

The Use of Information Technology in Records Management to Improve School Quality Assurance in the Digital Age: A Meta-Analysis

Satri Dwi Kurnia Nasution¹, Neti Karnati², Rugaiyah²,

Pascasarjana, Doctoral Program in Education Management, Jakarta State University, Jl. R.Mangun Muka Raya No.11, RT.11/RW.14, Rawamangun, Kec. Pulo Gadung, Kota Jakarta Timur, Daerah Khusus Ibukota Jakarta 13220

Email correspondence: satri_9911922002@mhs.unj.ac.id

ABSTRACT

The literature research aimed to determine the level of knowledge required to design an effective records management model to support school quality assurance in the digital era. This study is a meta-analysis that aims to examine the effect size of using information technology in school records management. The research steps included selection and study of research topics, collection of results with appropriate titles, calculation of effect sizes, identification of effect size heterogeneity, and interpretation of results and drawing conclusions. Data sources came from research articles published in various scientific databases such as ScienceDirect, DOAJ, and Google Scholar. Articles were collected by searching the websites <https://www.sciencedirect.com/>, <https://doaj.org/>, and <https://scholar.google.com/> using the keywords “information technology”, “records management”, “transparency and accountability”, and “school quality”. The population of this study included 52 articles obtained from various sources. The sampling technique used was certain constituent random sampling with inclusion and exclusion criteria. The results of the meta-analysis showed that the use of information technology has a significant positive contribution to records management with a random effect correlation of 0.409, which is in the medium category. However, significant heterogeneity was found ($q = 185.030$, $p < 0.001$), indicating variation between studies. This variation suggests the need for further investigation to identify moderator variables that influence the relationship between information technology and records management. These findings are consistent with previous studies that emphasize the importance of information technology in improving the efficiency and effectiveness of records management, but also underscore the need for adequate organizational support and training to ensure successful implementation of such technology.

Keyword: Information Technology; Records Management; Quality Assurance; Digital Age; Meta-Analysis

INTRODUCTION

In the growing digital era, education is one of the sectors that has undergone significant changes. The school level, like many other areas, is not exempt from the impact of these changes (Singh et al., 2023). School quality assurance has become very important in improving the quality of education and ensuring that schools provide quality education services to their students (Sunarni, 2016).

School quality assurance covers various aspects, including the collection, storage and access to data and information related to school performance (Shahzad & Lodhi, 2023). Records management plays an important role in this process as it involves managing documents, data and information related to educational activities, evaluation and improvement in schools (Asnawi et al., 2022). Traditionally, records management was often done manually, with many documents stored in physical form.

In today's digital era, information technology has provided a more efficient and effective alternative for school records management (Haleem et al., 2022). The use of information systems and digital technology allows schools to store, manage and access data and information more quickly and efficiently (Timotheou et al., 2023). This not only has the potential to improve the administrative

efficiency of schools but also opens up opportunities to increase transparency and accountability in education management.

While information technology promises many benefits in school records management, there are still some challenges and issues that need to be addressed. Some of these include data security, privacy policies, training of school staff in the use of technology, and the need for integration of existing systems. Therefore, an in-depth literature research needs to be conducted to understand the extent to which the use of information technology in records management can improve transparency and accountability in school quality assurance in Bekasi district and to identify solutions and best practices that can be applied.

The concept of records management is the main foundation, where the collection, management, storage and maintenance of documents and information are the main concerns. The use of information technology in school records management is an attractive solution in improving the efficiency and accessibility of education data (Kurniawan, 2022). Information systems are an important concept in integrating information technology into records management. Concepts such as databases, data processing and information technology play a major role in understanding how information systems can be used to manage educational information more effectively and efficiently (Kurniawan, 2022).

Education quality assurance is an important cornerstone in understanding how information technology can improve transparency and accountability in school quality assurance (Batizani & Mpundu, 2024). The concepts of educational quality evaluation, monitoring and improvement take center stage in this context, with information technology potentially providing the tools and data needed to measure school performance and plan improvements. By understanding the background of these issues, the literature research will be able to explore the knowledge needed to design an effective records management model to support school quality assurance in the digital era.

