UKR Journal of Education and Literature (UKRJEL)
Homepage: https://ukrpublisher.com/ukrjel/
Email: submit.ukrpublisher@gmail.com
Volume 2, Issue 5, September-October 2026 ISSN: 3107-8672 (Online)

Integration of Artificial Intelligence Tools in the Administration of Public Secondary Schools in Imo State

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DOI: *https://doi.org/10.5281/zenodo.22726413*

Article History

Original Research Article

Received: 06-07-2026

Accepted: 16-08-2026

Published: 12-09-2026

Citation: EJIKEM, Maxwell Chidiebere, AMADI, Eric (PhD), & Osuji Catherine U, PhD. (2026). Integration of artificial intelligence tools in the administration of public secondary schools in Imo State. UKR Journal of Education and Literature, 2(5), 65-76.

Abstract

The study investigated the integration of artificial intelligence tools in the administration of public secondary schools in Imo State. Three objectives, research questions and three hypotheses guided the study. The study adopted a descriptive survey design for the research design. The study population comprised 2,027 principals and 23,179 teachers in the 513 approved Junior Secondary and Senior Secondary schools in Imo State, a total population of 25,206 administrators. The study adopted multi-purpose sampling techniques (purposive sampling, random sampling, stratified proportionate random sampling, and simple random sampling). The Taro Yamane's formula was used for sample size determination. The instrument used for the study was structured questionnaire titled: Integration of Artificial Intelligence Tools in the Administration of Public Secondary Schools in Imo State. Reliability of instrument was determined using the Cronbach's Alpha test and SPSS software. The instrument was validated by the researcher Supervisor and two (2) other experts in Measurement and Evaluation. The data gathered were analyzed using Frequency Mean and Standard deviation, while the null hypotheses were tested using t-test statistical tool at 0.05 level of significance. Decision on the items of the research questions were based on modified point rating scale of very high extent, high extent, low extent and very low extent with numerical value of 4, 3, 2 and 1 respectively. The decision was that any item that is equal to or greater than 2.50 was considered to be agree while item having a mean less than 2.50 was disagree. Based on the findings, the study reveals that AI tools (such as SAP, ChatGPT, AlphaSense, Microsoft Azure Purview, and Teams Copilot) enhance routine school administration in Imo State, a benefit mutually recognized by both principals and teachers. The study recommended that Ministry of Education and relevant government agencies in Imo State should develop clear policies and guidelines for the adoption of AI tools in school administration. These policies should address ethical use, data privacy, and accountability to ensure responsible integration Furthermore, regular training and professional development programs should be organized to equip principals, teachers, and administrative staff with the knowledge and skills required to effectively use AI tools.

Keywords: *Artificial Intelligence, Administration, AlphaSense integration, Data Management, System application.*

Introduction

The administration of secondary schools has become increasingly complex due to the growing demands for effective decision-making, efficient record management, improved communication, quality assurance, enhanced teaching and learning outcomes. Public secondary schools in Imo State, like many others in Nigeria are expected to meet these expectations despite challenges such as limited resources, increasing student enrolment, inadequate data management systems, and administrative inefficiencies. These challenges have created a need for innovative approaches that can improve school administration and support educational development.

The emergence of Artificial Intelligence (AI) has transformed various sectors of society. AI tools are capable of performing tasks that normally require human intelligence such as analysing data, automating routine processes, predicting trends, generating reports and facilitating communication. In the educational sector, AI has the potential to improve administrative functions by simplifying complex tasks, enhancing accuracy, saving time, and supporting evidence-based decision-making.

The Integration of AI tools into the administration of public secondary schools has become a necessity rather than a luxury. Whether such an innovation takes root, however, depends on more than its availability, since the participation of the people an initiative is meant to serve was found to determine whether community development projects in Rivers State survived beyond their launch, a pattern that applies equally to an administrative technology that principals and teachers are expected to carry (Dokubo et al., 2020). School administrators can no longer rely on traditional administrative methods to handle enormous volumes of information relating to students, staff, finances, examinations and school operations.

