ISSN : 2962-9195 E-ISSN : 2963-8992

Journal of Educational Management Research
Vol. 05 No. 04 (2026) : 4027-4041-
Available online at https://serambi.org/index.php/jemr

Development of a Microsoft Access-Based Mail Automation System to Improve Student Digital Administration

Atika Salma*, Dyah Aulia Rahma, Farida Fatkhur Rohmah, Fitrotul Awaliyah, Hibatullah 'Aqil Syahrizal, Nina Farliana
Universitas Negeri Semarang, Indonesia
Email : atikasalma@students.unnes.ac.id

DOI: https://doi.org/10.61987/jemr.v5i4.2545

Keywords:
Mail Automation;
Microsoft Access;
Digital Administration;
Digital Competence

**Corresponding Author*

ABSTRACT

This study aims to develop and evaluate a Microsoft Access-based mail automation system to improve administrative efficiency and students' digital administration competence. The research employed a Research and Development (R&D) approach adapted from the Borg and Gall model, consisting of needs analysis, product design, expert validation, limited testing, field testing, implementation, and evaluation stages. Data were collected through questionnaires, expert validation sheets, and competency assessments administered before and after system implementation. The results indicated that the developed system was categorized as highly feasible based on expert evaluations in archive management and information technology. Furthermore, students' digital administration competence increased from a pretest mean score of 3.05 to a posttest mean score of 4.45. Statistical analysis revealed a significant effect of system utilization on competency improvement, with an R^2 value of 0.512 and $p < 0.0001$. The system also contributed to reducing administrative errors, accelerating correspondence processes, and improving document organization. These findings imply that mail automation systems can support digital transformation initiatives by strengthening administrative efficiency, technological literacy, and digital competence within student organizations and other educational administrative environments.

Article History:
Received: March 2026; Revised: April 2026; Accepted: May 2026

Please cite this article in APA style as:
Salma, A., Rahma, D. A., Rohmah, F. F., Awaliyah, F., Syahrizal, H. A., & Farliana, N. (2026). Development of a Microsoft Access-Based Mail Automation System to Improve Student Digital Administration. *Journal of Educational Management Research*, *5*(4), 4027-4041.

INTRODUCTION

Digital transformation has significantly reshaped administrative practices in educational and organizational contexts, requiring individuals to possess strong technological competencies in managing data and documentation. In student organizations such as Scouts, administrative tasks including correspondence, reporting, and archiving are essential for maintaining

organizational efficiency and accountability. However, many students still rely on manual or semi-digital methods, leading to inefficiencies, duplication of documents, and administrative delays. If this condition is not addressed, organizations may experience declining productivity, poor document traceability, and reduced professionalism in student governance. Studies show that digital administrative systems significantly improve efficiency and reduce workload in educational institutions (Febrianto & Nurwaqiah, 2023; Sari et al., 2024). Similarly, the integration of information systems in educational administration enhances service quality and operational accuracy (Jaya et al., 2026; Nasution et al., 2025). Therefore, strengthening students' digital administrative capacity is socially urgent to support effective organizational performance in higher education environments.

This research is grounded in Information Systems theory, which explains how technology is used to collect, process, store, and distribute information efficiently within organizational processes (Laudon & Laudon, 2020). Information systems in education are designed to enhance decision-making, improve workflow efficiency, and reduce manual errors. Microsoft Access, as a database management system, supports structured data processing and automation of administrative tasks such as correspondence and archiving. Its use aligns with the concept of digital administration systems that integrate database technology with organizational workflows (Abubakar, 2023; Asqia, 2023). Furthermore, research highlights that digital tools in administrative environments improve operational efficiency and reduce workload complexity (Khan et al., 2025; Liu, 2024). The conceptual foundation of this study emphasizes that the integration of Microsoft Access-based systems can bridge the gap between traditional administrative practices and modern digital requirements, particularly in student organizational contexts requiring structured and efficient data management systems.

