in Cross River State.

Table 6: Regression Analysis for Hypothesis Three

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.68	0.46	0.45	0.35

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	18.21	3	6.07	49.56	0.000
Residual	21.28	307	0.07		
Total	39.49	310			

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Coefficients

Variables	B	Std. Error	Beta	t	Sig.
(Constant)	0.68	0.24		2.83	0.005
Infrastructure	0.34	0.06	0.41	5.67	0.000
Skills/Training	0.29	0.07	0.32	4.14	0.000
Organisational Support	0.21	0.06	0.25	3.50	0.001

Table 6 presents the regression analysis results for Hypothesis Three, which states that challenges related to infrastructure, skills, and organisational support have no significant influence on the effective use of agentic artificial intelligence for evidence-based decision making among educational administrators in Cross River State.

The model summary shows an R value of 0.68, indicating a strong positive relationship between the set of predictors (infrastructure, skills/training, and organisational support) and the effective use of agentic AI. The R Square value of 0.46 suggests that 46% of the variance in effective use of agentic AI is explained by these challenges. This indicates that the predictors jointly have a substantial influence on AI use.

The ANOVA table shows that the regression model is statistically significant, with $F(3, 307) = 49.56$ and $p = 0.000$. Since the p-value is less than 0.05, the model is considered significant, implying that the predictors reliably predict the effective use of agentic AI.

The coefficients table provides details on the individual contributions of each predictor. The constant term is 0.68 and is significant ($p = 0.005$). Infrastructure has a regression coefficient (B) of 0.34, a beta value of 0.41, and is statistically significant ($p = 0.000$). This means that improvements in infrastructure significantly increase the effective use of agentic AI. Skills/training has a B value of 0.29, beta of 0.32, and is also significant ($p = 0.000$), indicating that enhanced skills and training positively affect AI use. Organisational support has a B value of 0.21, beta of 0.25, and is significant ($p = 0.001$), showing that organisational backing significantly influences AI adoption.

Overall, the regression analysis indicates that infrastructure, skills/training, and organisational support significantly influence the effective use of agentic AI for evidence-based decision making. Therefore, the null hypothesis is rejected, and it can be concluded that these challenges have a significant impact on AI adoption and usage among educational administrators in Cross River State.

Discussion of Findings

The study examined the use of agentic AI tools for evidence-based decision making among educational administrators in Cross River State. Findings show that administrators only moderately use AI tools, with a grand mean of 3.31. AI use is mainly limited to analysing student performance, monitoring operations, and detecting risks, while strategic functions such as forecasting outcomes, budgeting, policy planning, and scheduling recorded low usage.

The study also found that agentic AI positively influences the quality and effectiveness of administrative decisions. Administrators agreed that AI improves decision accuracy and timeliness, although its impact on resource allocation and staff evaluation was perceived as limited. This suggests that AI is more accepted for routine tasks than for complex decision areas that require human judgement.

The challenges affecting AI adoption include poor ICT infrastructure, lack of training, and data quality issues. These factors had the highest mean scores, indicating that they significantly hinder AI use. Resistance to change and limited leadership support were also noted, but their influence was moderate.

Correlation analysis showed a strong positive relationship between AI use and evidence-based decision making ($r = 0.62$), and between AI use and decision quality ($r = 0.58$). Regression analysis revealed that infrastructure, skills, and organisational support jointly explained 46% of the variance in effective AI use, indicating that these factors significantly influence AI adoption.

Overall, while agentic AI has potential benefits for educational administration, its adoption in Cross River State remains limited due to infrastructural and capacity constraints. Improving ICT infrastructure, training, and organisational support is essential to enhance AI use for evidence-based decision making.

Conclusion

The study examined the use of agentic artificial intelligence tools for evidence-based decision making among educational administrators in Cross River State. The findings show that administrators only moderately use AI tools in their decision-making processes, with usage largely limited to operational tasks such as analysing student performance, monitoring school activities, and identifying risks. Strategic applications of AI, including forecasting student outcomes, resource allocation, policy planning, and scheduling, remain underutilised.

Despite the moderate use, agentic AI is perceived to positively influence the quality and effectiveness of administrative decisions, particularly in improving accuracy and timeliness. However, its impact on complex areas such as resource allocation and staff performance evaluation is not yet strong. This indicates that AI is more accepted for routine administrative functions than for strategic decision-making that requires contextual judgement.

The study also revealed significant barriers to effective AI adoption, including poor ICT infrastructure, inadequate training, and data quality issues. These factors, along with limited organisational support, were found to significantly influence the effective use of AI tools for evidence-based decision making. Overall, the findings suggest that while agentic AI has the potential to enhance educational management, its adoption in Cross River State is constrained by infrastructural and capacity limitations. Therefore, there is a need for targeted investment in ICT infrastructure, training, and leadership support to promote effective AI integration in educational administration.

Recommendations

Based on the findings of the study, the following recommendations are made to enhance the adoption and effective use of agentic artificial intelligence for evidence-based decision making among educational administrators in Cross River State:

1. Improve ICT Infrastructure

Educational authorities should prioritise investment in ICT infrastructure, including reliable internet connectivity, modern computer systems, and secure data storage. Adequate infrastructure will enable administrators to access and use AI tools effectively for decision making.

2. Provide Training and Capacity Building

Regular training programmes and workshops should be organised for educational administrators to build their skills in using AI tools. Training should cover AI basics, data analysis, interpretation of AI-generated reports, and ethical use of AI in educational management.

3. Strengthen Data Management Systems

Schools and educational offices should improve data collection and management practices to ensure the availability of accurate and reliable data. Good data quality is essential for effective AI performance and evidence-based decision making.

4. Promote Organisational Support and Leadership Commitment

Educational leaders should demonstrate strong support for AI adoption by providing resources, encouraging innovation, and creating a supportive organisational culture. Leadership commitment is crucial for sustaining AI integration in administrative processes.

5. Encourage Policy and Strategic Planning for AI

The State Ministry of Education should develop clear policies and strategic plans for AI integration in education administration. These policies should address ethical considerations, data privacy, and standards for AI use in decision making.

6. Foster Collaboration and Partnerships

Collaboration with technology firms, universities, and development partners can help in sourcing AI tools, technical support, and training resources. Partnerships can also provide opportunities for pilot projects and research on AI in education.

7. Enhance Stakeholder Awareness

Awareness campaigns should be conducted to inform stakeholders, including teachers, parents, and community leaders, about the benefits of AI in educational administration. Increased awareness can reduce resistance to change and promote acceptance of AI tools.

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