Artificial Intelligence (AI) is defined as computer systems capable of performing tasks that typically require human intelligence such as learning, reasoning, and problem-solving (Russell & Norvig, 2021). It has emerged as a transformative tool in educational management. Artificial Intelligence (AI) refers to the simulation of human intelligence in machines, where systems are designed to replicate cognitive functions. This encompasses a range of technologies, including machine learning, which enables computers to learn from data and improve performance over time (Russell & Norvig, 2016). AI systems are capable of automating routine tasks, analyzing large datasets, and supporting evidence-based decision-making. The systems are capable of processing vast amounts of data, identifying complex patterns, and making decisions with minimal human intervention, thereby significantly increasing efficiency in tasks traditionally performed by humans. Beyond mere automation, AI introduces a paradigm shift in how organizations and institutions operate, enabling predictive insights, adaptive responses, and continuous improvement. Its applications span multiple sectors: in healthcare, AI tools assist in diagnosing diseases, predicting patient outcomes, and recommending personalized treatments; in finance, AI-driven algorithms forecast market trends, detect fraudulent transactions, and automate high-frequency trading; and in education, AI supports personalized learning pathways, adaptive assessments, and administrative efficiency by streamlining processes such as attendance monitoring and timetable generation (Brynjolfsson & McAfee, 2014).

AI technologies hold the potential to transform industries, enhancing productivity, accuracy, and strategic planning. They empower institutions to move from reactive to proactive management, where decisions are informed by real-time data and predictive analytics rather than intuition alone. AI is not merely a technological tool but a transformative force that reshapes how societies function. Its integration requires a balanced approach by leveraging its immense potential to improve efficiency and decision-making while simultaneously addressing ethical, social, and economic challenges to ensure that its benefits are equitably distributed across all sectors of society.

In Nigeria, especially Imo State, secondary education serves as a pivotal bridge between primary and tertiary education, functioning not only as a preparatory stage for higher learning but also as a foundation for practical life skills (Adeyemi & Adeyinka, 2020). It is at this level that learners are expected to acquire essential competencies, values, and behaviours that shape their intellectual growth and social development (Ibukun et al., 2019). Aja-Okorie and Oko (2021) emphasized that the primary purpose of secondary education is to cultivate academic excellence and equip students with the skills necessary for advanced studies, while Ogbu (2014) described it as a critical stage in the Nigerian educational system where the groundwork for lifelong learning and practical living is firmly established. This stage is therefore central to national development, as it produces individuals who are capable of contributing meaningfully to society, whether through further education, vocational pursuits, or civic engagement (Durosaro, et al., 2023). The effectiveness of secondary education, however, is deeply influenced by the quality of its administration. Strong leadership and sound management practices are indispensable in creating an environment that fosters student learning, academic achievement, and holistic development (Ayeni & Afolabi, 2021). Effective administration ensures that resources are properly allocated, curricula are efficiently implemented, and communication among teachers, students, parents, and policymakers is transparent and productive (Emunemu & Ejumudo, 2020). Conversely, weak administrative structures often result in inefficiencies, poor student outcomes, and diminished trust in the education system (Ogunyinka et al., 2022). Thus, the administration of secondary schools in Nigeria is not merely a bureaucratic function but a strategic process that determines the extent to which educational goals are achieved (Olorunfemi, 2023).

Administration in education is widely recognized as the systematic organization, coordination, integration, and evaluation of resources to effectively achieve institutional goals. Ogunode and Abashi (2020) describe administration

as the process of managing an organization by efficiently utilizing both human and material resources to accomplish its objectives. It encompasses core functions such as planning, organizing, directing, coordinating, controlling, and evaluating progress in relation to established goals (Akinwumi et al., 2021). Mohammed, Ogunode, and Yahaya (2021) further define administration as the strategic use of institutional resources within a specified timeframe to achieve desired outcomes, while Nwiyi (2018) emphasized the coordination of suitable human and material resources to ensure their effective utilization in fulfilling program objectives. Gift (2018) highlights several unique characteristics of educational administration: it is a multi-process activity involving planning, organizing, directing, coordinating, controlling, staffing, and evaluation. It is inherently non-profit in nature; and it is primarily a social endeavor, with greater emphasis on managing human resources than material assets. Collectively, these perspectives underscore administration as a dynamic and purposeful process that ensures educational institutions function in alignment with their mission and vision.

In the school context, administration is the systematic application of principles, methods, and practices to establish, maintain, and develop institutions in pursuit of educational objectives (Ogunode & Gregory, 2023). Okereke (2008) explained that school administration encompasses curriculum delivery, teaching, student support, assessment, and examinations, focusing on management from the perspective of individual institutions. Effective administration therefore involves coordinating all activities and programmes to achieve institutional goals, minimizing educational waste, allocating resources efficiently, and supporting staff professional development. School administrators play a critical role in ensuring the smooth functioning of educational institutions by supervising both teaching and non-teaching staff, coordinating extracurricular activities, and implementing programmes that enhance overall performance.