In practice, many student organizations still face significant challenges in managing administrative activities effectively. Correspondence processes are often conducted using basic word processing software without structured database integration, resulting in inconsistent document formats, difficulty in archiving, and high risk of duplication. In Scout student organizations, these issues become more apparent due to frequent organizational communication and reporting demands. Manual systems also slow down document retrieval and reduce accountability in administrative processes. Similar findings are reported in educational institutions where lack of integrated systems leads to inefficiencies in archive management (Mahardi et al., 2024; Pasaribu, 2022). Moreover,

institutions without digital correspondence systems often experience delays in administrative services and poor data organization (Habibah & Setiawan, 2025; Sembiring, 2025). This gap between ideal administrative standards and actual practice highlights the need for a more structured, automated, and technology-based correspondence management system within student organizations.

The development of a Microsoft Access-based mail automation system is necessary to address inefficiencies in current manual administrative practices. Existing solutions, such as basic word processors or simple spreadsheets, are limited in their ability to manage structured data, automate workflows, and ensure consistency in document archiving. These limitations often result in repetitive tasks, human errors, and lack of integration between administrative processes. Studies indicate that digital archive systems significantly improve administrative efficiency and reduce workload in educational institutions (Fatihah et al., 2024; Nugraha et al., 2023). Furthermore, electronic systems based on Microsoft Access have been proven effective in improving data organization and retrieval speed (Trirahayu et al., 2022; Putri & Pahlevi, 2023). Therefore, developing an automated system tailored to student organizational needs is essential to enhance productivity, improve accuracy, and support sustainable digital transformation in educational administration.

Previous studies have extensively explored digital administration systems, particularly in the context of electronic archives and student information systems. Research shows that web-based and database-driven systems improve efficiency in correspondence management and administrative workflows (Mulyo, 2021; Nugraha et al., 2023). Other studies highlight the effectiveness of Microsoft Access in educational settings for improving documentation and learning media (Wulandari et al., 2020; Putri & Pahlevi, 2023). However, most existing research focuses on institutional-level systems such as schools, universities, or government offices, rather than student organizations. Additionally, limited studies integrate mail automation specifically designed for extracurricular organizations like Scouts. Although digital transformation in education has been widely discussed, gaps remain in the development of simple, user-friendly systems tailored for student administrative competencies (Saputra et al., 2024; Liu et al., 2025). This gap indicates the need for a more contextualized and accessible system development approach.

The current development of educational administration systems has largely focused on web-based platforms, cloud computing, and large-scale institutional databases. However, these systems often require complex infrastructure and advanced technical skills, making them less suitable for student-level organizational use. The novelty of this research lies in the

development of a lightweight, user-friendly Microsoft Access-based mail automation system specifically designed for student Scout organizations. Unlike previous systems that emphasize institutional scalability, this product focuses on accessibility, simplicity, and direct applicability for students with limited technical experience. It integrates automated correspondence templates, structured database storage, and simplified archiving functions in a single platform. This approach enables students to independently manage administrative tasks without relying on complex external systems. The innovation emphasizes practical usability and educational empowerment through digital administrative competence development at the student organization level.

This study addresses the problem of low digital administrative competence among student organization members, particularly in managing correspondence efficiently and systematically. The absence of an integrated and user-friendly system leads to inefficiencies, document mismanagement, and reduced organizational productivity. Therefore, this research proposes the development of a Microsoft Access-based mail automation system as a practical solution to improve administrative effectiveness. The main objective is to design, develop, and validate the system to determine its effectiveness in enhancing students' digital administrative skills. Additionally, the study aims to evaluate the practicality and usability of the system within Scout organizational activities. The expected outcome is a validated product that can improve efficiency, accuracy, and professionalism in student administration while serving as a model for digital transformation in extracurricular educational environments.

RESEARCH METHODS

This study uses a Research and Development (R&D) approach guided by theory (Gall, Borg, & Gall, 2007), which is then analyzed using a quantitative approach through simple regression analysis. This research is built on information system theory (Laudon & Laudon, 2020) with the main focus on the development and testing of a Microsoft Access-based mail automation system to improve the digital administrative competence of students who are members of the Scout student institution (Gugus Latih) of the Faculty of Economics and Business, State University of Semarang (FEB UNNES). The design of this research is focused on producing products in the form of an integrated digital correspondence system and user guide modules that are valid, practical, and effective in improving students' digital administration competencies.

