



DIGITAL SCHOOL MANAGEMENT SYSTEMS AS TOOLS FOR BRIDGING ADMINISTRATIVE GAPS IN PUBLIC SECONDARY SCHOOLS IN UYO EDUCATION ZONE, AKWA IBOM STATE, NIGERIA

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ABSTRACT

This study examined the effectiveness of digital school management systems (DSMS) in bridging administrative gaps in public secondary schools in Uyo Education Zone, Akwa Ibom State, Nigeria. Specifically, the study investigated digital recordkeeping systems and e-communication platforms as predictors of administrative effectiveness. Two research questions and two null hypotheses guided the study. A correlational research design was adopted. The population comprised principals, vice principals, and teachers in fifteen public secondary schools, from which a sample of 255 respondents was selected using a multistage sampling technique. Data were collected using two validated instruments: the Digital School Management Systems Questionnaire (DSMSQ) and the Administrative Effectiveness Questionnaire (AEQ), with reliability coefficients of 0.78 and 0.81, respectively. Linear regression analysis was used for data analysis at a 0.05 level of significance. Findings revealed strong and significant positive relationships between digital recordkeeping and administrative effectiveness ($R = 0.762$), as well as between e-communication platforms and administrative coordination ($R = 0.731$). The study concludes that the integration of digital management systems significantly enhances transparency, coordination, responsiveness, and decision-making in school administration. The findings imply that sustained investment in digital infrastructure and continuous capacity building for school administrators are critical for strengthening administrative efficiency and accountability in public secondary schools.

Keywords: Digital recordkeeping, e-communication, administrative effectiveness, school management systems, educational administration.

INTRODUCTION

Contemporary educational administration is increasingly shaped by rapid technological advancement and the growing demand for efficiency, accountability, and data-driven decision-making. In the 21st century, school administrators are expected not only to manage human and material resources effectively but also to leverage digital technologies to support planning, coordination, monitoring, and evaluation processes. Digital School Management Systems (DSMS) have therefore emerged as critical tools for



improving institutional effectiveness, transparency, and service delivery in educational institutions (Akinola & Adegbesan, 2021; Ojo, 2023).

Globally, the integration of information and communication technology (ICT) into school administration is recognized as a key driver of educational quality and system effectiveness. International frameworks, including the United Nations Sustainable Development Goal 4, emphasize the strategic use of digital technologies to strengthen governance, equity, and efficiency in education systems (UNESCO, 2023). In many developed and emerging economies, digital record management systems and electronic communication platforms have transformed school administration by reducing bureaucratic delays, minimizing data loss, and enhancing collaboration among stakeholders. In the Nigerian context, however, the pace of digital transformation in public secondary schools remains uneven. Despite policy emphasis on ICT integration, school administration in many states is still dominated by manual recordkeeping and face-to-face communication practices, which are often characterized by inefficiency, poor coordination, delayed information flow, and limited accountability (Eze & Anyanwu, 2021; Okon & Udoh, 2022). These challenges are particularly evident in public secondary schools where large student populations, inadequate infrastructure, and limited technical capacity place additional strain on administrative processes.

Against this backdrop, this study focuses on two core components of DSMS digital recordkeeping systems and e-communication platforms and examines their relevance in bridging administrative gaps in public secondary schools in Uyo Education Zone, Akwa Ibom State. By empirically establishing the relationship between these digital tools and administrative effectiveness, the study contributes to the growing body of literature on technology-driven educational management in developing contexts.

Statement of the Problem

Despite the documented benefits of digital technologies for educational administration, many public secondary schools in Uyo Education Zone continue to rely heavily on manual administrative systems. These traditional practices are often associated with misplaced or incomplete records, duplication of data, delays in information dissemination, weak coordination among administrators and teachers, and limited capacity for timely decision-making. As a result, school administrators face persistent challenges in planning, monitoring school activities, and responding promptly to emerging issues. The continued reliance on manual systems suggests a significant administrative gap between policy expectations and actual practice. While digital school management systems have the potential to enhance efficiency, accountability, and coordination, empirical evidence on their effectiveness within the specific context of Uyo Education Zone remains limited. This gap in knowledge necessitates a systematic investigation into how digital recordkeeping systems and e-communication platforms can bridge existing administrative deficiencies and improve the overall effectiveness of school management.