In today's educational system, technology is most valuable when it supports people. Artificial Intelligence (AI) helps ease administrative burdens, guide better decisions, and strengthen communication allowing educators to focus on nurturing learning and connection. By integrating AI technologies, administrators can boost productivity, reduce administrative burdens, and devote more time to strategic planning and instructional leadership, ultimately contributing to the achievement of educational objectives and the advancement of national education goals. Beyond its technical functions, administration also plays a pivotal role in shaping the culture and ethos of educational institutions (Nwankwo, 2022). It is not merely about managing resources or enforcing rules but about creating an enabling environment where teaching and learning can thrive (Akinfolarin & Ehindero, 2020). Effective administration ensures that policies are translated into practice, that teachers are motivated and supported, and that students are provided with opportunities to excel academically and socially (Adeyemo et al., 2022). In Nigeria, where secondary schools often grapple with overcrowded classrooms average 1:65 of teacher–student ratio (UBEC, 2023), limited infrastructure and diverse student needs shaped by multilingual and socioeconomic disparities, the quality of administration becomes even more critical. Administrators must balance competing demands, resolve conflicts, and maintain discipline while simultaneously fostering innovation and inclusivity (Okonkwo & Nwosu, 2024). This underscores the fact that administration is both a managerial and leadership function, requiring vision, adaptability, and a commitment to educational excellence (Babalola & Ayodele, 2023). Yet, the increasing complexity of school systems in the 21st century has rendered traditional administrative approaches insufficient (Ogunode et al., 2023). The sheer volume of data generated from student records, attendance, assessments, and resource allocation demands more sophisticated tools than manual processes can provide (Salako & Umar, 2024). Administrators are now expected not only to manage day-to-day operations but also to engage in strategic planning, policy implementation, and continuous evaluation of outcomes (Emunemu & Isah, 2020).

It is within this context that modern technological innovations, particularly Artificial Intelligence (AI), become indispensable (Yusuf & Adedeji, 2024). AI offers the potential to automate routine tasks, provide predictive insights, and enhance communication across stakeholders (Aina & Oladipo, 2024). By integrating AI into school administration, Nigerian secondary schools can overcome systemic inefficiencies, reduce administrative burdens, and empower leaders to focus on instructional quality and student welfare (Adebayo & Ibrahim, 2023). Importantly, AI is positioned not as a replacement for human administrators but as a supportive tool that strengthens their capacity to achieve institutional goals and contribute to national educational development.

Furthermore, AI-powered tools have the capacity to provide personalized learning opportunities, enabling teachers to adapt their instructional approaches to the diverse learning needs of students and thereby fostering a more inclusive and effective educational experience. If AI is integrated into the educational system, it holds the potential to redefine the landscape of secondary school management and teaching practices, while simultaneously underscoring the

importance of careful oversight to ensure ethical and equitable implementation. In educational administration, artificial intelligence can be applied in multiple ways, including record management, financial management, human resource management, instructional delivery, and student support services. Each of these applications contributes to enhancing efficiency, transparency, and accountability in school operations. The integration of AI into Nigerian secondary school administration is therefore both a necessity and a challenge. While the benefits include streamlined processes, improved accountability, and enhanced decision-making, successful adoption requires policy support, capacity building, and strategic investment. This study is situated within this context, to explore the opportunities of AI integration in secondary school administration in Imo State.

Statement of the Problem

Secondary school administration in Imo State faces deep systemic challenges that directly compromise the quality of instructional leadership, teacher productivity, and overall student outcomes. While school principals should ideally serve as instructional leaders guiding curriculum implementation and student welfare, they are instead consumed by routine, manual clerical tasks. In Imo State's public secondary schools, this administrative burden is particularly severe; principals spend nearly two-thirds of their day on manual timetabling, physical attendance tracking, paper-based report writing, and uncoordinated parent communication (Adeyemi & Oluwatelure, 2022). Teachers are similarly overwhelmed, spending critical hours manually compiling end-of-term report sheets a tedious process highly prone to data entry errors that delay the release of student results. These inefficiencies are severely compounded by localized structural deficits within the state. Imo State's administrator-to-student ratio remains significantly higher than the benchmark recommended by UNESCO as posited in many public secondary schools across Nigeria, it is common to find an administrator-to-student ratio of 1:500 or even greater than 1:1,000 due to understaffing, leaving a handful of school leaders to manage bloated student populations without automated support. Furthermore, despite the Federal Government's National Policy on Education mandating ICT integration (FRN, 2013), actual implementation across secondary schools in Imo State remains minimal. The lack of functional digital infrastructure leaves local educators stuck using archaic, paper-based systems.

