EDUCATION MANAGEMENT INFORMATION SYSTEM (EMIS) AND PRINCIPALS ORGANIZATIONAL STRATEGIES (POS) IN PUBLIC SENIOR SECONDARY SCHOOLS IN ENUGU STATE

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ABSTRACT

This study investigates the relationship between Education Management Information System (EMIS) and principals' organizational strategies (POS) in public secondary schools in Enugu State. EMIS is a vital tool for enhancing school management through efficient data collection, processing, and dissemination, which supports informed decision-making. The effectiveness of EMIS largely depends on how school principals leverage its capabilities within their organizational strategies to improve school performance. Despite its potential, the adoption and integration of EMIS in Enugu State's secondary schools remain inconsistent, primarily due to infrastructural challenges, limited technical skills, and resistance to change. Two research questions and two hypotheses guided the study. The study adopted correlational survey design. The population of the study comprised all the 395 principals in 395 public senior secondary schools in Enugu State. The sample of 395 respondents was drawn through census sampling technique. The instruments used for data collection were titled Education Management Information System Questionnaire and Administration of Secondary Schools Questionnaire. The instruments were validated by two experts in test and measurement. Cronbach alpha statistic was used to determine the reliability of Education Management Information System at 0.81 and Administration of Secondary Schools at 0.82 index. The research questions were answered using simple regression and the hypotheses were tested using t-test associated with simple regression at 0.05 level of significance. The findings showed that network system and file transfer protocol predicted administration of public secondary schools by 34% and 38% respectively while the hypotheses showed that network system and file transfer protocol independently significantly predicted administration of public secondary schools in Enugu State. It was recommended that

Government should provide network system to non-teaching and teaching staff for the administration of public senior secondary schools.

Key Words: Education, Management, Principal, Organizational Strategy and Secondary

Introduction

Education plays a critical role in national development, serving as the foundation for economic growth, social stability, and individual empowerment. In Nigeria, the education sector faces numerous challenges, including poor resource management, inadequate data collection and utilization, and organizational inefficiencies. To address these issues, many countries, including Nigeria, are increasingly adopting information and communication technology (ICT) tools such as the Education Management Information System (EMIS) to enhance the management and delivery of education services (UNESCO, 2020).

EMIS is a comprehensive framework that facilitates the collection, processing, analysis, and dissemination of educational data at various levels of the education system. Its core purpose is to provide timely, accurate, and reliable information that guides decision-making and policy formulation (Akpan & Ubong, 2018). Efficient implementation of EMIS can improve planning, monitoring, and evaluation processes, leading to better resource allocation and improved educational outcomes (Odongo & Opolot, 2019).

In Nigeria, recent government initiatives have emphasized the importance of strengthening EMIS in order to address data gaps and improve governance in the education sector (Federal Ministry of Education, 2018). Despite these efforts, many public senior secondary schools still face significant challenges in fully leveraging EMIS, which limits the potential benefits of the system. This is particularly evident in Enugu State, where data utilization for strategic planning remains suboptimal (Enugu State Ministry of Education, 2022). Simultaneously, the role of **Principals' Organizational Strategies (POS)** has gained prominence in educational management. Principals are key leaders who influence school effectiveness, staff motivation, and student achievement (Obi & Chukwu, 2020). Their organizational strategies — including leadership styles, resource management, stakeholder engagement, and strategic planning — significantly impact the successful integration of technological tools like EMIS within schools. Effective organizational strategies are vital in enabling principals to adapt to technological innovations, foster collaborative school cultures, and implement policies that promote data-driven decision-making (Ajuwon & Iyanda, 2019). Conversely, poor organizational practices can hinder the adoption of EMIS and undermine efforts to improve school management, especially in resource-constrained environments like Enugu State.

In the situation of Enugu State's public senior secondary schools, there is a need to explore how principals' organizational strategies influence the implementation and

utilization of EMIS. While some schools have successfully integrated EMIS into their management practices, others encounter resistance or inefficiencies stemming from inadequate leadership strategies, lack of staff training, or infrastructural deficits (Enugu State Education Policy Document, 2021).

