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INNOVATIVE RECORD MANAGEMENT STRATEGIES AND PRINCIPALS' ADMINISTRATIVE EFFICIENCY IN PUBLIC SECONDARY IN CROSS RIVER STATE, NIGERIA

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ABSTRACT

This study investigated innovative record management strategies and principals' administrative efficiency in public secondary in Cross River State, Nigeria. Specifically, the study sought to find out the relationship between digitalization of records, cloud-based record storage and principals' administrative efficiency. Two research questions were answered and two null hypotheses were tested. The study adopted the descriptive survey research design. The population was all the 297 principals from the 297 public secondary schools in Cross River State, and the sample size was 124 principals representing 50% of the population. The stratified and simple random sampling technique was used in selecting the respondents. The instrument for data collection was a 24 items self-structured questionnaire titled "Innovative Record Management Strategies and Principals' Administrative Efficiency Questionnaire (IRMSPAEQ). The instrument was validated by three experts in the Departments of Educational Management and Measurement and Evaluation. The instrument had two (2) sections: The response scale was structured on a 4-point Likert rating scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with values of 4, 3, 2 and 1 respectively. Cronbach's Alpha was used to test the reliability of the instrument which gave reliability indexes of 0.81 and .87. Mean and standard deviation were used to answer the research questions with a criterion mean of 2.50. The hypotheses were tested at .05 level of significance, using Pearson Product Moment Correlation analyses. The result revealed a statistically significant relationship between digitalization of records, cloud-based record storage and principals' administrative efficiency. The study concluded that innovative record management strategies relate statistically to principals' administrative efficiency in public secondary in Cross River State, Nigeria. It was recommended among others that the State government should equip public secondary schools with electronic and digital record-keeping

devices, such as computers and cloud-based storage systems, supported by adequate funding for their purchase, installation, and maintenance.

Keywords: Innovative Record Management Strategies, Digitalization of Records, Cloud-Based Storage, Principals', Administrative Efficiency. Cross River State.

Introduction

Educational institutions in developing countries like Nigeria is to equip learners with new skills, tacit knowledge, cultures, attitudes, behaviors and innovative ways of solving day to day problems in life. Education is also aimed at providing the economy with human capital that can convert efficiently other resources into output of high value for quality life (UNESCO, cited in Osha, et al., 2021). The secondary school system is the intermediate level of education that comes after primary school and typically covers children between the ages of 11 and 18 years. In fact, there is no modern society can achieve significant growth and development without effective and quality education (Madukwe et al, 2024). Therefore, in Nigeria, secondary education is designed to provide a transition between basic education and higher education or vocational training. It is divided into two stages: junior secondary school (JSS), which lasts for three years, and senior secondary school (SSS), which also lasts for three years. The attainment of school goals at this level was categorized into: opportunity for higher education, knowledge acquisition and teaching/learning outcome (Etor, Obeten, & Obona, 2019). The goals can only be achieved through effective administration (Jonathan & Nwankwo, 2020). This is because according to Alabi (2017), there is no other way by which education institution can achieve the purpose of its establishment other than effective administration.

In this study, 'principals' administrative efficiency' refers to the capacity of school principals to proficiently manage school resources, personnel, and operations to enhance performance and fulfill educational objectives. As highlighted by Okwori and Egbule (2021), the efficiency of principals is closely linked to their leadership abilities, decision-making skills, and their capacity to create an environment that supports academic success and overall student development. It involves the effective execution of educational programs and objectives by maximizing the use of available resources (Amirize & Ololube, 2018; Usman cited in Jonathan & Nwankwo, 2020). Administration is pivotal to achieving the goals of secondary education.

Efficient school administration is characterized by several key indicators. One indicator is effective leadership,

where principals provide clear goals and inspire both staff and students, is crucial for achieving educational objectives (Day & Sammons, 2016). Additionally, proper resource management ensures that financial, material, and human resources are utilized optimally to support teaching and learning processes (Owoeye & Yara, 2017). Another essential indicator is staff supervision and professional development, where regular teacher evaluations and opportunities for growth contribute to improved instructional quality (Hallinger & Wang, 2015). From the foregoing, it could be affirmed that efficient school administration is marked by the ability to plan, organize, direct, and control school resources to enhance teaching and learning outcomes. It also includes timely decision-making, effective communication, the ability to motivate staff, and the strategic utilization of both human and material resources among others.