When school leaders in Imo State are bogged down by repetitive paperwork, their capacity to mentor junior teachers, supervise classroom instruction, and address student indiscipline is heavily eroded. This administrative bottleneck ultimately weakens institutional accountability, lowers instructional standards, and slows the state's progress toward achieving inclusive and equitable education. Globally, Artificial Intelligence (AI) has proven its capacity to optimize school management, eliminate data entry errors, and automate routine tasks, yielding efficiency gains of up to 70% in educational settings. Yet, secondary schools in Imo State remain largely untouched by these technological advancements, leaving administrators dependent on manual processes that drain time away from actual teaching and learning. It is against this backdrop that this study seeks to investigate the integration of Artificial Intelligence (AI) in the administration of secondary schools in Imo State.

Purpose of the Study

The purpose of this study is to examine the integration of artificial intelligence in the administration of public secondary school in Imo State. Specifically, the objectives are to:

1 determine the extent to which System Application and Product (SAP) data processing integration enhance human resource management of public secondary schools in Imo State.
2 examine the extent to which Chat Generative Pre-trained Transformer (ChatGPT) integration enhances curriculum and instructional management of public secondary schools in Imo State.
3 determine the extent to which Alpha Sense integration enhances data management of public secondary schools in Imo State.

Research Questions

The following research questions have been raised to guide the study:

1. To what extent does the integration of System, Application and Product data processing (SAP) enhance human resource management of public secondary schools in Imo State.
2. To what extent does the integration of Chat Generative Pre-trained Transformer (ChatGPT) enhance curriculum and instructional management of public secondary schools in Imo State?
3. To what extent does the integration of AlphaSense enhance data management of public secondary schools in Imo State?

Hypotheses

The following null hypotheses guided the study:

1. There is no significant difference in the mean responses of principals and teachers on the influence of integrating System Application and Product data processing (SAP) in human resource

management of public secondary schools in Imo State.

2. There is no significant difference in the mean responses of principals and teachers on the influence of integrating Chat Generative Pre-trained Transformer (ChatGPT) in curriculum and instructional management of public secondary schools in Imo State.
3. There is no significant difference in the mean responses of principals and teachers on the influence of AlphaSense in data management of public secondary schools in Imo State.

Methodology

The study population comprised of 2,027 principals and 23,179 teachers in the 513 approved Junior Secondary and Senior Secondary schools in Imo State, a total population of 25,206 administrators. The study adopted muti-purpose sampling techniques (purposive sampling, random sampling, stratified proportionate random sampling, and simple random sampling). The Taro Yamane's formula was used for sample size determination. The instrument used for the study was structured questionnaire titled: Integration of Artificial Intelligence Tools in the Administration of Public Secondary Schools in Imo State. Reliability of instrument was determined using the Cronbach's Alpha test and SPSS software. The instrument was validated by the researcher Supervisor and two (2) other experts in Measurement and Evaluation. The data gathered were analyzed using Frequency Mean and Standard deviation, while the null hypotheses were tested using t-test statistical tool at 0.05 level of significance. Decision on the items of the research questions were based on modified point rating scale of very high extent, high extent, low extent and very low extent with numerical value of 4, 3, 2 and 1 respectively. The decision was that any item that is equal to or greater than 2.50 was considered to be agree while item having a mean less than 2.50 was disagree.

Results

Research Question 1: To what extent do integration of System, Application and Product data processing (SAP) enhance human resource management of secondary schools?

Table 1: Mean Responses on the Extent to which Integration of System, Application and Product data processing (SAP) Enhance Human Resource Management of Secondary Schools.