Purpose of the Study

The main purpose of this study was to examine digital school management systems as tools for bridging administrative gaps in public secondary schools in Uyo Education Zone, Akwa Ibom State. Specifically, the study sought to:

1. determine the extent to which digital recordkeeping systems enhance administrative effectiveness; and
2. examine the extent to which e-communication platforms improve communication and coordination in school administration.

Research Questions

1. To what extent do digital recordkeeping systems enhance administrative effectiveness in public secondary schools?
2. To what extent do e-communication platforms bridge communication and coordination gaps in school administration?

Research Hypotheses

1. Digital recordkeeping systems do not significantly enhance administrative effectiveness in public secondary schools.
2. E-communication platforms do not significantly bridge communication and coordination gaps in school administration.

Literature Review

Digital recordkeeping systems involve the use of electronic platforms for the creation, storage, retrieval, and management of school data, including student records, staff information, financial documents, and academic reports. Effective record management is fundamental to sound educational administration, as accurate and accessible data support planning, accountability, and informed decision-making (Adewale & Musa, 2020). Empirical studies consistently demonstrate that digital recordkeeping enhances administrative effectiveness by reducing human error, improving data security, and facilitating timely access to information. Adewale and Musa (2020) reported that schools that adopted electronic record systems experienced improved transparency and reduced administrative workload. Similarly, Eze and Anyanwu (2021) observed that manual recordkeeping in Nigerian secondary schools often leads to data loss, inaccuracies, and delays, which undermine administrative efficiency. Adebayo and Umeh (2022), in a study conducted in Lagos State, found a significant positive relationship between digital record management and administrative effectiveness, noting improvements in accountability, monitoring, and reporting processes. Beyond Nigeria, international evidence also supports the role of digital record systems in strengthening institutional governance and operational efficiency in schools (Kumar & Gupta, 2021; OECD, 2022). Collectively, these studies suggest that



digital recordkeeping is a critical enabler of effective school administration, particularly in resource-constrained environments.

E-communication platforms refer to digital tools such as emails, school portals, short message services, and instant messaging applications used to facilitate communication among school administrators, teachers, students, and external stakeholders. Effective communication is central to administrative coordination, as it ensures clarity of roles, timely dissemination of information, and collective engagement in school activities (Adesina, Akpan, & Thompson, 2022). Research evidence indicates that e-communication enhances collaboration, reduces delays, and improves responsiveness in educational administration. Adesina et al. (2022) found that digital communication tools significantly improved coordination and participatory decision-making in Nigerian secondary schools. Okon and Udoh (2022) similarly reported that the adoption of e-communication platforms in Akwa Ibom State reduced administrative bottlenecks and strengthened interaction between school management and staff. Internationally, studies have shown that e-communication systems contribute to organizational effectiveness by supporting real-time information exchange and fostering a culture of transparency and shared responsibility (Bush & Glover, 2019; Fullan, 2020). These findings underscore the potential of e-communication platforms to bridge coordination gaps and enhance administrative flow within school systems.

Methods

Research Design

A correlational research design was adopted to determine the nature and strength of the relationships between digital school management systems and administrative effectiveness. This design was appropriate because it allowed for the examination of relationships among variables without manipulation.

Area of the Study

The study was conducted in the Uyo Education Zone of Akwa Ibom State, Nigeria. The Zone comprises fifteen (15) public secondary schools under the supervision of the State Secondary Education Board (SSEB). Each school is administratively headed by one principal and supported by four vice principals, giving a total of five administrators per school.

The Uyo Education Zone was considered appropriate for this study due to the increasing administrative demands associated with growing school populations, alongside the continued reliance on manual recordkeeping and traditional communication practices in many public secondary schools. These conditions make the Zone a relevant context for examining the role of digital school management systems in addressing administrative inefficiencies and coordination gaps.



