
APPLICATION OF MANAGEMENT INFORMATION SYSTEM AS PREDICTOR OF PRINCIPALS' ADMINISTRATIVE EFFECTIVENESS IN SECONDARY SCHOOLS IN ANAMBRA STATE, NIGERIA.

¹ Dr. Israel Oparaji
ic.oparaji@unizik.edu.ng

&

² Titilope Ojomah
ojomahtiti@gmail.com

^{1 & 2} Department of Educational Management and Policy,
Faculty of Education, Nnamdi Azikiwe University, Awka, Anambra State.

ABSTRACT

This study examines the application of Management Information System as a predictor of Principals' administrative effectiveness in secondary schools in Anambra State. Seven research questions guided the study and seven hypotheses were tested at 0.05 level of significance. The correlational survey research design was adopted for the study. All the population of 267 principals of public secondary schools in Anambra State were used for the study. Two questionnaires titled "Management Information System Application Questionnaire (MISAQ) and the Principals' Administrative Effectiveness Questionnaire (PAEQ) were used to collect data for the study. The instruments were validated by two experts from the Department of Educational Management and Policy and one expert from the Department of Educational Foundation (Measurement and Evaluation) all in the Faculty of Education, Nnamdi Azikiwe University. Internal consistency of the instruments were determined using Cronbach's Alpha method and coefficients of 0.87 was obtained for MISAQ while 0.81, 0.79, 0.83, 0.85, 0.77, and 0.82 for the six clusters of PAEQ with overall coefficient of 0.81. Data collected for the study were analyzed using regression analysis. P-value was used to determine the significance of prediction at 0.05 significant level. The result

among others revealed that MIS application is a moderate predictor of principals' staff and students' personnel administration in secondary schools in Anambra State, MIS application is a moderate predictor of school principals' facilities management in secondary schools in Anambra State. Based on the findings, it was recommended among others that Anambra State Ministry of Education should prioritize equipping secondary schools in Anambra State with robust Management Information Systems (MIS), including sufficient hardware, software, and internet access. It should also establish structured training programmes to build principals' capacity to leverage MIS for effective administrative decision-making and school management, Post Primary School Service Commission (PPSSC) should integrate MIS competency into principals' professional development and appraisal, offering workshops and continuous training for effective use in staff, student, and resource management.

Keywords: Management Information System (MIS), Administrative Effectiveness, Principals, Secondary Schools, Anambra State.

INTRODUCTION

Every society aspires to achieve a significant reduction in the rate of illiteracy, which remains a major obstacle to sustainable national development. Education serves as a vital instrument for reducing illiteracy and equipping individuals with the knowledge, skills, and values necessary for the full development of their potentials. In Nigeria, particularly in Anambra State, education is widely recognized as a key driver of human and socio-economic development. However, the increasing awareness of the importance of education has resulted in massive student enrolment in secondary schools, coupled with the introduction of several educational programmes and reforms. These developments have made school administration more demanding and complex, thereby requiring effective management strategies and systems.

School administration in Nigeria is a complex organization that demands effective management. The principal, as the chief administrator, controls both human and material resources. According to Achimugu (2016), the role of a principal is that of administrative and instructional leadership aimed at achieving school goals. Therefore, administrative effectiveness depends on the principal's ability to plan, organize, coordinate and evaluate school activities.

Historically, these responsibilities were handled through manual paper-based systems which were time consuming and prone to error. Alabi (2020) noted that manual administrative processes often lead to inefficiencies, delays and errors. Administrative effectiveness is the ability of principals to achieve set objectives and optimise school operations (Akomolafe, 2015). Akinfolarin (2017) emphasized that effectiveness in educational administration is critical for achieving desired outcomes, while Thompson and Anachuna (2019) linked administrative effectiveness to the use of data and technology in decision-making. Technology, particularly Management Information System (MIS), plays a vital role in enhancing administrative effectiveness by automating tasks, providing real-time data and facilitating decision-making. Nwangwu, Ememe and Obike (2013) stated that technological innovation requires principals to properly manage information to meet administrative tasks. MIS refers to the application of computerized methods for inputting, processing, storing and retrieving information (Laudon and Laudon, 2020). It supports planning, decision-making and resource management in schools (Suleman, 2022; Ogbonude, 2021).

