

TECHNOLOGICAL UTILIZATION AND SECONDARY SCHOOL RECORDS MANAGEMENT PERFORMANCE

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Abstract

This study examined the impact of technological utilization on secondary school records management performance in Esan West Local Government Area of Edo State, Nigeria. Specifically, it investigated the relationship between technology adoption and two performance indicators data processing and retrieval speed, and accuracy of records. The study employed a survey research design, using a structured questionnaire administered to all 85 teachers from eight public secondary schools through census sampling. Data were analyzed using percentages for descriptive statistics and Pearson correlation for hypothesis testing. Findings revealed a strong positive relationship ($r = .84$) between technological utilization and records management performance, indicating that schools using tools such as Microsoft Excel, OpenSIS, and Google Workspace achieved faster data retrieval and greater accuracy. However, challenges such as inadequate ICT infrastructure, limited training, and unstable electricity supply hindered optimal results. The study recommends improved ICT facilities, regular staff training, and policy support to enhance sustainable records management.

Keywords: Accuracy of Records, Records Management, Retrieval Speed, Secondary Schools, Technological Utilization.

Introduction

The management of school records has evolved significantly over the past century, shifting from simple manual record books to complex, technology-driven systems. Historically, Nigerian secondary schools, like many in developing countries, relied on manual record-keeping methods involving paper registers, filing cabinets, and handwritten reports. While these methods were functional, they were prone to errors, misplacement, and delays in data retrieval (Adewale, 2008). With the advent of the digital age in the late 20th century, developed nations began adopting electronic data management systems, which drastically improved accuracy and retrieval efficiency (Smith & Taylor, 2019).

In the 21st century, educational institutions worldwide increasingly rely on technology to enhance operational efficiency, particularly in the management of school records. Records management is central to administrative effectiveness, student tracking, decision-making, and policy compliance (Okoye & Adeyemi, 2021). Modern digital tools such as Student Information Systems (SIS), cloud-based storage, biometric attendance systems, and database management software have transformed traditional manual processes into faster, more reliable systems (Chen & Wu, 2017).

In Nigeria, public secondary schools are gradually adopting these technological solutions, though the pace varies due to infrastructural, financial, and training limitations (Eze & Omoregie, 2022). In Edo State, especially within public secondary schools, the integration of tools such as digital registers, automated grading systems, and centralized databases is becoming more common. These technologies promise to improve data processing and retrieval speed and enhance the accuracy of records, which are vital components of internal efficiency (Johnson, 2020).

However, despite this progress, the extent to which technological utilization influences these specific performance indicators remains underexplored in local contexts. This study seeks to bridge

that gap by examining the relationship between technological utilization and records management performance in public secondary schools in Edo State, focusing specifically on data processing & retrieval speed and accuracy of records as core variables. Also, the global trend towards digitization in school administration, many public secondary schools in Edo State still rely partly on manual record-keeping systems (Eze & Omoregie, 2022). These outdated methods are prone to errors, delays, and data losses, which hinder internal efficiency (Okoye & Adeyemi, 2021). Even when technology is adopted, challenges such as inadequate training, poor infrastructure, and limited access to modern tools reduce its impact on retrieval speed and record accuracy (Johnson, 2020; Akinola & Igbinoba, 2023). As a result, school administrators may struggle with decision-making, student tracking, and compliance reporting (Smith & Taylor, 2019). This research seeks to investigate how technological utilization influences the speed of data processing and retrieval and the accuracy of records in public secondary schools in Esan West Local Government Area of Edo State.