The subjects of this study are students who are members of the Scout student organization of the FEB UNNES Training Group as many as 40 people. They were chosen because they are one of the student institutions that involve

many administrative activities as a holistic action, so they are relevant as direct users of the developed system. The object of this research is in the form of a Microsoft Access-based mail automation system developed to support organizational administrative activities, such as making incoming and outgoing letters, managing recipient data, and archiving digital documents in a structured and efficient manner.

The data in this study was collected using three main techniques, namely interviews, observations, and questionnaires. Interviews were used to gather information on various problems faced by students in the use of Microsoft Access-based mail automation. The observation technique with instruments is in the form of a list of questions to find out various problems that arise in the use of Microsoft Access-based mail automation. Questionnaire technique with instruments in the form of questionnaires, to gather expert and user opinions on the quality of using Microsoft Access-based mail automation.

This research procedure includes data collection, designing a mail automation program or database, developing a mail automation program, expert validation in the field of archive management and information communication, revision based on expert validation results, limited implementation trials, limited implementation trial revisions, field use trials, and program implementation and dissemination. The results of this stage are in the form of the final product of a Microsoft Access-based mail automation system and a user guide module, which is then implemented in the administrative activities of the student organization. This research process involves the development and validation of a Microsoft Access-based mail automation system using the Research and Development (RnD) approach, then analyzed using a quantitative approach with simple regression analysis with the aim of testing whether the use of the system can affect students' digital administration competencies.

RESULTS AND DISCUSSION

Results

The process of developing a Microsoft Access-based mail automation system refers to the Research and Development stages of Borg and gall

Data collection

The first step was taken by identifying the needs and administrative problems experienced by the FEB UNNES Scout student organization. Data collection was carried out by interviewing office administration lecturers to find out the correct standard of correspondence procedures and distributing questionnaires to students to measure initial digital administration competence. The results of data collection show several main problems, including: 51.8% of students do not understand or use Microsoft Access as a tool to improve work

efficiency, the process of making letters carried out manually often causes errors in writing letters, duplication of work and format inconsistencies still often occur because the FEB UNNES Scout organization has several types of letterheads with different usage limitations, In addition, delays in searching for documents are due to an unstructured archive system.

Designing a mail automation program or database

The next stage is to design the content of the program or database and develop a presentation format that suits the needs of the Scout organization. The database is named "SIPANDA" Data Archiving Information System. The design of the database contains incoming and outgoing mail forms, Automatic mail generation with the type of template needed, Mail recipient database that is directly connected to the template, and Report menu, which automatically summarizes administrative activities within a given period.

Developing a mail automation program

This development stage represents the implementation of the designed mail automation system into the Microsoft Access application. The system development begins with structuring the database design, including table creation, input forms, and automatic letter templates. These components are developed based on the workflow of the FEB UNNES Scout organization to ensure contextual relevance and operational suitability. Each module is integrated using principles of digital records management to enhance efficiency, accuracy, and consistency in administrative processes. In addition, a user guidance module is included to support step-by-step system operation for end users. The complete architecture of the developed system is illustrated in Figure 1, which presents the "SIPANDA" automation system as the main product of this development stage.