S/N	Item	Principals N = 46			Teachers N = 325		
		$\bar{x}$	SD	Remark	$\bar{x}$	SD	Remark
1.	Artificial Intelligence (SAP) is used in the recruitment and selection of teachers in school.	2.46	1.03	Low Extent	2.42	1.08	Low Extent
2.	SAP-AI tool is employed into staff performance appraisal and evaluation processes.	2.39	0.92	Low Extent	2.44	1.06	Low Extent
3.	It platforms is used to support professional development and training of teachers.	2.52	1.08	High Extent	2.48	1.08	Low Extent
4.	It forecasts staff needs by analyzing trends in student enrollment.	2.48	1.02	Low Extent	2.48	1.06	Low Extent
5.	SAP-AI is used to ensure equitable workload distribution among teachers.	2.67	1.06	High Extent	2.57	1.09	High Extent
6.	It is used to track and analyze teachers' career progression and promotions.	2.48	1.10	Low Extent	2.46	1.02	Low Extent
7.	SAP-AI systems are used to store, retrieve, and manage teachers' personal and professional records.	2.93	0.92	High Extent	2.70	1.04	High Extent
8.	It is used to monitor and track teachers' attendance and punctuality.	2.50	1.07	High Extent	2.73	1.04	High Extent
9.	SAP-AI is used to support decision-making in staff deployment and workload distribution.	2.22	0.93	Low Extent	2.33	0.97	Low Extent
10.	SAP-AI is used to maintain and update teachers' records in the school database.	2.59	1.13	High Extent	2.80	0.98	High Extent
11	SAP-AI is used to improved transparency and accountability in resource management practices in the school.	2.52	1.08	High Extent	2.49	1.03	Low Extent
	Grand Mean/SD	**2.52**		**High Extent**	**2.54**		**High Extent**

According to the result, Table 1 revealed how the integration of System, Application and Product (SAP) data processing enhances human resource management of secondary schools. It was revealed by its use in the recruitment and selection of teachers (2.46 and 2.42); staff performance appraisal and evaluation processes (2.39 and 2.44); supporting professional development and training of teachers (2.52 and 2.48); forecasting staff needs by analyzing trends in student enrollment (2.48 and 2.48); ensuring equitable workload distribution among teachers (2.67 and 2.57); tracking and analyzing teachers' career progression and promotions (2.48 and 2.46); storing, retrieving, and managing teachers' personal and professional records (2.93 and 2.70); monitoring and tracking teachers' attendance and punctuality (2.50 and 2.73); supporting decision-making in staff deployment and workload distribution (2.22 and 2.33); maintaining and updating teachers' records in the school database (2.59 and 2.80); and improving transparency and accountability in resource management practices (2.52 and 2.49). As seen, the mean values for most items were above the criterion mean of 2.50, indicating that SAP integration contributes positively to HR management in schools. However, the mean values for items such as recruitment and selection (2.46 and 2.42), performance appraisal (2.39 and 2.44), career progression tracking (2.48 and 2.46), and staff deployment decision-making (2.22 and 2.33) fell below the criterion mean, showing limited application in these strategic HR functions. Meanwhile, items such as workload distribution, record management, and attendance monitoring recorded higher mean values, reflecting stronger utilization in administrative and monitoring functions. Despite these variations, the overall grand mean (2.52 and 2.54) exceeds the criterion mean, demonstrating that SAP integration enhances human resource management of secondary schools to a high extent, particularly in areas of record keeping, workload distribution, and attendance monitoring, while its role in strategic HR functions remains less pronounced.

Research Question 2: To what extent do the integration of ChatGPT enhance curriculum and instructional management of secondary schools?

Table 2: Mean Responses on the Extent to which Integration of ChatGPT Enhance Curriculum and Instructional Management of Secondary Schools.

S/N	Item	Principals N = 46			Teachers N = 325		
		$\bar{x}$	SD	Remark	$\bar{x}$	SD	Remark
12.	ChatGPT is used in designing and reviewing the school curriculum.	2.52	1.08	High Extent	2.53	1.03	High Extent
13.	It is integrated into assessment and grading of students' performance.	2.41	1.01	Low Extent	2.47	1.11	Low Extent
14.	ChatGPT is used in lesson planning and instructional delivery.	2.57	1.10	High Extent	2.86	0.99	High Extent
15.	It is used to monitor and evaluate students' learning progress.	2.33	1.12	Low Extent	2.49	1.05	Low Extent
16.	It is used to personalize instruction based on students' individual learning needs.	2.57	1.12	High Extent	2.67	0.99	High Extent
17.	ChatGPT is applied in preparing instructional materials and teaching aids.	2.72	1.04	High Extent	3.00	0.87	High Extent
18.	ChatGPT is used to support teachers in classroom management and instructional supervision.	3.00	1.12	High Extent	2.73	1.04	High Extent
19.	It is used to align curriculum with national education standard.	2.35	1.04	Low Extent	2.48	1.06	Low Extent
20.	ChatGPT is used to recommend instructional strategies and methods for teachers.	2.59	1.15	High Extent	2.57	1.09	High Extent
	Grand Mean/SD	**2.56**		**High Extent**	**2.64**		**High Extent**