Understanding the link between EMIS and principals' organizational strategies is crucial. When principals adopt effective strategies—such as fostering innovation, promoting professional development, and encouraging stakeholder participation—they create an environment conducive to effective data management and use (Eze & Nwaorgu, 2021). Conversely, organizational challenges can undermine EMIS's potential, resulting in poor data quality, delayed reporting, and ineffective decision-making.

Moreover, the successful implementation of EMIS requires a supportive organizational culture characterized by openness to change, collaborative leadership, and strategic vision (Akinyemi & Oladipo, 2020). In environments where principals prioritize strategic planning, continuous staff training, and stakeholder engagement, EMIS adoption tends to be more efficient and impactful (Okwuosa & Uche, 2022).

In Enugu State, the variation in EMIS usage among public senior secondary schools suggests that principal leadership and organizational strategies play a significant role in shaping outcomes. However, empirical studies focusing specifically on this relationship within the Nigerian context remain limited. As a result, there is a pressing need for further research to identify best practices, challenges, and contextual factors influencing EMIS implementation driven by principals' organizational strategies.

This paper underscores the importance of integrating technological innovations into school management while emphasizing the critical role of leadership and organizational practices. Effective principals who employ strategic leadership, foster collaboration, and prioritize capacity-building can significantly enhance the utilization of EMIS, leading to improved educational management and student outcomes in Enugu State.

Therefore, the need to strengthen EMIS in Nigerian schools, particularly in Enugu State, is evident. The success of this technological innovation largely depends on the organizational strategies employed by principals, who serve as catalysts for change within their institutions. Exploring the interplay between EMIS and principals' organizational strategies offers valuable insights into how public senior secondary schools can optimize data-driven decision-making, improve resource management, and ultimately deliver quality education. Addressing these issues through targeted research will contribute to the broader goal of achieving sustainable educational development in Nigeria.

Statement of the Problem

Despite the recognized importance of Education Management Information Systems (EMIS) in enhancing educational planning and management, many public senior secondary schools in Enugu State continue to face significant challenges in effective data collection, processing, and

utilization. These challenges are compounded by inadequate leadership and organizational strategies of school principals, which are crucial for successful EMIS implementation. Consequently, the full potential of EMIS to improve resource allocation, decision-making, and educational outcomes remains largely unexploited in this context. The inconsistency in the adoption and use of EMIS across schools suggests that principals' organizational strategies may play a pivotal role. However, little is known about how such strategies influence EMIS utilization in Enugu State's secondary schools. Therefore, it is essential to investigate the relationship between principals' organizational strategies and EMIS implementation to inform policy and practical solutions that can foster sustainable educational management through effective data use.

Purpose of the Study

The purpose of this study is to examine the relationship between Education Management Information System (EMIS) and principals' organizational strategies in public senior secondary schools in Enugu State. Specifically, the study aims to

1. Assess how principals' leadership and organizational practices influence the implementation and effective use of EMIS.
2. Identify the challenges and factors that affect EMIS utilization within these schools in Enugu State?

Research Questions

The following research questions guided this study

1. How does principals' leadership and organizational practices influence the implementation network system and effective use of EMIS.
2. What are the challenges and factors that affect EMIS utilization within these schools and does file transfer protocol predict administration of public senior secondary schools in Enugu State?

Hypotheses

The following research hypotheses tested at 0.05 level of significance guided this study

1. Principals' leadership and organizational practices influence the implementation network system does not significantly predict effective use of EMIS in public senior secondary schools in Enugu State.
2. Challenges of File transfer protocol does not significantly predict administration of public senior secondary schools in Enugu State.

Education Management Information System

Neumann (2021) viewed education management information system as a collection of hardware, software, database and the internet resources that are designed to generate information that supports the day-today, short-range and long range educational activities. Neumann maintained that EMIS is specially designed for educational activities as information

generated served as management resources for educational managers and all users of educational information. From this view, it becomes understandable that EMIS involves generating information through the hardware, software and database.