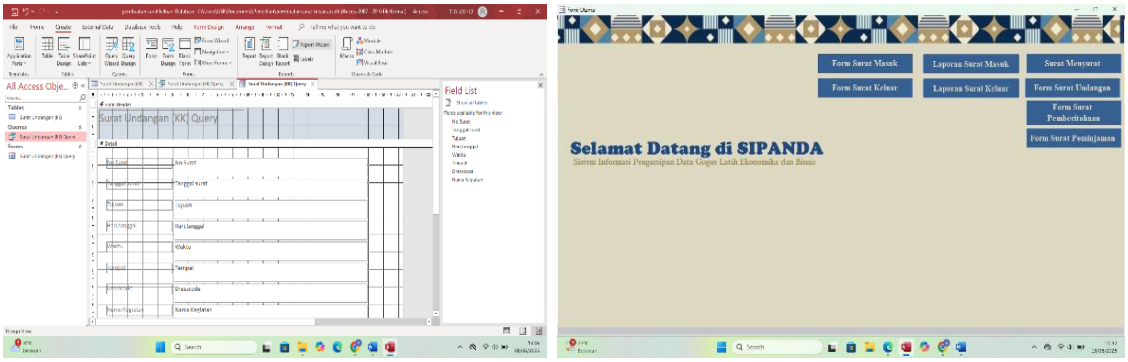

Figure 1. "SIPANDA" Automation System

Expert validation in the field of archive management and information communication

This stage involves expert validation to evaluate the feasibility of the developed system. Two validators from the fields of archive management and information technology assessed the system based on usability, functionality, and administrative relevance. The results show that the archive management expert provided an average score of 3.80, while the information technology expert gave a score of 3.85 out of 4.00. These results indicate that the system is categorized as "very feasible" for implementation. The detailed validation outcomes are presented in Table 1 [Table 1], which summarizes expert assessments across different evaluation aspects. The findings confirm that the system meets both administrative and technical requirements for practical use in student organizational environments.

Table 1. Expert Validation Results

Validation Aspects	Average (0-4)	Category	Notes
Archives Management Expert	3,80	Highly Worth It	Addition of smart search to the incoming mail form menu
Information Technology Expert	3,85	Highly Worth It	Display optimization

Revision of validation results

This stage is the stage of improving the program based on input from the expert validation stage. The first revision was carried out after validation by an archive management expert who suggested adding a search feature to the incoming mail report. This improvement aims to make it easier for users to search for documents quickly, accurately and efficiently.

The second revision is carried out after validation by information technology experts. The feedback received includes improving the display to be more user-friendly so that the operation of the system is more efficient and fast and the administration can run optimally.

Limited implementation trials

The limited trial stage is the implementation and testing of the effectiveness of a Microsoft Access-based mail automation system that has been considered feasible by experts. The limited trial stage was carried out on 10 members of the FEB UNNES Scout organization to find out the extent of the ease of use of the system, the clarity of the function of the features and the technical obstacles that still occur. The results of the trial were limited, showing that 86.67% of members stated that the automation system was easy to use, and 90% stated

that the automation system could help in the administration process faster. Some of the obstacles identified are that there is an error menu when opened so that improvements need to be made.

Implementation test revision

During the limited trial, Scout members provided feedback regarding the ease and efficiency of using the automation system. During the limited trial, there are menus that cannot be used. In response to this, technical revisions are carried out by repairing the automation system that has been created and looking for the cause of the problem. Revisions were made to ensure that the system was more stable and ready to be tested on larger groups.

Field use trials

The field test was carried out on 40 members of the FEB UNNES Scouts. Measurements were conducted using questionnaires with an ordinal scale of 1–5 through a digital administration competency instrument covering aspects of software operation skills, digital administrative data management, and system utilization effectiveness. The pretest results indicated an average score of 3.05 (medium category), while the posttest results increased to 4.45 (high category). The average increase of 1.40 points demonstrates a positive impact of the automation system on improving students' digital administrative competencies. A detailed comparison of the pretest and posttest results is presented in Table 2.

Table 2. Comparison of Pretest and Posttest Scores of Administrative Digital Competency

Test stage	Number of respondents	Average score of the category	Improvement
Pretest	40	3.05 (Medium)	
Postest	40	4.45 (High)	+1,40

The paired sample t-test analysis was conducted to determine the significance of the increase in digital administration competence before and after the use of the automation system. The test results showed a t-count value of 18.45 with a p-value < 0.001, indicating a statistically significant difference between the pretest and posttest scores. This finding confirms that the use of the mail automation system contributes significantly to improving students' digital administration competencies. The complete statistical results are shown in Table 3.