School administration is vital for creating a well-organized and supportive environment that fosters student learning, enhances teacher performance, and ensures the achievement of educational goals. However, secondary school administration in Nigeria encounters several significant challenges. One of the primary issues is inadequate funding, which limits schools' ability to provide essential infrastructure, learning materials, and resources necessary for effective functioning (Ajayi & Oluchukwu, 2017). Additionally, poor teacher motivation, a shortage of qualified staff, weak leadership, poor management practices, and inconsistent government policies and bureaucracy further exacerbate administrative inefficiencies (Afe, 2020; Onyeike & Owuamanam, 2018; Eze, 2019).

These challenges are also evident in public secondary schools in Cross River State, as observed by researchers. Schools in the region face similar problems, including limited funding, inadequately trained teachers, and leadership inefficiencies that disrupt administrative processes. The most common obstacles to administrative efficiency in Cross River State's public secondary schools include insufficient infrastructure, low staff motivation, and ineffective supervision and monitoring systems.

There is no denying the fact that school records are an integral part of any serious organization. The Public Education Edict of 1974 established the requirement for school records. The edict mandated that records and books be maintained by the responsible individual in every public or private institution and made available upon request by an inspecting officer or manager (Koko & Nwiyi, 2019). The education law stipulates two types of records that every school has to keep. These are statutory and non-statutory school records. Statutory records are those

records that are mandatory or compulsory under the law to be kept by each school viz; admission register, class attendance register, syllabus, lesson note, scheme of work, diary, time table, visitors books, staff record book, corporal punishment book and so on (Gede, 2011 cited in Tagbo, 2024). On the other hand, non-statutory school records are internal records maintained by schools for operational efficiency and decision-making, though not required by law. Unlike statutory records mandated by the government, these records help track specific activities and support school management. Examples include student progress reports, meeting minutes, teacher lesson plans, and extracurricular activity logs among others. These records play a crucial role in monitoring school functions and improving administrative effectiveness.

The success and failure of any school system is dependent on school record management. School record boosts the administrative efficiency of the school because be it the process of procurement, storage and auditing require availability of school record. Implementing innovative record management strategies can significantly enhance the administrative efficiency of secondary schools by improving data organization, decision-making, and overall operational effectiveness. This is crucial because Yellowe (2023) emphasized that records serve as the foundation of educational institutions, offering essential information for informed decision-making, historical documentation, accountability, and adherence to regulatory standards. Similarly, according Alabi (2017), effective and efficient management of educational institutions is unattainable without proper and sufficient record-keeping practices. Efficient record management guarantees that information is systematically organized, securely stored, and readily accessible whenever required. When records are accurately created, stored, retrieved, and appropriately used, administrative tasks become easier to execute. Without accurate and effective record management, planning, coordinating, organizing, controlling, and implementing an organization's programs would be unpredictable and challenging (Nwaomah, 2017).

Innovative record management strategies involve the use of modern, technology-driven methods to organize, store, and retrieve information within an institution, enhancing efficiency, accuracy, and accessibility. Seniwoliba, Mahama and Abilla (2017) defined record management as the efficient and systematic control of records (both paper and electronic) throughout their life-cycle from their creation or receipt until the time of their disposal. There are many innovative

record management strategies. According to Ojedokun and Lum (2017), these strategies typically include digital systems and automated processes help streamline administrative tasks and ensure that records are easily accessible for decision-making and accountability purposes. This study will examine the digitalization of records and cloud-based storage as forms of innovative record management strategies.

Digitalization of records and principals' administrative efficiency

Proper school record management in the twenty-first century is done through a digitalize system, electronically, so as to achieve administrative effectiveness. Therefore, it is no longer important for organizations to keep records in files and drawers for fear of vulnerability to destruction by rodents, fire, flood and even theft. Digitalization of school records refers to the process of generating and managing records using digital systems in various organizations, including schools, banks, hospitals, and both service and non-service institutions (Tagbo, 2024). These records provide essential information that allows authorities to make strategic, goal-focused decisions and evaluate the organization's progress either quickly or in a comprehensive manner.