Literature Review

Theoretical Framework

This study is anchored on the Technology Acceptance Model (TAM) developed by Davis (1989), which explains how users come to accept and effectively use technology. This study is anchored on the Technology Acceptance Model (TAM), which explains that the adoption of school record technologies depends on perceived usefulness and ease of use (Davis, 1989). The model posits that two primary factors Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) determine an individual's willingness to adopt a technological system. Perceived Usefulness refers to the degree to which a user believes that using a particular technology will enhance their job performance, while Perceived Ease of Use refers to the extent to which the user expects the system to be free of effort (Venkatesh & Davis, 2000). In the context of secondary school records management, administrators and teachers are more likely to adopt and effectively use digital record-keeping systems if they perceive them as both useful for improving retrieval speed and record accuracy, and easy to operate without extensive technical knowledge (Okafor & Uche, 2022). This aligns with findings by Akinola and Igbinoba (2023), who noted that schools with trained personnel and intuitive software platforms tend to achieve higher performance in records management. Technological utilization measured through digital record-keeping tools and automation of processes is expected to improve records management performance, reflected in retrieval speed and accuracy of records. The framework assumes that when schools have access to reliable ICT infrastructure and trained staff, technology adoption will significantly enhance records management outcomes. Therefore, TAM provides a suitable theoretical lens for examining how technological utilization impacts data processing & retrieval speed and accuracy of records in public secondary schools in Edo State.

Conceptual Review

Technological utilization in education refers to the deliberate integration of digital tools, software applications, and computerized systems into administrative and instructional processes to improve efficiency, accuracy, and overall performance (Okafor & Uche, 2022). In the context of school records management, it specifically relates to the deployment of digital record-keeping systems that enhance accessibility, minimize redundancy, and improve the reliability of stored data (Eze & Omoregie, 2022). Traditionally, record-keeping in Nigerian secondary schools involved manual processes such as handwritten registers, physical files, and paper-based archives. While functional in earlier decades, these methods were slow, error-prone, and vulnerable to damage or loss (Adewale, 2008). The increasing demand for timely and accurate information in modern school administration has necessitated a shift toward technology-based solutions, including Student Information Systems (SIS), cloud-based storage, and biometric attendance systems (Johnson, 2020).

Technological utilization in school records management focuses on improving two critical dimensions: data processing and retrieval speed and accuracy of records. Retrieval speed refers to how quickly data can be accessed, updated, and shared within the school system, a process that digital platforms can execute in seconds compared to the minutes or hours required by manual systems (Smith & Taylor, 2019). Accuracy of records involves the precision and correctness of stored information, which is significantly enhanced by automated data entry, error-checking features, and secure backup systems (Chen & Wu, 2017). In Nigeria, especially in public secondary schools in Edo State, the adoption of technological tools has been gradual due to infrastructural, financial, and training challenges (Akinola & Igbino, 2023). Nevertheless, where effectively implemented, technology has been shown to improve administrative efficiency, reduce workload, and provide reliable, real-time data for decision-making (Okoye & Adeyemi, 2021). Understanding the conceptual link between technological utilization and school records management performance is, therefore, vital to improving internal efficiency in secondary education.

Technological Utilization

Technological utilization in schools refers to the intentional adoption and application of digital devices, specialized software, and online services to manage student, staff, and institutional data more effectively (Okafor & Uche, 2022). This integration often includes tools such as Student Information Systems (SIS), which centralize academic, personal, and disciplinary records; biometric attendance systems, which automate and secure the monitoring of staff and student presence; and online grade management platforms, which enable real-time entry, computation, and reporting of academic performance (Johnson, 2020). The essence of technological utilization lies in its ability to enhance both the speed and accuracy of school administrative tasks while significantly reducing manual workload (Smith & Taylor, 2019). Through cloud-based storage and data synchronization, records become accessible from multiple devices and locations, ensuring timely retrieval and updating of information (Chen & Wu, 2017). According to Okoye & Adeyemi, (2021), In Nigerian secondary schools, especially in Edo State, the use of technology has gradually improved administrative efficiency, despite infrastructural and training challenges (Akinola & Igbino, 2023). Proper utilization of these technologies can lead to faster decision-making, more reliable data storage, and better compliance with educational policies, thereby supporting the overall goal of internal efficiency in school management.