RESEARCH METHODS

The type of research conducted is meta-analysis research. Meta analysis is a type of analysis in statistics that is done by combining the results of two or more similar studies for combined quantitative data. The meta-analysis study conducted in this research is to test the effect size of the use of information technology in school archive management. The steps to conduct a meta-analysis study (1) select and study the research topic; (2) collect a number of results with appropriate titles; (3) calculate the effect size; (4) identify effect size heterogeneity; (5) interpret the results and draw conclusions.

Data sources in this study come from scientific literature sources in the form of research articles published in various databases such as science direct, DOAJ and google scholar. Article searches were conducted by visiting the respective websites, namely <https://www.sciencedirect.com/>, <https://doaj.org/>, <https://scholar.google.com/> with the keywords “information technology”, “records management”, “transparency and accountability” and “school quality”.

The population of this study was 52 articles obtained from various sources. Sampling was done using certain constituent random sampling, which is a sampling technique using certain criteria. The sample selection criteria using inclusion and exclusion criteria that have been applied in this study are (1) articles indexed by Sinta, Scopus, and DOAJ; (2) discussing the use of information technology in archive management; (3) articles published from 2018-2023; and (4) articles are not limited to the origin of the author. Based on the results of the selection that has been carried out, 13 articles that meet the requirements for analysis can be seen in the following figure:

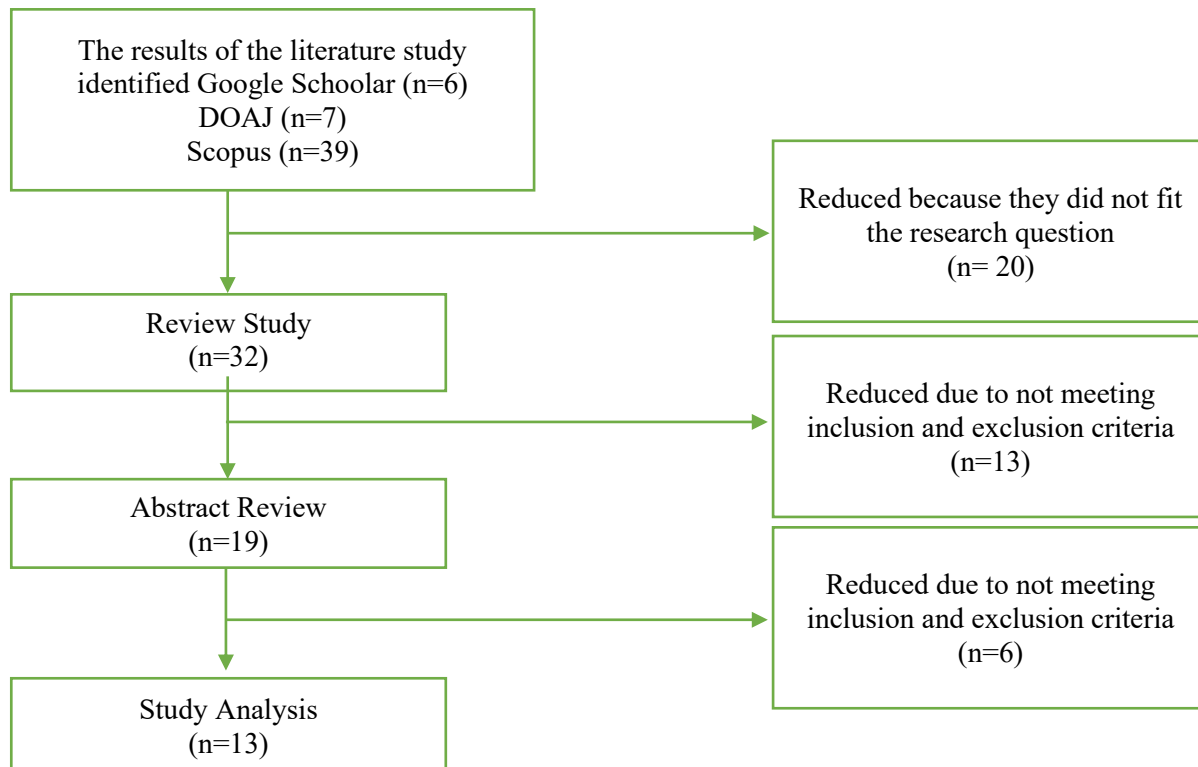


Figure 1. PRISMA Flow Diagram

Data were obtained from various sources, and the stages of data analysis were carried out through (1) identification of research variables. Once found, enter it into the appropriate variable, (2) identify the value in each article analyzed; (3) transform the value to the z distribution which is the effect size of each study, then calculate the variance, (4) calculate the standard error of z, and (5) calculate the summary effect of the entire study.

RESULTS AND DISCUSSION

Result

A meta-analysis study was conducted on 13 articles obtained from Google Scholar, DOAJ and Scopus. A total of 40 articles did not meet the inclusion and exclusion criteria to be analyzed from a total of 52 articles obtained from regarding information technology in archive management. The analyzed studies are presented in table 1 below:

Table 1. Eligible Articles that Underwent Meta-Analysis

N o	Author/ Years	Journal Name	Index of the Journal	Sample Characteristics	Measurement Variable
1	(Nababan, 2020)	Journal of Communication Science	Sinta 2	Broadcasters	Public Information
2	(Marby HS, 2023)	Jurnal Socia Logica	Copernicus	Meteorology station	Archive digitization
3	(Putra, 2022)	Al-Ma'arif: Library	Google and Scholar	PT Semen Padang	Records Management

No	Author/ Years	Journal Name	Index of the Journal	Sample Characteristics	Measurement Variable
Information Science					
4	(Fitry, 2024)	Socius: Jurnal Penelitian Ilmu-Ilmu Sosial	Copernicus	Library Management	Archive Storage
5	(Novianti & Handar Subhandi Bakhtiar, 2024)	International Journal of Engineering Business and Social Science	Copernicus	Medical Record	Electronic Medical Record System
6	(Touray, 2021)	OALib	Web Science	Records management	Records Management
7	(Asnawi et al., 2022)	Environment- Behaviour Proceedings Journal	Web Science	Literature Review	Records Standards Management
8	(Kurniawan , 2022)	Journal on Education	Sinta 5	Literature Review	Information Technology In Improving The Effectiveness Of Education Management
9	(Mulauzi, 2019)	Library and Information Association of Zambia (LIAZ)	Google Scholar	company management	Using Information And Communication Technologies
10	(Sutrisno et al., 2021)	Jurnal Abdimas PLJ	Google Scholar	Administrator	The Role Of Archives In
11	(Rahmatulloh et al., 2019)	Jurnal Teknologi Informasi dan Ilmu Komputer	Sinta	SKPD (Local Government Work Unit) Officers, DISPERPUSK A Officers and Visitors	Archive Management Information System,
12	(Shamsuddin et al., 2020)	Asia-Pacific Journal of Information Technology and Multimedia	DOAJ	Governance and Administration Division (BGP), Universiti Kebangsaan Malaysia	Electronic Records
13	(Nasution et al., 2022)	Jurnal Akuntansi dan Bisnis Krisnadwipayana	Sinta	Educational Institutions,	Digital Payment System Users

Heterogeneity Test Results

The heterogeneity test was conducted to determine the level of heterogeneity of the analyzed studies. The results of the test can be seen in table 2 below:

Table 2: Fixed effects and random effects

	Q	df	p
Omnibus Test of Model Coefficients	42,826	1	< .001
Residual Heterogeneity Test	367,879	37	< .001

Table 2 shows that the effect sizes of the 13 studies analyzed are heterogeneous ($q=185.030$, $p = .001$), where the p-value is 0.05. Thus, the random effects model is more appropriate for estimating the average effect size of the 13 analyzed studies. This indicates that there is potential to investigate moderator variables that influence the relationship between information technology and records management.