Management Information System is used in schools to support administrative activities such as monitoring students' performance, managing records, tracking finances and facilitating communication. This study focuses on the application of MIS in key administrative areas including student personnel administration, staff personnel administration, instructional leadership, school finance management, school facilities management and school-community relations. Student personnel administration involves managing students' academic and non-academic activities (Amobi, Onye and Anyaogu, 2024). MIS supports admission processing, record keeping and monitoring of academic activities (Nwanne, Obionu and Okoli, 2024). However, admission and registration processes in Anambra State still appear to be done manually, leading to waste of time and energy.

Similarly, staff personnel administration covers recruiting, supervising and motivating staff (Eze and Onah, 2023). MIS enhances staff management through digital records and reporting systems. Financial management involves planning and utilization of financial resources (Bua and Adzongo, 2014), and MIS improves accountability through automated financial processes. Instructional leadership involves supervising teaching and learning activities (Obidile, 2025), while school facilities management focuses on maintaining infrastructure (Nwogwugwu and Ajuzie, 2024; Aliyu, 2024). MIS supports these areas through data management and monitoring systems. School-community relations involve collaboration between the school and stakeholders (Duru Uremadu, 2017; Okeke, 2022), which MIS enhances through communication platforms.

Despite the benefits of MIS such as improved decision-making, efficiency and accountability, many secondary school principals in Anambra State still struggle with its effective application. Ezeugbor et al. (2016) observed that MIS in Nigeria is not performing optimally as data are often underutilized for decision-making. It is against this background that this study explored how MIS predicts the administrative effectiveness of principals in secondary schools in Anambra State.

Statement of the Problem

In the secondary school system, principals are expected to exhibit a high degree of administrative effectiveness across critical domains such as instructional leadership, staff personnel administration, students' personnel administration, school facilities management, school finance management, and school-community relations. These functional areas are fundamental to the realization of educational objectives, the promotion of accountability, and the attainment of sustainable school improvement. Effective principals are therefore required to coordinate instructional programmes, maintain accurate and up-to-date records, ensure optimal utilization of school resources, and build productive relationships with stakeholders within and outside the school environment. However, despite reports of observable improvements in principals' administrative effectiveness in secondary schools in Anambra State, emerging concerns from the researcher's professional experience as a teacher, corroborated by informal interactions with colleagues, indicate that some principals may still encounter persistent challenges in discharging these responsibilities effectively! Specifically, issues relating to inconsistent supervision of instruction, poor maintenance of staff and students' records, inadequate management of school facilities, lapses in financial accountability and weak school-community engagement appear to persist in some schools. These deficiencies, though sometimes subtle, are worrisome as they have the potential to undermine school effectiveness and compromise the achievement of desired student learning outcomes. Such challenges may be attributable to contextual factors including inadequate funding, insufficient supervisory support, weak enforcement of educational policies, and infrastructural limitations, which collectively may constrain administrative efficiency.

More importantly, the situation may be closely associated with the extent to which Management Information Systems (MIS) are integrated into school administrative processes. MIS has the potential to enhance efficiency through systematic data management, timely access to relevant information, and evidence-based decision-making. Nevertheless, it appears that some principals may not be leveraging MIS optimally for planning, monitoring, communication, and coordination of school activities. This underutilization may stem from constraints such as inadequate provision

of ICT facilities, limited technical competence among school leaders, insufficient capacity-building opportunities, resistance to technological innovation, and unstable power supply. The implication of this scenario is that schools may continue to experience challenges such as inaccurate or incomplete record-keeping, delays in administrative decision-making, weak accountability structures, and overall decline in administrative effectiveness. If left unaddressed, these issues could adversely affect school performance and the quality of educational delivery. Consequently, there is a compelling need to empirically investigate the application of Management Information Systems (MIS) as a predictor of principals' administrative effectiveness in secondary schools in Anambra State; which this empirical study was embarked on to achieve.