Digital Record-Keeping Tools

Digital record-keeping tools such as Microsoft Excel, Google Workspace, OpenSIS, and EduAdmin provide schools with structured data storage, rapid retrieval, and simplified analysis of educational records (Johnson, 2020). These platforms support automated calculations, searchable databases, and secure cloud backups, thereby minimizing redundancy and human error (Chen & Wu, 2017). The shift from paper-based methods to digital tools has significantly reduced the risk of record loss due to physical damage while enhancing data security and accessibility (Okafor & Uche, 2022). As a result, school administrators can make timely, evidence-based decisions that improve operational efficiency.

Secondary School Records Management Performance

Secondary school records management performance refers to the efficiency and effectiveness with which educational institutions store, process, retrieve, and safeguard essential administrative and academic information (Okoye & Adeyemi, 2021). Effective records management ensures that data on student enrollment, attendance, grades, disciplinary actions, and staff profiles is accurate, complete, and accessible when needed (Eze & Omoregie, 2022).

Performance in this context is often measured by two critical indicators: retrieval speed and accuracy of records. Retrieval speed relates to how quickly stored information can be accessed, a factor that technology has greatly improved through features like instant search functions, automated

indexing, and centralized databases (Smith & Taylor, 2019). Accuracy of records refers to the precision and reliability of stored data, which is enhanced by automated validation tools and reduced human error in data entry (Chen & Wu, 2017).

In Nigerian public secondary schools, efficient records management contributes to better decision-making, timely reporting to educational authorities, and improved communication with stakeholders (Akinola & Igbino, 2023). Conversely, poor performance in records management can lead to delays, misinformation, and administrative inefficiencies. Therefore, optimizing performance through appropriate technological utilization is essential for ensuring internal efficiency and accountability in the education sector (Johnson, 2020).

Retrieval Speed

Retrieval speed in school records management refers to the time taken to access, extract, and present stored information for administrative or academic purposes (Smith & Taylor, 2019). In traditional manual systems, retrieving specific data could take minutes or even hours due to the need to physically locate, sort, and verify paper records. However, the integration of digital technologies has revolutionized this process by enabling near-instant access through search functions, automated indexing, and cloud-based platforms (Chen & Wu, 2017).

Fast retrieval of records is crucial for decision-making, report generation, and timely responses to stakeholder inquiries (Okafor & Uche, 2022). For example, school administrators can quickly generate attendance reports, academic transcripts, or disciplinary summaries without sifting through physical files. This efficiency also supports compliance with regulatory requirements and improves service delivery to students and parents (Johnson, 2020).

In Nigerian public secondary schools, especially in Edo State, retrieval speed is often hindered by inadequate infrastructure, unstable electricity, and insufficient staff training on digital systems (Akinola & Igbino, 2023). Nonetheless, schools that effectively utilize digital tools experience significant improvements in administrative turnaround time, contributing to higher overall performance in records management.

Empirical Review

Adeyemi (2021) surveyed the Impact of ICT Adoption on Records Management in Public Schools, Lagos, Nigeria. This study examined the influence of ICT tools on record retrieval efficiency in 10 public secondary schools. A descriptive survey design was used, with questionnaires administered to 150 teachers selected through stratified random sampling. Data were analyzed using Pearson correlation. Findings showed a strong positive relationship ($r = 0.81$) between ICT adoption and retrieval speed. The study concluded that integrating ICT significantly reduces delays in administrative processes.

Omorie and Ehimen (2020) examined a study on digital tools and educational administration, Benin City, Nigeria. The researchers investigated the impact of digital platforms on records accuracy in 12 public schools. A total of 96 administrative staff participated in the study. Data were collected via structured questionnaires and analyzed with descriptive statistics and regression. Results indicated that schools using automated record-keeping had a 65% improvement in accuracy compared to manual systems. The authors concluded that digital tools reduce human error and enhance data reliability.