Table 3. Hasil Uji Paired Sample T-Test

Variabel	t-Count	p-Value	Improvement
Pretest-Postest	18,45	3.05 (medium)	There was a significant increase in scores before and after the use of the automation system

Furthermore, tests were conducted to ensure the validity and reliability of the digital administration competency instrument. The Cronbach's Alpha value was 0.902, indicating excellent internal consistency. The content validity of the instrument was verified through expert judgment, resulting in a Content Validity Index (CVI) of 0.94, which demonstrates that the instrument items are relevant and representative. Therefore, the instrument can be considered reliable and valid for measuring digital administration competence. The detailed validity and reliability results can be seen in Table 4.

Table 4. Results of Validity and Reliability Test

Types of Value Tests	Value	Criteria	Remarks
Cronbach's Alpha	0,902	≥ 0.70	Excellent reliability
CVI (Content Validity Index)	0,94	≥ 0.80	The validity of the content is very high

Furthermore, a simple regression analysis was conducted to examine the influence of the mail automation system on students' digital administration competencies. The analysis produced an R^2 value of 0.512, indicating that 51.2% of the variation in students' digital administration competence improvement was explained by the use of the Microsoft Access-based mail automation system, while the remaining 48.8% was influenced by other factors. The p-value of < 0.0001 indicates a statistically significant effect. The complete regression analysis results are presented in Table 5.

The results of this study answer the main question that the use of a Microsoft Access-based mail automation system is effective in improving the digital administration competence of FEB UNNES Scout students. In addition, the implementation of the system also improves students' ability to think systematically, understand digital workflows, and reduce administrative errors that previously often occurred in manual systems.

Table 5. Results of Simple Regression Analysis

Models	Koefesien (B)	R-Square	P-Value	Interpretasi
Use of the system – digital administration competencies	0,75	0,512	<0.0001	Every 1-point increase in the system quality score increases digital administration competence by 0.75 points

Program implementation and dissemination

After the mail automation system was declared feasible by experts and successfully passed both limited and field trials, the system was fully implemented in the administrative activities of the FEB UNNES Scouts, including letter preparation, document archiving, and incoming and outgoing mail reporting. This implementation aimed to ensure that the system functioned as the organization's official administrative tool. During implementation, the system proved effective in accelerating work processes, reducing typographical errors, and improving archive organization. The positive impact of the system is reflected in the increased digital administration competence of students directly involved in correspondence activities, as evidenced by the findings presented in Table 2, Table 3, and Table 5. Furthermore, dissemination activities were conducted to expand product utilization through internal organizational socialization, system usage training, and the distribution of digital user guidelines to encourage adoption among student organizations.

Discussion

This study successfully developed a Microsoft Access-based mail automation system using the Borg and Gall development model and demonstrated its effectiveness in improving the digital administration competence of Scout students at FEB UNNES. The expert validation results categorized the system as highly feasible, while field testing indicated a substantial increase in students' digital administration competency scores after using the system. These findings suggest that integrating database-based administrative systems into student organizations can enhance administrative efficiency, accuracy, and consistency. Similar findings have been reported by Abubakar (2023) and Khan et al. (2025), who found that information systems significantly improve data management processes and administrative performance through structured digital workflows. Likewise, Jaya et al. (2026) and Nasution et al. (2025) emphasized that digital transformation in educational administration contributes positively to organizational effectiveness and operational quality.

The effectiveness of the developed system can be explained through Information Systems Theory, which argues that information technology enhances organizational performance by supporting data processing, storage, retrieval, and communication activities. The Microsoft Access-based system developed in this study integrates correspondence management, document archiving, and database functions into a single platform, thereby reducing repetitive tasks and administrative errors. These results are consistent with previous studies demonstrating that digital archive and correspondence systems

improve efficiency and streamline administrative operations in educational institutions (Imaniyati et al., 2025; Liu et al., 2025). Furthermore, Habibah and Setiawan (2025) as well as Labibah et al. (2025) reported that structured digital archive management systems facilitate document retrieval and improve administrative accountability, supporting the findings of the present study.