Independent studies by researchers have shown co-relationships between the use of electronic record keeping and administrative effectiveness. Onweh, Etim and Emang (2021) in their study on the relationship between digitalization of school record and administrative effectiveness in secondary schools in Akwa Ibom State Nigeria, found a relationship between academic school record and administrative effectiveness. This study unraveled the fact that there is the need to judiciously use computers in school record in the public senior secondary schools in Nigeria.

In another study, Tagbo (2024) explored the digitalization of school records in public senior secondary schools in Rivers State, aiming to improve administrative efficiency. The study employed a descriptive survey design with 933 principals, selecting 280 participants using Taro Yamane's formula. Data were collected using a validated questionnaire with high reliability indexes (0.99 and 0.91). The analysis, involving mean, standard deviation, and z-test, revealed that computers and cloud storage are the primary digital tools supporting effective school administration. Similarly, Jonathan and Nwankwo (2020) examined record management practices employed by principals in secondary schools in Delta State, Nigeria. Using a descriptive survey design, 465 public secondary school principals were studied. The "Principals' Record Management Practices for Effective Administration Questionnaire"

(PRMPEAQ) was used, showing reliability scores of 0.81 and 0.85 for two clusters. The study achieved a 96% response rate and found that principals utilized various record management techniques, including storing files in multiple locations, maintaining confidentiality, categorizing files by subject, and adopting digital storage methods like magnetic tapes.

Nweke and Onuekwa (2021) conducted a study on the use of digital records in the administration of tertiary institutions in Rivers State. The study adopted a correlational design, involving 274 principals and 548 administrative staff. A sample of 391 was selected using stratified sampling, with 350 questionnaires (92%) returned and analyzed. The research instrument, "Digital Records and Tertiary Institutions Administration in Rivers State" (DRSSAPRV), utilized a four-point Likert scale, with a high reliability score of 0.911. Pearson Product Moment Correlation and descriptive statistics were used for analysis. The results indicated minimal use of digital record-keeping systems in these institutions.

Cloud-based storage and principals' administrative efficiency

Another essential tool for digitizing school records is cloud storage. Managed remotely and accessible via a network, cloud storage provides organizations with a solution to avoid the potential embarrassment of poorly maintained records. According to Krishna (2019), cloud storage enables data to be stored online through information and communication technology (ICT), as opposed to being saved on a local computer. An internet connection is necessary for uploading, modifying, and sharing various documents, including presentations, spreadsheets, images, audio, and videos. Unlike traditional storage methods, which rely on a personal computer's hard drive, cloud storage utilizes remote servers managed by service providers.

Cloud storage allows businesses and consumers to securely store data online, ensuring access from any location and easy sharing with authorized users. Tagbo (2024) highlights that cloud storage also includes data backup features to facilitate off-site recovery in emergencies. Popular services like Google Drive, Dropbox, and Box offer both free and paid subscription plans with larger storage capacities and additional features. This technology has gained popularity, particularly among individuals requiring ample storage and businesses seeking effective off-site data backup solutions.

Krishna (2019) and Samman and Smug (2021) further describe cloud storage as a system that allows data to be stored online via cloud computing providers, who manage record-keeping services. This system enables users to upload, modify,

and share various documents and media. In today's digital age, cloud storage has evolved into a model where digital data is maintained in extensive server pools—often referred to as the "cloud." These servers, sometimes located in multiple sites, are owned and managed by hosting companies, ensuring secure storage and accessibility of data.

For school administrators, cloud storage presents an efficient method for storing and retrieving essential files from any device on demand. It also serves as a long-term archival solution for documents that are not accessed frequently, such as financial records. Additionally, cloud storage enhances collaboration by allowing groups to access shared files. With its just-in-time capacity, cloud storage eliminates the need for investment in and management of physical record-keeping infrastructures (Samman & Smug, 2021).

In schools, principals can utilize cloud storage to improve administrative effectiveness. Modern school management systems allow administrators to automate file management, making records easily accessible with a simple click, regardless of how long they have been stored. This technology reduces the need for large physical filing systems and decreases paper usage. By integrating technology into their schools, administrators can work more efficiently, accessing necessary documents from anywhere, including outside school premises (Falana, 2018).