Smith and Taylor (2019) did a study on Technology and School Management Efficiency, Manchester, United Kingdom. This mixed-method study surveyed 120 school administrators and conducted time-motion analysis of record retrieval. Quantitative data were analyzed using t-tests, while qualitative interviews provided context. Technology use reduced retrieval times by an average of 48%. The authors concluded that digital systems are vital for timely decision-making in schools.

Usman (2018) did a study on ICT in School Record Management, Abuja, Nigeria. A cross-sectional survey of 100 teachers from 15 public schools examined ICT's effect on accuracy and speed. Data were analyzed with Spearman's rank correlation. The study found significant

improvements in both indicators where ICT was adopted, but inadequate infrastructure limited benefits. It concluded that investment in facilities is essential.

Chen and Wu (2017) examined Cloud-Based Student Information Systems, Beijing, China. The study used an experimental design comparing two schools one using cloud-based SIS and the other manual methods. Data on retrieval time and accuracy were collected over six months. The digital system reduced retrieval time by 50% and record errors by 72%. The conclusion emphasized cloud systems as a sustainable solution.

Johnson (2016) examined ICT Application in Educational Data Management, Cape Town, South Africa. This survey research involved 90 school administrators from 20 schools. Data were analyzed using correlation and regression analysis. Findings showed a significant relationship between ICT use and retrieval speed ($r = .76$). The conclusion highlighted the importance of ongoing training to sustain performance gains.

The literature reviewed shows that technological utilization improves secondary school records management by enhancing retrieval speed and accuracy of records (Smith & Taylor, 2019; Adeyemi, 2021). Tools such as Student Information Systems and cloud storage make record handling faster and more reliable. Nigerian studies (Omoriegbe & Ehimen, 2020; Akinola & Igbinoba, 2023) support this but note challenges like poor infrastructure, inadequate ICT skills, and funding constraints, which limit effectiveness. The findings align with the Technology Acceptance Model, indicating that adoption is influenced by perceived usefulness, ease of use, and institutional readiness.

Methods

The study adopted a survey research design to gather quantitative data from teachers regarding their use of technological tools for record-keeping. The research was conducted in Esan West Local Government Area (LGA) of Edo State, covering selected public secondary schools. The population consisted of 85 teachers drawn from eight public secondary schools in the LGA. Since the population was small, census sampling was used, meaning all 85 teachers participated. The study relied on primary data, collected directly from respondents. A structured questionnaire was designed with closed-ended questions to obtain teachers' responses. Data was analyzed using percentage for demographic and descriptive statistics, and Pearson correlation to determine the relationship between technological utilization and effectiveness of record-keeping.

Results

Research Question 1: What technological, data processing and retrieval speed tools commonly used in secondary school records management?

Table 1

Technological Tools Commonly Used in Records Management

Technological Tool	Frequency	Percentage (%)
Computer systems	80	94.1%
School management software	65	76.5%
Cloud storage	50	58.8%
Biometric attendance	30	35.3%

Table 1 shows that computer systems are the technological, data processing and retrieval speed tools commonly used in secondary school records management in Edo State with 94.1%.

Research Question 2: What are perceived benefits of technology in school records management?

Table 2

Perceived Benefits of Technology in School Records Management

Benefits	Frequency	Percentage (%)
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Table 2 shows that the four items were perceived by the respondents as benefits of technology in secondary school records management with percentage ranging from 72.9 to 91. 8.

Research Question 3: What are perceived challenges encountered in technological utilization in secondary school records management?

Table 3
Challenges Encountered in Technological Utilization in Secondary School Records Management

Challenge	Frequency	Percentage (%)
Poor internet connectivity	69	81.2%
Inadequate ICT training	65	76.5%
Frequent power outages	60	70.6%
High maintenance cost	45	52.9%

Table 3 reveals that the respondents identified the four items as challenges encountered in technological utilization in secondary school records management. The item on poor internet connectivity had the highest percentage of 81.2%.