Purpose of the Study

The primary purpose of the study was to examine MIS as a predictor of principals' administrative effectiveness in secondary schools in Anambra State. Specifically, the study sought to ascertain:

1. the predictive value of MIS application and principals' staff personnel administration in secondary schools in Anambra State;
2. the predictive value of MIS application and principals' students' personnel administration in secondary schools in Anambra State;
3. the predictive value of MIS application and principals' school finance management in secondary schools in Anambra State;
4. the predictive value of MIS application and principals' instructional leadership in secondary schools in Anambra State;
5. the predictive value of MIS application and principals' school facilities management in secondary schools in Anambra State;
6. the predictive value of MIS application and principals' school-community relations in secondary schools in Anambra State; and
7. the joint predictive value of MIS application and principals' overall administrative effectiveness in secondary schools in Anambra State.

Research Questions

This study answered the following research questions:

1. What is the predictive value of MIS application and staff personnel administration in secondary schools in Anambra State?
2. What is the predictive value of MIS application and student personnel for administration in secondary schools in Anambra State?
3. What is the predictive value of MIS application and instructional leadership in secondary schools in Anambra State?
4. What is the predictive value of MIS application and school facilities management in secondary schools in Anambra State?
5. What is the predictive value of MIS application and school finance management in secondary schools in Anambra State?
6. What is the predictive value of MIS application and school-community relations in secondary schools in Anambra State?
7. Why is the joint predictive value of MIS application and principals' overall administrative effectiveness in secondary schools in Anambra State

Methods

A correlational research design was adopted. Cresswell (2018) remarked that correlational research design is a quantitative approach that determines the relationship that exists among variables and the degree to which one variable predicts another without manipulation. The design is therefore suitable because it enabled the researcher to determine the predictive value of MIS and principals' effectiveness across their administrative tasks. The area of the study is Anambra State, Nigeria, located in the South-East geopolitical zone and share boundaries with Kogi, Enugu, Abia, Imo and Delta States. The state is made up of twenty-one Local Government Areas grouped into six education zones namely Aguata, Awka, Nnewi, Ogidi, Onitsha, and Otuocha. The dominant ethnic group is the Igbo people and the major language spoken is Igbo while English serves as the

official language. The inhabitants are mainly traders, industrialists, civil servants and farmers. The state has a well-structured secondary school system supervised by the Ministry of Education and the Post-Primary Schools Service Commission. The current administration under Governor Chukwuma Charles Soludo has introduced the Smart School Innovation aimed at integrating digital technologies into school administration. Anambra provides the needed variability in administrative settings to test the connection between MIS application and principals' administrative effectiveness. The population comprised all the 267 public secondary school principals in Anambra State. All the 267 principals were used; therefore, the census technique was adopted. The study employed two instruments, MISAQ with 20 items and PAEQ with 24 items organised into six clusters which include students' personnel administration, staff personnel administration, curriculum and instructional leadership, school finance management, school facilities management, and school-community relations. The instrument was organised on four points rating scale of Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD); weighted 4, 3, 2 and 1 respectively. The instruments were validated by three experts from Nnamdi Azikiwe University, Awka, and necessary modifications were made. Reliability was ascertained using Cronbach's alpha with coefficients of 0.87 for MISAQ and 0.81 overall for PAEQ. A pilot study was conducted with 20 principals in Enugu State. On the spot method was used to administer the instrument with the help of five research assistants. The distribution and collection lasted for three weeks. Out of 267 copies administered, 250 were returned representing 93.6%. Simple regression analysis was used to analyze the individual predictive value of MIS, while multiple regression analysis was used to determine the joint predictive power. Muijs' (2004) cited in Cohen, Manion and Morrison (2007) suggestion for assessing goodness of fit using R^2 was adopted. Where $0.01-0.09$ = weak, $0.10-0.29$ = modest, $0.30-0.49$ = moderate, >0.50 = strong prediction. P-value was used at 0.05 level of significance. The analyses were carried out using SPSS version 26.

RESULTS

Research Question One: What is the predictive value of MIS application and staff personnel administration in secondary schools in Anambra State?

Table One. Summary Table of Simple Regression Analysis with MIS application as Predictor of staff personnel administration in secondary schools in Anambra State

	R	R ²	Adj.R ²	B	SE B	B
Constant				27.05	2.15	
	.67	.45	.45			.67
Staff Personnel Admin				2.12	.14	

The summary of the simple regression analysis as shown in Table One indicates that MIS application is a moderate predictor of principals' staff personnel administration in secondary schools in Anambra State. This is shown by the regression coefficient ($R = 0.67$) and the coefficient of determination ($R^2 = 0.45$) which indicates that MIS application explained 45% of the variance in staff personnel administration.