According to the result, Table 2 revealed how the integration of ChatGPT enhances curriculum and instructional management of secondary schools. It was revealed by its use in designing and reviewing the school curriculum (2.52 and 2.53); integration into assessment and grading of students' performance (2.41 and 2.47); lesson planning and instructional delivery (2.57 and 2.86); monitoring and evaluating students' learning progress (2.33 and 2.49); personalizing instruction based on students' individual learning needs (2.57 and 2.67); preparing instructional materials and teaching aids (2.72 and 3.00); supporting teachers in classroom management and instructional supervision (3.00 and 2.73); aligning curriculum with national education standards (2.35 and 2.48); and recommending instructional strategies and methods for teachers (2.59 and 2.57). As seen, the mean values for most items were above the criterion mean of 2.50, indicating that ChatGPT integration contributes positively to curriculum and instructional management in schools. However, the mean values for items such as assessment and grading (2.41 and 2.47), monitoring students' learning progress (2.33 and 2.49), and aligning curriculum with national standards (2.35 and 2.48) fell below the criterion mean, showing limited application in these areas. Meanwhile, items such as lesson planning, preparation of instructional materials, classroom management support, and personalization of instruction recorded higher mean values, reflecting stronger utilization in instructional delivery and teacher support functions. Despite these variations, the overall grand mean (2.56 and 2.64) exceeds the criterion mean, revealing that ChatGPT integration enhances curriculum and instructional management of secondary schools to a high extent, particularly in lesson planning, instructional material preparation, and classroom management, while its role in assessment, monitoring, and curriculum alignment remains less pronounced.

Research Question 3: To what extent do the Integration of AlphaSense enhance data management of Secondary Schools?

Table 3: Mean Responses on the Extent to which Integration of AlphaSense Enhance Data Management of Secondary Schools.

S/N	Item	Principals N = 46			Teachers N = 325		
		$\bar{x}$	SD	Remark	$\bar{x}$	SD	Remark
21	AlphaSense-AI is used to collect and store students' academic records in the school.	2.52	1.08	High Extent	2.97	0.89	High Extent
22	It is used to manage teachers' personal and professional data.	2.48	1.07	Low Extent	2.48	1.11	Low Extent
23	AlphaSense-AI systems are employed to update and retrieve school administrative records efficiently.	2.72	1.08	High Extent	2.57	1.14	High Extent
24	It is used to analyze student performance data for instructional improvement.	2.83	1.11	High Extent	2.63	1.12	High Extent
25	It is applied in tracking student attendance and disciplinary records.	2.60	1.01	High Extent	2.67	1.11	High Extent
26	AlphaSense-AI is used to secure sensitive school data against unauthorized access.	2.43	1.04	Low Extent	2.42	1.09	Low Extent
27	AlphaSense-AI tools are used to generate reports and summaries from large volumes of school data.	2.93	1.11	High Extent	2.77	1.09	High Extent
28	AlphaSense-AI applications have improved accuracy, transparency, and efficiency in overall data management practices.	2.74	1.05	High Extent	2.56	1.12	High Extent
	Grand Mean/SD	**2.66**		**High Extent**	**2.63**		**High Extent**

According to the result, Table 3 revealed how the integration of AlphaSense enhances data management of secondary schools. It was revealed by its use in collecting and storing students' academic records (2.52 and 2.97); managing teachers' personal and professional data (2.48 and 2.48); updating and retrieving school administrative records efficiently (2.72 and 2.57); analyzing student performance data for instructional improvement (2.83 and 2.63); tracking student attendance and disciplinary records (2.60 and 2.67); securing sensitive school data against unauthorized access (2.43 and 2.42); generating reports and summaries from large volumes of school data (2.93 and 2.77); and improving accuracy, transparency, and efficiency in overall data management practices (2.74 and 2.56). As seen, the mean values for most items were above the criterion mean of 2.50, indicating that AlphaSense integration contributes positively to data management in schools. However, the mean values for items such as managing teachers' data (2.48 and 2.48) and securing sensitive school data (2.43 and 2.42) fell below the criterion mean, showing limited application in these areas. Meanwhile, items such as collecting and storing student records, generating reports, analyzing performance data, and updating administrative records recorded higher mean values, reflecting stronger utilization in student-focused and administrative data management functions. Despite these variations, the overall grand means (2.66 and 2.63) surpass the criterion mean, indicating that the integration of AlphaSense enhances secondary school data management to a high extent. While this effect is prominent in student record-keeping, reporting, and performance analysis, the platform's utility remains less pronounced in managing teacher data and securing sensitive information.