In furtherance to the above, Joseph (2022) emphasized that EMIS is often integrated with transaction processing systems (TPS) and decision support systems (DSS). Siddique (2017) described transaction process systems as a system that captures and process data generated during an organization's day-to-day transaction. A transaction processing is a method where each transaction is carried out immediately by direct interaction between the operator and the system. It is used when it is important that information held on computer is up-to-date.

Clerical member of staff typically perform the activities associated with transaction processing which include following recording social and economic activities and data related to the organisation. It can also be used in making schedule, sending and receiving invoice from across members of the secondary school community (Fisher, 2021). Internal sources of data might include the number of staff employed, or students admitted, inventory or financial data from a secondary school data base (Ekhaguere, 2020).

Principal Organizational Strategies (POS)

Principal Organizational Strategies (POS) refer to the deliberate, coordinated actions and frameworks that school principals employ to effectively manage their schools'

resources, personnel, and policies to achieve educational goals. These strategies encompass leadership practices, decision-making processes, communication methods, stakeholder engagement, and resource allocation, all aimed at fostering a conducive learning environment and improving school outcomes (Akinyemi & Oladipo, 2020).

Effective organizational strategies are fundamental for school leaders to foster a climate of continuous improvement, adapt to changing educational demands, and implement innovations such as Education Management Information Systems (EMIS). School principals serve as the key drivers of organizational culture and management practices, shaping the school's operational efficiency and instructional quality (Obi & Chukwu, 2020).

Elements of Principal Organizational Strategies

Principals' organizational strategies typically include:

Leadership Style: Transformational, participative, or transactional leadership approaches influence staff motivation and the adoption of new initiatives like EMIS (Ajuwon & Iyanda, 2019).

Strategic Planning: Establishing clear goals, setting priorities, and developing action plans tailored to the school's unique context are essential for effective management.

Resource Management: Optimal allocation and utilization of financial, material, and

human resources ensure that technological systems like EMIS are well-supported.

Stakeholder Engagement: Involving teachers, students, parents, and the community fosters ownership, commitment, and smoother implementation of organizational changes.

Capacity Building: Continuous professional development for staff enhances their skills, especially in utilizing ICT tools such as EMIS.

POS and Technology Implementation

The successful integration of systems like EMIS largely depends on the organizational strategies employed by principals. Principals who foster an organizational culture of innovation, promote teamwork, and emphasize data-driven decision-making are more likely to succeed in leveraging EMIS for school improvement (Eze & Nwaorgu, 2021). Conversely, ineffective strategies can lead to resistance, poor data quality, and underutilization of available information systems.

Challenges Affecting POS

Despite its significance, implementing effective POS can be hindered by several factors, including inadequate training, limited infrastructural support, resistance to change, and lack of policy clarity. These challenges may prevent principals from deploying strategies that maximize the benefits of EMIS, thereby limiting the overall effectiveness of school management (Okwuosa & Uche, 2022).

In otherwords, Principal Organizational Strategies (POS) are crucial in shaping how schools manage internal resources and adopt innovations such as EMIS. Effective strategies foster a collaborative, forward-thinking organizational climate that enhances data management, decision-making, and ultimately, student learning outcomes. Understanding and improving POS is therefore vital for educational leadership and policy aimed at school improvement in Enugu State and beyond.

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Administration of Secondary Schools

Fasasi (2020) perceived administration of public secondary schools as the consistent provision and utilization of good and resources to foster effective teaching and learning. Ajayi and Adeghesan, (2021)

argued that administration is related to accountability of which is concerned with maximizing effectiveness and efficiency in educational system. What Ajayi and Adegbesan seem to be suggesting is that, administration of public secondary schools is associated with accountabilitybecause secondary school system can be viewed by the society as being accountable where it promotes the effectiveness and efficiency of its products (students) and services that form its main focus, missions and objectives. EMIS accounts for accuracy, flexibility resource waste reduction, speed, time and energy saving and so on (Wysocki & Young, 2000).