Khasawneh et al. (2023) conducted a study evaluating the impact of cloud computing on the performance of school principals in Ajloun Governorate. Using a descriptive research design and quantitative approach, the study included 180 male and female principals. It aimed to determine the availability of cloud computing resources and their effect on administrative efficiency. The findings revealed that both access to cloud computing tools and administrative competence were high, indicating a significant positive influence of cloud computing on enhancing principals' performance.

Opara and Damiete (2022) examined the relationship between cloud computing and communication success in Rivers State Government Parastatals. This study sought to assess how cloud computing affects communication effectiveness within these government agencies. Using a cross-sectional explanatory survey design, the researchers included all 15 functional Rivers State Government Parastatals through census sampling. Data were collected via a structured questionnaire that was face-validated and tested for reliability using Cronbach's alpha. Of the 244 questionnaires distributed, 221 (91%) were returned. The arithmetic mean was employed for univariate analysis, while Spearman Rank Order Correlation and

Partial Correlation were used for hypothesis testing. The results demonstrated a significant positive relationship between cloud computing and communication success within the parastatals, leading to the conclusion that cloud computing enhances communication effectiveness in Rivers State Government Parastatals.

The study by Elekwachi, Dick, and Omunakwe (2023) investigated the impact of cloud computing capability on organizational communication in public tertiary institutions in Rivers State. Employing an explanatory research design, the authors conducted a cross-sectional survey with a population of 502 administrative heads involved in communication processes. A sample of 222 administrative staff was selected, and data were collected using a structured questionnaire grounded in the Person-Environment Fit Theory. Spearman Rank Order Correlation was applied for data analysis. The findings revealed a significant positive relationship between cloud computing capability and organizational communication, particularly in information dissemination, coordinated work systems, and decision-making processes. The study concluded that cloud computing capability enhances communication within these institutions.

Although the literatures reviewed have shown significant relationship between the main variables of this study viz: digitalization of records, cloud-based storage and principals' administrative efficiency, there appeared to be no known studies particularly on innovative record management strategies and principals' administrative efficiency in public secondary schools in Cross River State, Nigeria. This study is therefore, conducted to fill the gap and add to the knowledge bank.

Problem of the study

Principals' administrative efficiency which involves the effective management of school operations, including communication, decision-making, resource allocation, and, importantly, record management, is crucial as it directly impacts the overall performance of the school and the quality of education provided to students. Parents and stakeholders expect principals to maintain accurate records, facilitate smooth communication, and ensure the efficient administration of resources which will lead to enhanced educational outcomes for students.

However, there has been a notable observation regarding administrative inefficiency among principals in public secondary schools in Cross River State, particularly in the area of record management. This inefficiency manifests in the inability to maintain comprehensive, up-to-date records of student performance, attendance, and financial transactions,

which are essential for effective decision-making and accountability. Consequently, this failure to meet stakeholder expectations has resulted in diminished trust in school leadership and hindered the overall effectiveness of the educational system. Stakeholders, including parents and community members, have expressed concerns about the lack of transparency and responsiveness in the administration of schools, further complicating the relationship between school management and the community.

Despite various government interventions aimed at improving administrative practices in public secondary schools, these efforts have often yielded limited success. Initiatives such as training programs and payment of monthly salary have not significantly addressed the underlying challenges of inefficiency in terms of poor record management. As such, there is a pressing need to explore innovative record management strategies that may effectively tackle these issues. This current study aims to address the question: What is the relationship between innovative record management strategies and principals' administrative efficiency in public secondary schools in Cross River State, Nigeria?

Purpose of the study

This study was conducted to investigate innovative record management strategies and principals' administrative efficiency in public secondary schools in Cross River State, Nigeria. Specifically, the study aimed to examine the relationship between:

1. Digitalization of records and principals' administrative efficiency in public secondary schools in Cross River State.
2. Cloud-based storage and principals' administrative efficiency in public secondary schools in Cross River State.