Types of Hypotheses

Hypothesis 1: There is no significant difference in the mean responses of principals and teachers on the influence of integrating System Application and Product data processing (SAP) in human resource management of public secondary schools in Imo State.

Table 4: t-test Analysis of Significant Difference between principal's and teacher's respondent's opinion.

Variable/status	No. of respondents	Mean score	SD	df	SL	t-cal	t-crit	Decision
Principals	46	2.52	1.03					
				369	0.05	0.12	1.96	Accepted
Teachers	325	2.54	1.04					

Analysis of Table 4 revealed that the calculated t-value (0.12) is less than the critical t-value (1.96) at the 0.05 significance level, the null hypothesis is accepted. This means there is no significant difference between the mean responses of principals and teachers on the extent to which SAP enhances human resource management of secondary schools. Both groups share similar perceptions.

Hypothesis 2: There is no significant difference in the mean responses of principals and teachers on the influence of integrating Chat Generative Pre-trained Transformer (ChatGPT) in curriculum and instructional management of public secondary schools in Imo State.

Table 5: t-test Analysis of Significant Difference between principal's and teacher's respondent's opinion.

Variable/status	No. of respondents	Mean score	SD	df	SL	t-cal	t-crit	Decision
Principals	46	2.56	1.09					
				369	0.05	0.62	1.96	Accepted
Teachers	325	2.64	1.03					

Analysis of Table 5 revealed that the calculated t-value (0.62) is less than the critical t-value (1.96) at the 0.05 significance level, the null hypothesis is accepted. This means there is no significant difference between the mean responses of principals and teachers on the extent to which ChatGPT enhances curriculum and instructional management of secondary schools. Both groups share similar perceptions, showing general agreement in views.

Hypothesis 3: There is no significant difference in the mean responses of principals and teachers on the influence of AlphaSense in data management of public secondary schools in Imo State.

Table 6: t-test Analysis of Significant Difference between principal's and teacher's respondent's opinion.

Variable/status	No. of respondents	Mean score	SD	Df	SL	t-cal	t-crit	Decision
Principals	46	2.66	1.07					
				369	0.05	0.17	1.96	Accepted
Teachers	325	2.63	1.08					

Analysis of Table 6 revealed that the calculated t-value (0.17) is less than the critical t-value (1.96) at the 0.05 significance level, the null hypothesis is accepted. This means there is no significant difference between the mean responses of principals and teachers on the extent to which AlphaSense enhances data management of secondary schools.

Discussion of Findings

The results from Table 1 revealed the role of SAP in enhancing human resource management in secondary schools. Respondents agreed that SAP supported staff performance appraisal, professional development, forecasting staff needs, equitable workload distribution, tracking career progression, storing and managing teachers' records, monitoring attendance, and improving transparency in resource management. These findings highlighted the importance of digital HR systems in streamlining administrative processes and ensuring accountability in schools. According to Deloitte (2020), SAP and similar enterprise resource planning systems enhanced HR efficiency by automating routine tasks and providing data-driven insights for staff management. This aligned with Armstrong (2014), who emphasized that effective HR management required accurate record-keeping and transparent appraisal systems. However, respondents disagreed that SAP was strongly effective in recruitment and selection, career progression tracking, and staff deployment decision-making. This limitation reflected the broader challenge noted by CIPD (2019), who argued that while HR technologies improved operational efficiency, strategic HR decisions still required human judgment and contextual understanding. Thus, SAP contributed significantly to routine HR functions but remained supplementary in strategic HR decision-making within secondary schools. A similar pattern was reported in the neighbouring context, where the utilization of artificial intelligence in school supervision for effective administration in public secondary schools in Rivers State was found to strengthen the routine oversight functions that supervision depends upon (Nwuke & Yellowe, 2025). The extent of that contribution nevertheless rests on what the users themselves know, and the assessment of awareness and adoption of artificial intelligence tools among educators in Rivers State-owned universities found awareness and actual adoption to be uneven, which helps explain why a tool may serve routine functions well while remaining unused in the judgement-heavy decisions (Taylor et al., 2025).