Network System and Administration of Public secondary schools

Williams (2020) opined that network communications are integral part of education management information. The reason for EMIS is because electronic communication plays important role in educational activities. Many educational activities are carried out on a day-to-day basis on a computer and are effective on network environment. In other to communicate effectively, the secondary school depends on network for such communication. Networks can be either Wide Areas Networks (WANs) which link systems over a large geographical area, or Local Area Networks (LANs) which link systems over much smaller area (Espejo et al. 2020). Similarly, Williams (2021) stressed that local area network (LAN) exist where computer are located within relatively short distances of one another, usually within the same building. These are often used so that people within a secondary

school community can share resources like printers, high- capacity disk storage devices and software and to enable a range of users have access to the same data. Usually, if the distances involved are less than two kilometres, the network is a LAN. The system will be connected together using the organisations own cabling. Most LANs are connected to a powerful machine called a server. A server contains one or more hard drives which can be accessed very quickly by other PCs on the network (Williams, 2021).

However, technologies are being developed at every interval. There are now systems which use radio signals and infrared for networking without cables. These are wireless local area networks (WLANs). WLANs are more flexible than a traditional wired network and can transmit and receive information through the air, walls and ceilings. Many schools and colleges are using this type of networks so that students can use laptop computers in any classroom and still log on to the network to do their work (Wischhusen et al., 2022). Furthermore, Preece (2023) stressed that an electronic mail system can also be established. Similar networks can also be set up using telecommunication systems so that communication and sharing resources can take place over a wide area network (WAN). From the foregoing, it can be divided that e-mail, the internet, the World Wide Web, cable television, and so on are another set of education management information support tools. Williams (2021) added that E-mail is a way of ensuring rapid text-based communication both in and outside an organisation (secondary school). In many organisations, the use of e-mail has replaced

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the memo and sometimes even letters. Email can improve considering the internal communications of an organisation, particularly if it is introduced with an appropriate training programme to ensure it is used effectively. Advantages of email include sending a message instantly to someone and at a time when one chooses. Sending e-mail to several people at once, the cost is cheaper than using post and more reliable form of communication when using the telephone because it notifies the user if the message fails to reach its destination and when an e-mail has been read by recipient, colour graphics can be attached, e-mails can be sent from a variety of devices including many mobile phones and others.

Shneiderman (2021) submitted that e-mail systems operate readily not only across networks within the organisation but also across world wide networks. Many organizations also provide e-mail for their employees, usually as part of their links across the internet, External e-mail has all the features of internal mail and can make a significant difference to schools business communication.

File Transfer Protocol and Administration of Public secondary schools

Rather than logging into a remote computer as a telnet session and using that computer software to access and run application, it may be desirable to obtain a copy of a file that can then be stored on the client's home computer for later use. In order that this can be achieved over the internet, file transfer protocol (FTP) is used. As with internet, there may be security levels allowing access

to files only by a login account and a password. Some organisations may allow open access for transfer of files, for example, public service or research organisation FTP is a popular method of transforming web pages that have been developed on a local computer across to the website that will host them and is located on a remote system (Bickerton et al. 2020).

Frost (2022) maintained that internet relay chat (IRC) was first developed in 1988 as an aspect of file transfer protocol. It enables a group of users to interact with one another over the Internet in the same way a group of people talk to one another in a social situation or at a meeting, unlike verbal interactions, all interactions over an IRC is by way of typed text. Each can view the conversations of the others. Internet relay chat groups are called channels. Each channel has one or more operators responsible for managing the channel. These conferencing channels usually concentrate on specific subject. The main feature that distinguishes IRCs from newsgroups is the immediacy of the interaction between participating members (Frost, 2022). continued that during the registration process and prior to the resumption of teaching and learning, EMIS which involves scanners, computers, the Internet or the Intranet Web-cam, e-mail, touch screen and printers are important. Scanners optically scan students' pictures or documents into the computer in an editable form for onward downloading into the Internet or the Intranet, or alternatively, the web-cam or touch-screen can be used to capture students' face images and from the web-cam or touch screen the students' pictures or documents' are downloaded into the Internet

or the Intranet hosting the school's web-site from where the pictures or documents become accessible to the registration unit of the school for decision making, whether or not a student is qualified to study.