Research questions

The study addressed the following research questions:

1. What are perceptions of how the digitalization of records enhances principals' administrative efficiency in public secondary schools in Cross River State?
2. What is the influence of cloud-based storage on principals' administrative efficiency in public secondary schools in Cross River State?

Research hypotheses

These research hypotheses guided the study:

1. There is no statistically significant relationship between digitalization of records and principals' administrative efficiency in public secondary schools in Cross River State.
2. Cloud-based storage has no statistically significant relationship with principals' administrative

efficiency in public secondary schools in Cross River State.

Research method

The study adopted the descriptive survey research design. The population was all the 297 principals from the 297 public secondary schools in Cross River State, and the sample size was 124 principals representing 50% of the population. The stratified and simple random sampling technique was used in selecting the respondents. The instrument for data collection was a 24 items self-structured questionnaire titled "Innovative Record Management Strategies and Principals' Administrative Efficiency Questionnaire (IRMSPAEQ). The instrument was validated by three experts in the Departments of Educational Management and Measurement and Evaluation. The instrument had two (2) sections: The response scale was structured on a 4-point Likert rating scale of Strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD) with values of 4, 3, 2 and 1 respectively. Cronbach's Alpha was used to test the reliability of the instrument which gave reliability indexes of 0.81 and .87 which showed that the instrument was highly reliable. Two teachers were purposively selected from each school to access principals' administrative efficiency since they interact with principals regularly. The research questionnaires were administered on the respondents after permissions were obtained from their respective school authorities. The researchers recruited 3 additional research assistants and trained them on how to carry out the exercise. After a couple of hours, the researchers and their assistants went round and retrieve the questionnaires back from the respondent. However, the researchers discovered that out of the 136 copies of questionnaires distributed, 124 or 91% were duly completed, retrieved and used for the study. Mean and standard deviation were used to answer the research questions with a criterion mean of 2.50 benchmark. The hypotheses were tested at .05 level of significance, using Pearson Product Moment Correlation analyses.

Presentation of Results

Research Question 1: What are perceptions of how the digitalization of records enhances principals' administrative efficiency in public secondary schools in Cross River State? The result is presented in table 1.

Table 1: Mean and standard deviation of the perceptions of how the digitalization of records enhances principals' administrative efficiency in public secondary schools in Cross River State

S/No	Items	Mean	Std. Dev.	Decision
1.	The digitalization of records has made it easier for the principal to track student attendance efficiently.	2.47	.93	Low
2.	Digital records have improved the principal's ability to manage school resources effectively.	2.58	.77	High
3.	The principal responds more quickly to teachers' requests due to access to digital records.	2.64	.86	High
4.	The digitalization of student academic records has reduced delays in the reporting of students' performance.	2.51	.81	High
5.	Digital record-keeping has enhanced the principal's decision-making process.	2.40	.85	Low
6.	The use of digital systems has streamlined communication between the principal and teachers.	2.31	.84	Low
7.	Digitalized records have improved the principal's ability to maintain accurate staff data.	2.46	.90	Low
8.	The use of digital records has improved the overall administrative operations of the school.	2.62	.89	High
	Grand Mean = 2.50			

The result of the analysis in Table 1 showed that items item 2,3,4 and 8 have mean scores above the grand mean of 2.50. The items above 2.50 implied the respondent's extent of agreement with all the statements on digitalization of records. The results indicated that the respondent's perception that: digital records have improved the principal's ability to manage school resources effectively, the principal responds more quickly to teachers' requests due to access to digital records, the digitalization of student academic records has reduced delays in the reporting of students' performance, and the use of digital records has improved the overall administrative operations of the school, was high. However, items 1, 5, 6, and 7, have mean scores below the grand mean of 2.50. The items below 2.50 indicated the respondent's extent of disagreement with the statements on digitalization of records. This indicated the respondent's perceptions that: digitalization of records

has made it easier for the principal to track student attendance efficiently, digital record-keeping has enhanced the principal's decision-making process, the use of digital systems has streamlined communication between the principal and teachers, and digitalized records have improved the principal's ability to maintain accurate staff data, was low.

Research Question 2: What is the influence of cloud-based storage on principals' administrative efficiency in public secondary schools in Cross River State? The result is presented in table 2.