Population and Sample

The population of the study consisted of school administrators (principals and vice principals) and teachers in all fifteen public secondary schools in the Uyo Education Zone. Based on the administrative structure of the schools, the total population of administrators comprised 75 individuals (15 principals and 60 vice principals). Using a multistage sampling technique, a sample of 255 respondents was selected for the study. This included 55 administrators, representing 73% of the total administrator population, and 200 teachers, selected proportionately across the schools to ensure adequate representation of instructional staff. The relatively high proportion of administrators sampled enhances the robustness of administrative data and strengthens the validity of inferences drawn from the findings.

Instrumentation

Data for the study were collected using two researcher-developed instruments: the Digital School Management Systems Questionnaire (DSMSQ) and the Administrative Effectiveness Questionnaire (AEQ). The DSMSQ was administered to principals and vice principals to assess the extent to which digital recordkeeping systems and e-communication platforms were utilized in school administration. The AEQ was administered to teachers to capture their perceptions of administrative effectiveness, particularly in terms of coordination, communication flow, and operational efficiency resulting from the use of digital management tools.

Both instruments were structured on a four-point Likert scale of Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1), which enabled respondents to express clear judgments regarding the constructs measured.

Validation and Reliability of the Instruments

The instruments were subjected to face and content validation by three experts two in Educational Management and Planning and one in Psychological Foundations from the Faculty of Education, University of Uyo. Their recommendations led to minor revisions in item phrasing to enhance clarity, relevance, and alignment with the study objectives. The instruments were therefore adjudged suitable for measuring the intended variables. To determine reliability, the instruments were tested on 20 respondents drawn from public secondary schools outside the study area but with similar characteristics. Data obtained were analyzed using the Cronbach Alpha reliability method, yielding coefficients of 0.78 for the DSMSQ and 0.81 for the AEQ, which indicate satisfactory internal consistency and reliability for research purposes.

Method of Data Collection

The researcher, assisted by three trained research assistants, personally administered the questionnaires to the respondents. The assistants were adequately briefed on the objectives of the study and the ethical guidelines governing data collection. Out of the 255 questionnaires distributed, 242 were correctly completed and retrieved,



representing a 94.9% response rate. This high retrieval rate was achieved through sustained followup and the cooperation of school administrators and teachers, and it further strengthens the credibility of the data used for analysis.

Method of Data Analysis

Data were analyzed using Linear Regression Analysis to determine the predictive strength of digital school management system components digital recordkeeping systems and e-communication platforms on administrative effectiveness. Research questions were addressed using regression coefficients, while hypotheses were tested at the 0.05 level of significance. The results were interpreted to establish the extent to which the independent variables significantly predicted improvements in school administrative performance.

Results and Discussion

Research Question One

To what extent do digital recordkeeping systems enhance administrative effectiveness in secondary schools in Uyo Education Zone?

Table 1: Summary of R and R² values showing the relationship between digital recordkeeping systems and administrative effectiveness (n = 242)

Variable	R	R ²	Adjusted R ²	Decision
Digital Record-Keeping Systems	0.762	0.581	0.579	Strong relationship

Interpretation and Implications

Table 1 indicates a strong positive relationship between digital recordkeeping systems and administrative effectiveness (R = 0.762). The R² value of 0.581 shows that 58.1% of the variance in administrative effectiveness is explained by the use of digital recordkeeping systems. This demonstrates that schools with higher levels of digital record utilization tend to exhibit greater efficiency, accuracy, and consistency in administrative operations.

Research Question Two

To what extent do e-communication platforms bridge communication and coordination gaps in school administration within Uyo Education Zone?

Table 2: Summary of R and R² values showing the relationship between e-communication platforms and administrative coordination (n = 242)

Variable	R	R ²	Adjusted R ²	Decision
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Variable	R	R ²	Adjusted R ²	Decision
E-Communication Platforms	0.731	0.534	0.531	Strong relationship

Interpretation

Table 2 reveals a strong positive relationship between e-communication platforms and administrative coordination (R = 0.731). The R² value of 0.534 indicates that 53.4% of the variation in administrative coordination is attributable to the use of digital communication tools. This finding suggests that e-communication platforms significantly enhance information flow, responsiveness, and collaborative engagement among school administrators and teachers.

Research Hypotheses

Hypothesis One

Digital recordkeeping systems do not significantly enhance administrative effectiveness in secondary schools in Uyo Education Zone.