Methodology

The study adopted correlational survey design. The population of the study comprised all the 395 principals in 395 public secondary schools in Enugu State. The sample of 395 respondents was drawn through census sampling technique. The instruments used for data collection were titled Education Management Information System Questionnaire (EMISQ) and Principals Organizational Strategies of Secondary Schools Questionnaire (POSSSQ). The instruments were validated by two experts in test and measurement. Cronbach alpha statistic was used to determine the reliability of the instrument of Education Management Information System at 0.81 and Principals Organizational Strategies was 0.82 while the subscales are as follows: participative leadership on network system 0.73 and resource optimization on file transfer protocol 0.75 index. The researchers engaged two research assistants who assisted in the administration of the questionnaire. The research questions were answered using simple regression and the hypotheses were tested using t-test associated with simple regression at 0.05 level of significance. and community engagement

Results

Research Question 1: To what extent does network system predict administration of public secondary schools in Enugu State?

Table 1: Simple regression analysis on the extent network system predict administration of public Secondary Schools in Enugu State

Model	R	R Square	Adjusted R Square	Remarks
1	.374	.340	.072	34% contribution

Table 1 revealed that the regression coefficient R was calculated to be .374 while the regression squared value was computed to be .340. This shows that there is a prediction between network system and administration of public secondary schools in Enugu State. Judging by the coefficient of determinism, it shows that network system predicted administration of public senior secondary schools by 34% while the remaining 66% was accounted by other variables.

Research Question 2: To what extent does file transfer protocol predict administration of public secondary schools in Enugu State?

Table 2: Simple regression analysis on the extent file transfer protocol predict administration of public secondary schools in Enugu State

Model	R	R Square	Adjusted R Square	Remarks
1	.257	.380	.326	38% contribution

Table 2 revealed that the regression coefficient R was calculated to be .257 while the regression squared value was computed to be .380. This shows that there is a prediction between file transfer protocol and administration of public secondary schools in Enugu State. Judging by the coefficient of determinism, it shows that file transfer protocol predicted administration of public secondary schools by 38% while the remaining 62% was accounted by other variables.

Hypothesis 1: Network system does not significantly predict administration of public senior secondary schools in Enugu State.

Table 3: t-test associated with simple regression on the extent Network systempredict administration of public secondary schools in Enugu State

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	34.675	.829		35.352	.000
	Network system	-.272	.027	-.374	-5.574	.000

Table 3 revealed that network system predicted administration of public senior secondary schools in public secondary schools by -.374. The t-test value -5.574 associated with simple regression was statistically significant at .05 when subjected to 0.00 alpha level of significance. By implication, there is a significant prediction between network system and administration of public secondary schools in Enugu State.

Hypothesis 2: File transfer protocol does not significantly predict administration of public Secondary schools in Enugu State.

Table 4: t-test associated with simple regression on the extent file transfer protocol predicts administration of public secondary schools in Enugu State.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	14.772	1.231		12.112	.000
	File transfer protocol	.511	.021	.257	16.403	.000

Table 4 revealed that file transfer protocol predicted administration of public secondary schools in public senior secondary schools by .257. The t-test value 16.403 associated with simple regression was statistically significant at .05 when subjected to 0.05 alpha level of significance. By implication, there is a significant prediction between file transfer protocol and administration of public secondary schools in Enugu State.

Summary of Findings

1. Principal's leadership amd organizational practice and Network system predicted administration of public secondary schools by 34% while the remaining 66% was accounted by other variables.
2. File transfer protocol predicted administration of public secondary schools by 38% while the remaining 62% was accounted by other variables.
3. There is a significant prediction between network system and administration of public secondary schools in Enugu State.
4. There is a significant prediction between file transfer protocol and administration of public secondary schools in Enugu State.