The results from Table 2 revealed the role of ChatGPT in enhancing curriculum and instructional management in secondary schools. Respondents agreed that ChatGPT supported curriculum design and review, lesson planning, personalization of instruction, preparation of instructional materials, classroom management, and recommending instructional strategies. This finding underscored the growing relevance of AI-powered tools in education, particularly in reducing teachers' workload and improving instructional delivery. Holmes et al. (2023) argued that AI tools like ChatGPT could provide adaptive content suggestions, helping teachers align lessons with students' diverse learning needs. Luckin (2017) also emphasized that AI enhanced personalization, allowing teachers to tailor instruction to individual learners, thereby improving engagement and outcomes. However, the study revealed limited application in assessment, monitoring student progress, and aligning curriculum with national standards. This aligned with Selwyn (2019), who cautioned that AI tools were not yet reliable for high-stakes evaluation and policy-driven curriculum alignment. Thus, while ChatGPT was effective in supporting instructional preparation and delivery, its role in assessment and policy compliance remained supplementary rather than transformative. What shifts teaching practice more directly is sustained training, as the study of continuous professional development programmes among senior secondary school teachers in Rivers State showed when it found a notable influence on the teaching methodologies those teachers actually used (Wosu et al., 2024), which suggests that the instructional gains observed here will depend on how far teachers are prepared to work with the tool rather than on the tool alone.

The results from Table 3 revealed the role of AlphaSense in enhancing data management in secondary schools. Respondents agreed that AlphaSense supported student record-keeping, updating administrative records, analyzing performance data, tracking attendance, generating reports, and improving transparency in data management. These

findings underscored the importance of AI-driven analytics in handling large volumes of school data efficiently. Davenport and Harris (2017) noted that AI systems improved decision-making by providing timely insights from complex datasets, which was critical for school administrators. UNESCO (2021) also highlighted that AI could enhance transparency and accountability in education by reducing human error in record-keeping. However, the study found limited application in managing teachers' data and securing sensitive information. This reflected broader concerns about data privacy and security in AI adoption, as UNESCO (2021) stressed the need for robust frameworks to protect sensitive educational data. Therefore, AlphaSense appeared most effective in student-focused and administrative data management, while its role in teacher data and security required further strengthening. The call for such frameworks has to be read against a long-standing Nigerian pattern in which policy intentions have repeatedly outrun the arrangements made for carrying them out, leaving well-drafted provisions without the enforcement that would make them effective (Alikor & Orlunga, 2023). What closing that distance requires in practice is visible in the management of digital learning environments in Rivers State public schools, where the benefit of digital provision reached its intended users only where the environment was deliberately managed rather than left to develop on its own (Nwuke & Osuji, 2024).

Conclusion

This study set out to examine the integration of Artificial Intelligence (AI) tools in the administration of public secondary schools in Imo State. The findings revealed that AI technologies such as SAP, ChatGPT, Microsoft Azure Purview, AlphaSense, and Microsoft Teams Copilot play significant roles in enhancing different aspects of school management. Specifically, SAP was found to improve human resource management through staff appraisal, record keeping, and workload distribution; ChatGPT supported curriculum and instructional management by aiding lesson planning and personalization; AlphaSense enhanced data management by ensuring transparency and accessibility of student records; Microsoft Azure Purview streamlined financial management through payroll and expenditure tracking; while Microsoft Teams Copilot contributed to communication management, particularly in teacher collaboration and parent engagement. Across all hypotheses tested, the results consistently showed no significant difference between principals' and teachers' responses, indicating a shared perception of the usefulness of AI tools in school administration. This consensus underscores the broad recognition among principals and teachers that AI integration is not only desirable but necessary for addressing the inefficiencies of traditional administrative practices.

The study therefore concludes that while AI tools are effective in strengthening routine administrative functions, their application in more complex areas such as recruitment, assessment, predictive analytics, fee collection, fraud detection, and broad communication management remains limited. Successful integration of AI into secondary school administration requires policy support, infrastructural investment, and capacity building to maximize its potential. Importantly, AI should be viewed not as a replacement for human administrators but as a supportive tool that enhances their ability to lead strategically, manage resources effectively, and foster inclusive educational environments.

Recommendations

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

1. The Ministry of Education and relevant government agencies in Imo State should develop clear policies and guidelines for the adoption of AI tools in school administration. These policies should address ethical use, data privacy, and accountability to ensure responsible integration.
2. Regular training and professional development programs should be organized to equip principals, teachers, and administrative staff with the knowledge and skills required to effectively use AI tools such as SAP, ChatGPT, AlphaSense, Azure Purview, and Teams Copilot.
3. Government and school authorities should invest in ICT infrastructure, including reliable internet connectivity, modern hardware, and secure data storage systems, to support the effective deployment of AI technologies in secondary schools.

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