Research Question 4: What is the relationship between technological utilization and the accuracy of records in secondary school records management?

Table 4
Correlation Analysis between Technological Utilization and Records Management Performance

Variables	Correlation Coefficient (r)	p-value	Decision
Technological Utilization vs. Records Management Performance	.84	.000	Significant

The Pearson correlation coefficient of .84 indicates a strong positive relationship between technological utilization and records management performance in secondary schools in Esan West LGA. The p-value of .000 shows this relationship is statistically significant at the .05 level.

Discussion of Findings

The study investigated the impact of technological utilization on secondary school records management performance in Esan West Local Government Area of Edo State. Analysis of the collected data revealed several key insights.

Firstly, the findings showed that a majority of the respondents strongly agreed that technological tools such as Microsoft Excel, Google Workspace, and OpenSIS significantly enhance the accuracy, speed, and security of student and staff records. The high percentage of agreement (above 85% in most items) aligns with the position of Adebayo (2022) that digital record-keeping reduces human error and promotes efficiency in educational administration.

Secondly, the data indicated that teachers in the selected schools have increasingly adopted biometric attendance systems and online grade management platforms, which have contributed to improved record accessibility and retrieval times. This corroborates the assertion by Okafor and Eze (2021) that technology integration in schools supports timely decision-making by administrators.

Furthermore, the correlation analysis revealed a strong positive relationship between technological utilization and records management performance ($r = .84$). This means that higher levels of technology adoption directly relate to better efficiency, accuracy, and organization in record management practices.

However, the study also identified challenges such as unstable electricity supply, insufficient ICT infrastructure, and inadequate training for some teachers, which could limit the optimal use of

technology. These constraints agree with the observations of Ibrahim et al. (2020), who noted that infrastructural gaps remain a major barrier to digital adoption in Nigerian schools.

Overall, the results suggest that while technology significantly improves records management in secondary schools, sustainable benefits require adequate training, better infrastructure, and continuous investment in ICT facilities.

This study examined the impact of technological utilization on secondary school records management performance in Esan West Local Government Area, Edo State. The objectives were to determine the extent to which technology is used in managing academic records, to evaluate its effect on efficiency, and to identify challenges affecting its application. Data were collected from teachers and administrative staff through structured questionnaires, and analyzed using descriptive statistics, correlation analysis, and frequency distribution tables with figures. Findings revealed that modern digital tools such as Microsoft Excel, OpenSIS, Google Workspace, and biometric systems are increasingly used to manage student attendance, grading, and administrative records. The analysis showed that technology adoption is positively and strongly correlated with improved accuracy, accessibility, and timeliness in record management. However, challenges such as unstable electricity supply, limited ICT infrastructure, and insufficient training were also identified as limiting factors.

Conclusion and Recommendations

The findings confirm that technological utilization significantly enhances secondary school records management performance in the study area. Schools that effectively integrate technology into their administrative processes benefit from better accuracy, improved security, and faster retrieval of records. Despite these benefits, infrastructural and capacity-related challenges remain significant barriers to full optimization. The study concludes that for technology to have a sustained impact on educational records management, there must be deliberate investments in infrastructure, training, and maintenance.

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

1. Provision of Adequate ICT Infrastructure: Government and school management should invest in reliable power supply, high-speed internet, and up-to-date computer systems.
2. Capacity Building: Regular training workshops should be organized for teachers and administrative staff to enhance their ICT competence.
3. Technical Support: Schools should employ dedicated ICT support personnel to maintain systems and provide immediate troubleshooting assistance.
4. Policy Implementation: The Ministry of Education should enforce policies that mandate digital record-keeping and provide standardized software solutions for schools.
5. Partnerships: Schools should collaborate with ICT firms and NGOs to obtain discounted or subsidized digital tools and training programs.

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