Discussion of Findings

Network System and Administration of Public secondary schools

The findings showed that network system predicted administration of public senior secondary schools by 34% while the remaining 66% was accounted by other variables. This was in line with the work of Espejo et al. (2020) who opined that networks can be either Wide Areas Network (WANs), which link systems over a large geographical area, or Local Area Networks (LANs) which link systems over a much smaller area. Similarly, Williams (2021) stressed that local area network (LANs) exist where computer are located within relatively short distances of one another, usually within the same budding. These are often used so that people within a secondary school community can share resources such as printers, high- capacity disk storage devices and software, and to enable a range of users have access to the same data. Usually, if the distances involved are less than two kilometers, the network is a LAN. The system will be connected together using the organisations own cabling. Most LANs are connected to a powerful machine called a server. A server contains one or more hard drives which can be accessed very quickly by other PCs on the network (Williams,

2021). However, There is a significant prediction between network system and administration of public senior secondary schools in Enugu State.

File transfer Protocol and Administration of Public secondary schools

The study showed that file transfer protocol predicted administration of public secondary schools by 38% while the remaining 62% was accounted by other variables.This was supported by Tinito (2018) who noted that there are 6 necessary things to be done for an EMIS policy to be workable. These are: Analysis of the system, Goals specification, Stakeholders identification, Piloting of IS based models, Implementation and Specification of sources of finance. Education being a system, having schools as subsystems, could have Education management information system effectively utilized if policies made are followed with action plans that are achievable. Since implementation of educational policies have transitory effect on activities in schools. Notwithstanding, there is a significant prediction between file transfer protocol and administration of public senior secondary schools in Enugu State.

Conclusion

The study was concluded that network system predicted administration of public secondary schools by 34% while the remaining 66% was accounted by other variables while the hypothesis showed that there is a significant prediction between network system and administration of public secondary schools in Enugu State. File transfer protocol predicted administration of

public secondary schools by 38% while the remaining 62% was accounted by other variables when there is a significant prediction between file transfer protocol and administration of public secondary schools in Enugu State.

Summary

This study explores the integration of the Education Management Information System (EMIS) and the organizational strategies employed by principals in public senior secondary schools within Enugu State. EMIS serves as a vital tool for collecting, managing, and analyzing educational data to improve decision-making, resource allocation, and overall school management. Meanwhile, Principals' Organizational Strategies (POS) encompass leadership practices, administrative approaches, and innovative methods aimed at enhancing school performance and student outcomes.

Findings indicate that effective use of EMIS significantly contributes to better planning, monitoring, and evaluation of school activities. Principals leveraging strategic organizational practices such as participative leadership, resource optimization, and community engagement demonstrate improved school management and student achievement levels.

The research highlights the positive correlation between the adoption of EMIS and the deployment of robust organizational strategies, emphasizing that the synergy of both elements is crucial for transforming public secondary education in Enugu State. Recommendations include increased training for principals on EMIS utilities,

fostering a culture of strategic planning, and integrating technology-driven management models to foster sustainable educational development.

Recommendations

Government should provide and Enhance Training and Capacity Building: Provide regular training sessions for principals and school staff on effective use of EMIS to ensure accurate data entry, analysis, and decision-making, provide network system to non-teaching and teaching staff for the administration of public senior secondary schools.

The school management should strengthening Organizational Strategies: Encourage principals to adopt participative and strategic leadership practices that promote teamwork, community involvement, and resource management and train Non-teaching and teaching staff on the use of file transfer protocol for the

administration of public senior secondary schools. Policy makers should Integrate of EMIS into School Management: Make EMIS an integral part of daily administrative processes, ensuring data-driven decision-making at all levels.

Policy Support and Funding: Government and education stakeholders should allocate sufficient resources and formulate policies to support the sustainable implementation of EMIS and strategic management practices.

Monitoring and Evaluation: Establish robust monitoring systems to evaluate the effectiveness of EMIS and organizational strategies, allowing for continuous improvement.

Foster Technological Innovation: Promote the adoption of new educational technologies and digital tools alongside EMIS to enhance overall school performance.

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