Summary Effect Results/Average Effect Size

The summary effect test aims to calculate the level of correlation between information technology and records management based on random effect correlation. The results of the test can be seen in table 3 below:

Table 3. Average Effect Coefficient

95% confidence interval						
	Estimating	Standard Error	Z	P	Lower	Up
Intercept	0.305	0.064	5.501	<0.001	0.363	0.656

Notes. Wald test

Table 3 shows that the results of the analysis using random effects indicate that there is a significant positive correlation between information technology and records management. The relationship between information technology and records management is in the medium category with a random effect correlation = 0.409.

Based on a meta-analysis of 13 articles obtained from Google Scholar, DOAJ, and Scopus on information technology in records management, it was found that the effect sizes of the studies were heterogeneous ($q = 185.030$, $p < 0.001$). This indicates that a random effects model is more appropriate to estimate the average effect size of the 13 studies analyzed. This finding suggests significant variation between studies, hinting at the potential presence of moderator variables affecting the relationship between information technology and records management. Further analysis using a random effects model showed a significant positive correlation between information technology and records management with a random effect correlation of 0.409. This relationship is in the medium category. Overall, this study concludes that the application of information technology has a significant positive contribution to records management. However, the diversity of results between studies suggests the need for further investigation to identify moderator variables that might affect the relationship.

Discussion

The results of this study show that information technology has a significant positive correlation with records management, with a random effect correlation of 0.409, which is in the medium category. This finding is in line with previous studies that confirm that information technology plays an important role in improving the efficiency and effectiveness of records management. For example, a study by (Novianti & Handar Subhandi Bakhtiar, 2024) showed that the implementation of an electronic records system significantly improved the accessibility and integrity of records. Similarly, a study by (Ramírez-Santana et al., 2020) found that the use of information technology in records management facilitates more systematic and structured records management.

However, the heterogeneity found in this meta-analysis ($q = 185.030$, $p < 0.001$) indicates significant variation between studies. This variation could be due to several moderating factors, such as differences in the level of technology adoption, organizational capacity, policies and regulations related to records management, and human resource competence in using information technology. For example, research by (Touray, 2021) suggests that the successful implementation of information technology in records management is strongly influenced by organizational readiness and management support. Another study by (Beisenbayeva et al., 2024) also highlighted the importance of training and skills development for archives staff to ensure information technology can be used effectively.

In addition, the results of this study are also consistent with a study by (Fitry, 2024) which emphasizes that information technology not only contributes to improving operational efficiency, but also to increasing the strategic value of archives as information assets. However, this study adds that the maximum benefits of information technology can only be achieved if there is strong support from all components of the organization and a clear framework for the implementation of the technology.

The heterogeneity in the results also opens up opportunities for further research to identify moderator variables that might influence the relationship between information technology and records management. For example, research could focus on how organizational culture, education and training levels, and policy support affect the effectiveness of information technology implementation in records management.

Overall, this study confirms the importance of information technology in records management and supports previous findings showing that information technology plays an important role in improving the efficiency and effectiveness of records management. However, it also highlights the need for further investigation to understand the factors that influence the successful implementation of information technology in records management, in order to maximize the benefits that can be gained.

CONCLUSIONS

The conclusion of this study shows that information technology has a significant positive contribution to records management, with a random effect correlation of 0.409 which is in the medium category. However, the heterogeneity found indicates significant variation between studies, suggesting the need for further investigation to identify moderator variables that may affect this relationship. These findings are consistent with previous studies that emphasize the importance of information technology in improving the efficiency and effectiveness of records management, but also underscore the need for adequate organizational support and training to ensure successful implementation of such technology.

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