Research Question Two: What is the predictive value of MIS application and student personnel for administration in secondary schools in Anambra State?

Table Two. Summary Table of Simple Regression Analysis with MIS application as Predictor of students' personnel administration in secondary schools in Anambra State

	R	R ²	Adj.R ²	B	SE B	B
Constant				31.82	2.29	
	.58	.35	.34			.58
Students' Personnel Admin				2.81	.15	

The summary of the simple regression analysis as shown in Table Two indicates that MIS application is a moderate predictor of students' personnel administration in secondary schools in Anambra State. This is shown by the regression coefficient ($R = 0.58$) and the coefficient of

determination ($R^2 = 0.35$) which indicates that MIS application explained 35% of the variance in students' personnel administration.

Research Question Three: What is the predictive value of MIS application and instructional leadership in secondary schools in Anambra State?

Table Three. Summary Table of Simple Regression Analysis with MIS application as Predictor of Instructional Leadership in Secondary Schools in Anambra State

	R	R ²	Adj.R ²	B	SE B	β
Constant				38.46	2.24	
	.48	.24	.23			.48
Instructional Leadership				1.40	.15	

Table Three indicates that MIS application is a moderate predictor of principals' instructional leadership in secondary schools in Anambra State. This is shown by the regression coefficient ($R = 0.48$) and the coefficient of determination ($R^2 = 0.24$) which indicates that MIS application explained 24% of the variance in instructional leadership.

Research Question Four: What is the predictive value of MIS application and school finance management in secondary schools in Anambra State?

Table Four. Summary Table of Simple Regression Analysis with MIS application as Predictor of School Finance Management in Secondary Schools in Anambra State

	R	R ²	Adj.R ²	B	SE B	B
Constant				29.91	2.09	
	.66	.43	.43			.66
School Finance Management				1.98	.13	

The summary of the simple regression analysis as shown in Table Four indicates that MIS application is a moderate predictor of school principals' facilities management in secondary schools in Anambra State. This is shown by the regression coefficient ($R = 0.66$) and the coefficient

of determination ($R^2 = 0.43$) which indicates that MIS application explained 43% of the variance in school facilities management.

Research Question Five: What is the predictive value of MIS application and school facilities management in secondary schools in Anambra State?

Table Five. Summary Table of Simple Regression Analysis with MIS application as Predictor of School Facilities Management in Secondary Schools in Anambra State

	R	R ²	Adj.R ²	B	SE B	β
Constant				31.61	2.20	
	.60	.36	.36			.60
School Finance Management				1.87	.15	

The summary of the simple regression analysis as shown in Table Five indicates that MIS application is a modest predictor of school finance management in secondary schools in Anambra State. This is shown by the regression coefficient ($R = 0.60$) and the coefficient of determination ($R^2 = 0.36$) which indicates that MIS application explained 36% of the variance in school finance management.

Research Question Six: What is the predictive value of MIS application and school-community relations in secondary schools in Anambra State?

Table Six. Summary Table of Simple Regression Analysis with MIS application as Predictor of School-Community Relations in Secondary Schools in Anambra State

	R	R ²	Adj.R ²	B	SE B	β
Constant				38.62	1.96	
	.53	.28	.28			.53
School Community Relations				1.35	.13	

Table Six indicates that MIS application is a modest predictor of school community relations in secondary schools in Anambra State. This is shown by the regression coefficient ($R = 0.53$) and the coefficient of determination ($R^2 = 0.28$) which indicates that MIS application explained 28% of the variance in school community relations.

Research Question Seven: What is the joint predictive value of MIS application and principals' overall administrative effectiveness in secondary schools in Anambra State?