Table 2: Mean and standard deviation of the influence of cloud-based storage on principals' administrative efficiency in public secondary schools in Cross River State

S/No	Items	Mean	Std. Dev.	Decision
1.	Cloud-based storage allows the principal to access school records more efficiently.	2.67	.93	High
2.	The use of cloud-based storage by the principal improves the organization of administrative tasks.	2.45	.72	Low
3.	Cloud-based storage enables the principal to retrieve students' data more quickly.	2.54	.81	High
4.	The principal's use of cloud-based storage has reduced delays in decision-making.	2.31	.61	Low
5.	Cloud-based storage improves the accuracy of reports generated by the principal.	2.51	.85	High
6.	The principal's use of cloud-based storage has enhanced communication with teachers and staff.	2.38	.79	Low
7.	Cloud-based storage has simplified the process of record-keeping for the principal.	2.46	.90	Low
8.	The use of cloud-based storage by the principal has reduced the time spent on administrative tasks.	2.42	.88	low
	Grand Mean = 2.50			

The result of the analysis in Table 2 showed that items item 1,3, and 5 have mean scores above the grand mean of 2.50. The items above 2.50 implied the respondent's extent of agreement with to the statements on cloud-based storage. This indicated that the respondent's perception that: Cloud-based storage allows the principal to access school records more efficiently, cloud-based

storage enables the principal to retrieve students' data more quickly, and cloud-based storage improves the accuracy of reports generated by the principal, was high. However, items 2, 4, 6, 7, and8, have mean scores below the grand mean of 2.50. The items below 2.50 indicates the respondent's extent of disagreement with the statements on cloud-based storage. This indicated that the respondent's perceptions that: The use of cloud-based storage by the principal improves the organization of administrative tasks, the principal's use of cloud-based storage has reduced delays in decision-making, the principal's use of cloud-based storage has enhanced communication with teachers and staff, cloud-based storage has simplified the process of record-keeping for the principal, and the use of cloud-based storage by the principal has reduced the time spent on administrative tasks, was low.

Research hypothesis

Hypothesis 1: There is no statistically significant relationship between digitalization of records and principals' administrative efficiency in public secondary schools in Cross River State. The two variables in this hypothesis are digitalization of records and principals' administrative efficiency. The result of the data analysis is presented in table 3. Table 3 showed the correlation coefficients between digitalization of records and principals' administrative efficiency. The correlation coefficient was statistically significant for principals' administrative efficiency ($r = .85$, $p<.05$). Since $p(.000)$ is less than $p(.05)$, hypothesis one is rejected in terms of administrative efficiency. The result of the analysis implied that there is a statistical positive significant relationship between digitalization of records and principals' administrative efficiency in public secondary schools in Cross River State, Nigeria.

Table 3: Pearson Product Moment Correlation on the statistically significant relationship between digitalization of records and principals' administrative efficiency in public secondary schools in Cross River State, Nigeria

Variables	$\bar{X}$	S.D	r	Sig.
Digitalization of records	20.01	3.48		
Principals' administrative efficiency	19.58	3.35	.85*	.000

*Significant at p<.05

Research hypothesis 2: Cloud-based storage has no statistically significant relationship with principals' administrative efficiency in public secondary schools in Cross River State. The two variables in this hypothesis are cloud-based storage and principals' administrative efficiency. The result of the data analysis is presented

in table 4. Table 4 showed the correlation coefficients between cloud-based storage and principals' administrative efficiency. The correlation coefficient was statistically significant for principals' administrative efficiency (r = .56, p<.05). Since *p*(.000) is less than *p*(.05), hypothesis one is rejected in terms of administrative efficiency. The result of the analysis implied that there is a statistical positive significant relationship between cloud-based storage and principals' administrative efficiency in public secondary schools in Cross River State, Nigeria.