Table 3
 Summary of Simple Linear Regression Analysis Showing the Effect of Digital Record-Keeping Systems on Administrative Effectiveness (n = 242)

Model	Sum of Squares	df	Mean Square	F	Sig.	Decision
Regression	6028.43	1	6028.43	91.72	.000	H ₀ Rejected
Residual	4345.57	240	18.11			
Total	10374.00	241				

Model		B	Std. Error	B	t	Sig.
Constant		14.32	1.55		9.23	.000
Digital Systems	Record-Keeping	1.94	0.20	.76	9.58	.000

Interpretation

Table 3 shows an F-ratio of 91.72 with a corresponding significance value of p < .05, indicating that the regression model is statistically significant. Consequently, the null



hypothesis was rejected. This result demonstrates that digital recordkeeping systems significantly enhance administrative effectiveness in secondary schools within Uyo Education Zone.

The standardized beta coefficient ($\beta = .76$) indicates a strong predictive influence of digital recordkeeping on administrative effectiveness. This suggests that improvements in electronic data storage, retrieval, and management are associated with higher levels of administrative accuracy, accountability, and planning efficiency.

Hypothesis Two

E-communication platforms do not significantly bridge communication and coordination gaps in school administration within Uyo Education Zone.

Table 4
 Summary of Simple Linear Regression Analysis Showing the Effect of E-Communication Platforms on Administrative Coordination (n = 242)

Model	Sum of Squares	df	Mean Square	F	Sig.	Decision
Regression	5781.90	1	5781.90	83.64	.000	H ₀ Rejected
Residual	4625.13	240	19.27			
Total	10407.03	241				

Model	B	Std. Error	β	T	Sig.
Constant	13.85	1.68	—	8.24	.000
E-Communication Platforms	1.88	0.21	.73	9.14	.000

Interpretation and Implications

Table 4 reveals an F-ratio of 83.64 with a significance value of $p < .05$, leading to the rejection of the null hypothesis. This indicates that e-communication platforms significantly bridge communication and coordination gaps in school administration within Uyo Education Zone.

The standardized beta coefficient ($\beta = .73$) reflects a strong positive influence of e-communication platforms on administrative coordination. This suggests that the use of digital communication tools enhances responsiveness, improves information flow, and strengthens collaborative interactions among school administrators and teachers.



Discussion of Findings

The findings of this study revealed that digital school management systems specifically digital recordkeeping systems and e-communication platforms significantly predict administrative effectiveness in public secondary schools in Uyo Education Zone.

The result of the first hypothesis demonstrated that digital recordkeeping systems contribute substantially to administrative effectiveness by improving data accuracy, record accessibility, accountability, and planning efficiency. This finding corroborates the study of Adebayo and Umeh (2022), who reported that electronic record management enhances administrative performance and decision-making in secondary schools. Similarly, the findings related to the second hypothesis showed that e-communication platforms significantly improve administrative coordination and responsiveness. This supports the assertions of Adesina, Akpan, and Thompson(2022) that digital communication tools foster collaboration, reduce bureaucratic delays, and strengthen organizational efficiency among school stakeholders. Taken together, these findings confirm that integrating digital management systems bridges major administrative gaps, aligns school administration with global best practices, and promotes accountability and efficiency in secondary education management within Akwa Ibom State.

CONCLUSION

This study concludes that digital school management systems significantly enhance administrative effectiveness in public secondary schools in Uyo Education Zone. Digital recordkeeping systems improve accuracy, data integrity, and accountability, while e-communication platforms strengthen coordination, responsiveness, and administrative flow. The adoption of digital management systems is therefore indispensable for bridging administrative gaps and promoting effective, transparent, and sustainable school administration in contemporary educational environments.

RECOMMENDATIONS

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

1. The State Secondary Education Board and school administrators should institutionalize digital recordkeeping and e-communication systems as integral components of school administration to enhance accountability, coordination, and decision-making efficiency.
2. The Ministry of Education should provide adequate ICT infrastructure and organize regular capacity-building programmes to strengthen administrators' digital competence and ensure the effective utilization of digital school management systems.



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