Table Seven. Summary of Multiple Regression Analysis with MIS application as Predictor of Overall Administrative Effectiveness

		R	R ²	Adj.R ²	Std. Error of Est.	Remark
Overall	Administrative Effectiveness	.75	.56	.55	3.83	Strong

The multiple regression analysis in table seven, shows the regression coefficient ($R = 0.75$) and the coefficient of determination ($R^2 = 0.56$). Considering the size of the R^2 which is >0.5 , principals' MIS application is a strong predictor of their overall administrative effectiveness in secondary schools in Anambra State.

DISCUSSION

The findings revealed that principals' application of Management Information System (MIS) is a moderate and significant predictor of staff personnel administration in secondary schools in Anambra State ($R = 0.67$; $R^2 = 0.45$; $F = 218.11$; $p = 0.003$). This implies that 45% of the variance in staff personnel administration is explained by MIS utilization. MIS enhances administrative efficiency through computerized staff records, teacher deployment, attendance monitoring, appraisal documentation, and information dissemination. However, the moderate strength suggests that other factors such as leadership competence, funding, and ICT proficiency also play roles. This aligns with Ogunode, Salman and Musa (2021), Ezenwagu and Okeke (2023), and Nweke and Amadi (2019), but contrasts with Adebayo and Lawal (2020), likely due to infrastructural and training limitations.

Similarly, MIS was found to be a moderate and significant predictor of students' personnel administration ($R = 0.58$; $R^2 = 0.35$; $F = 138.93$; $p = 0.015$), indicating that 35% of the variance is

explained by MIS. MIS improves student data management such as admission, attendance, assessment records, and discipline tracking. This finding agrees with Ogunode et al. (2021), Akinfolarin and Ehinola (2022), and Kwashabawa and Danbuba (2024), but differs from Ibrahim and Sadiq (2020), possibly due to poor ICT infrastructure and low digital competence.

The study also showed that MIS is a moderate and significant predictor of instructional leadership ($R = 0.48$; $R^2 = 0.24$; $F = 82.65$; $p = 0.021$). MIS supports instructional supervision through lesson documentation, teachers' monitoring, and analysis of students' performance data. This supports Eze and Umeh (2021), Adebayo and Adigun (2022), and Okorie et al. (2024), but contrasts with Kpolovie and Obilor (2020), likely due to contextual constraints such as poor infrastructure and low ICT competence.

In addition, MIS significantly predicted school finance management ($R = 0.66$; $R^2 = 0.43$; $F = 204.56$; $p = 0.004$), explaining 43% of the variance. MIS enhances financial accountability through budgeting, fee management, expenditure tracking, and report generation. This is consistent with Edim et al. (2025), Nwannunu et al. (2025), and Dahyanti and Hamini (2025), though effectiveness depends on ICT infrastructure, training, and policy support. Furthermore, MIS moderately and significantly predicted school facilities management ($R = 0.60$; $R^2 = 0.36$; $F = 153.96$; $p = 0.006$), accounting for 36% of the variance. MIS supports facilities management through inventory tracking, maintenance scheduling, and resource allocation. This agrees with Shittu et al. (2025), Edim et al. (2025), and Nwannunu et al. (2025), but differs from Chidinmachinenye and Anachuna (2019), due to low MIS adoption and infrastructural challenges.

Finally, MIS was found to be a moderate and significant predictor of school-community relations ($R = 0.53$; $R^2 = 0.28$; $F = 106.33$; $p = 0.019$), explaining 28% of the variance. MIS enhances communication with stakeholders through digital platforms, data sharing, and feedback systems. This supports Ejimofor and Okonkwo (2025), although the moderate strength indicates that interpersonal skills and socio-economic factors also influence school-community relations.

Conclusion

The study findings revealed that principals' application of Management Information System (MIS) is a strong and statistically significant predictor of principals' overall administrative effectiveness in secondary schools in Anambra State. This clearly established that effective utilization of MIS significantly enhances principals' capacity to manage staff and students' records, administer school finances with transparency and accountability, provide data-driven instructional leadership,

maintain school facilities efficiently, and foster effective school–community relations. The strong predictive strength of MIS reinforces its vital role in promoting efficiency, accuracy, accountability, and informed decision-making in school administration. Consequently, the study concluded that sustained investment in MIS infrastructure, continuous capacity building for school administrators, and the implementation of supportive policies are imperative for strengthening administrative effectiveness and achieving quality secondary education outcomes in Anambra State.

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