Table 3: Pearson Product Moment Correlation on the statistically significant relationship between cloud-based storage and principals' administrative efficiency in public secondary schools in Cross River State, Nigeria

Variables	$\bar{X}$	S.D	r	Sig.
Cloud-based storage	19.05	4.48		
Principals' administrative efficiency	19.58	3.35	. 56*	.000

*Significant at p<.05

Discussion

The finding of research hypothesis one reveals that there is a statistically significant relationship between digitalization of records and principals' administrative efficiency in public secondary schools in Cross River State, Nigeria. This could stem from the streamlined access, storage, and retrieval of crucial school data. Digital records reduce the administrative burden of handling physical files, minimize human errors, and enhance decision-making by providing principals with accurate, up-to-date information in real-time. Furthermore, digital systems improve communication and coordination among staff, contributing to faster and more efficient administrative processes. The implication of this is that the adoption of digital record-keeping could lead to enhanced administrative effectiveness, resulting in better school management, improved resource allocation, and overall higher educational quality in the region.

The finding is in tandem with the findings of Onweh, Etim and Emang (2021) who in their study on the relationship between digitalization of school record and administrative effectiveness in secondary schools in Akwa Ibom State Nigeria, found a relationship between academic school record and administrative effectiveness. This study unraveled the fact that there is the need to judiciously use computers in school record in the public senior secondary schools in Nigeria.

The finding is also in line with the findings of Tagbo (2024) who explored the digitalization of school records in public senior secondary schools in Rivers State, aiming to improve administrative efficiency. The study analysis, involving mean, standard deviation, and z-test,

revealed that computers and cloud storage are the primary digital tools supporting effective school administration. Similarly, the finding aligns with that of Jonathan and Nwankwo (2020) who examined record management practices employed by principals in secondary schools in Delta State, Nigeria. The study found that principals utilized various record management techniques, including storing files in multiple locations, maintaining confidentiality, categorizing files by subject, and adopting digital storage methods like magnetic tapes.

The finding of research hypothesis two reveals that there is a statistically significant relationship between cloud-based storage and principals' administrative efficiency in public secondary schools in Cross River State, Nigeria. The finding could be attributed to the ease of access, secure data management, and enhanced collaboration that cloud technology provides. Cloud-based storage allows principals to access school records, reports, and administrative data from any location, promoting flexibility and real-time decision-making. It also reduces the risks of data loss and unauthorized access, improving the reliability of records management. Additionally, cloud storage facilitates better communication and collaboration among school staff, as shared documents can be accessed and updated easily. The implication is that cloud technology can significantly enhance the administrative effectiveness of principals, leading to more organized, efficient school management and better overall educational outcomes.

The result is in alignment with the conclusion of Falana (2018) that by integrating technology into their schools, administrators can work more efficiently, accessing necessary documents from anywhere, including outside school premises. Similarly, the finding corroborates that of Khasawneh et al. (2023) whose study revealed that both access to cloud computing tools and administrative competence were high, indicating a significant positive influence of cloud computing on enhancing principals' performance. Also, the finding is in tandem with that of Opara and Damiete (2022) who examined the relationship between cloud computing and communication success in Rivers State Government Parastatals. The results demonstrated a significant positive relationship between cloud computing and communication success within the parastatals, leading to the conclusion that cloud computing enhances communication effectiveness in Rivers State Government Parastatals.

The finding of the study further supports that of Elekwachi, Dick, and Omunakwe (2023) who investigated the impact of cloud computing capability on organizational communication in public tertiary institutions in Rivers State. The

findings revealed a significant positive relationship between cloud computing capability and organizational communication, particularly in information dissemination, coordinated work systems, and decision-making processes.

Conclusion

Based on the findings that a statistically significant relationship exists between the digitalization of records, cloud-based record storage, and principals' administrative efficiency, the study concludes that innovative record management strategies are significantly related to principals' administrative efficiency in public secondary schools in Cross River State, Nigeria.

Recommendations

Arising from the findings, the study recommends that:

1. The Cross River State government should equip public secondary schools with electronic and digital record-keeping devices, such as computers and cloud-based storage systems, supported by adequate funding for their purchase, installation, and maintenance.
2. Principals should receive regular training on using digital and cloud-based record management systems to improve their skills in data entry, retrieval, and security, thereby enhancing administrative efficiency.
3. The state government should collaborate with stakeholders to establish a structured plan for maintaining, upgrading, and expanding ICT infrastructure in schools, ensuring data security and the sustainability of innovative record management practices.

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