Another important finding is that the automation system contributed not only to administrative efficiency but also to the development of students' digital competencies. Through direct interaction with database management, automated templates, and electronic archiving features, students gained practical experience in operating digital administrative systems. This finding supports previous research indicating that technology integration enhances digital literacy and operational competencies among learners (Ahmad et al., 2024; Kusnadi et al., 2025). Similarly, Chugh et al. (2023) and Hakiki et al. (2023) highlighted that educational technology implementation promotes technological adaptability and improves users' ability to perform technology-based tasks. Therefore, the system functions not only as an administrative tool but also as a learning medium that strengthens students' readiness for increasingly digitalized workplaces.

The contribution of this research lies in expanding the application of information systems beyond institutional administration into the context of student organizations. Most previous studies focused on archive management systems in schools, universities, government agencies, or corporate environments (Fatihah et al., 2024; Sembiring, 2025). Other studies concentrated on electronic archive learning media and institutional correspondence systems (Jannah et al., 2024; Trina et al., 2025). In contrast, this study demonstrates that a mail automation system can be effectively adapted to support administrative activities in student organizations while simultaneously improving users' digital administrative competence. Consequently, the study contributes both practically and academically by providing an alternative model for integrating digital administration systems into extracurricular and organizational learning environments.

The novelty of this research is reflected in the development of a lightweight and user-friendly Microsoft Access-based mail automation system specifically designed for Scout student organizations. Unlike previous systems that primarily emphasized institutional record management, correspondence administration, or digital archiving, the developed product combines automated correspondence generation, database management, digital archiving, and competency development within a single integrated platform. The system was also designed to match the administrative workflow of student organizations, making it more accessible and applicable than large-scale institutional systems. Therefore, this study offers a new perspective on how administrative automation

can simultaneously function as an operational solution and as a medium for developing digital competencies among university students in organizational settings.

CONCLUSION

This study demonstrates that the development of a Microsoft Access-based mail automation system is effective in improving the digital administration competence of Scout students, as evidenced by the substantial increase in competency scores and the significant influence of system utilization on students' administrative performance. The most important lesson learned from this research is that a simple and accessible database-based automation system can not only improve administrative efficiency and accuracy but also foster technological literacy, systematic thinking, and digital work skills among university students. From an academic perspective, this study contributes to the field of educational administration and information systems by providing an innovative model that integrates correspondence automation, digital archiving, and competency development within a student organizational setting. The novelty of the study lies in the development of a Microsoft Access-based mail automation system specifically designed to enhance students' digital administrative competence through a Research and Development approach. Nevertheless, this research has several limitations, including the short implementation period, the limited scope of testing within a single student organization, and the focus on only one outcome variable, namely digital administration competence. Therefore, future studies are recommended to conduct long-term evaluations, implement the system in diverse organizational contexts, and examine additional variables such as user satisfaction, organizational effectiveness, technology acceptance, and digital literacy to provide broader generalizability and deeper insights into the effectiveness of administrative automation systems.

ACKNOWLEDGMENTS

The author would like to thank the Institute for Research and Community Service (LPPM) of Universitas Negeri Semarang for trusting the author to carry out this research with DPA number 139.032.693449/2025.01.

REFERENCES

Abubakar. (2023). Development of an Information System for Student Data Management at Mts.S Krueng Seumideun, Pidie Regency. *Journal Dekstop Application (JDA)*. https://doi.org/10.59431/jda.v2i2.522

Ahmad, I. F., Setiawati, F. A., Prihatin, R. P., & Fitriyah, Q. F. (2024). Technology-Based Learning Effect on the Learning Outcomes of Indonesian Students: A Meta-Analysis. *International Journal of Evaluation and Research in Education, 13*(2). https://doi.org/10.11591/ijere.v13i2.25383

Asqia, M. (2023). Development of a Web-Based Correspondence Information System to Enhance Administrative Services in Higher Education. *The Indonesian Journal of Computer Science, 12*(6). https://doi.org/10.33022/ijcs.v12i6.3521

Chugh, R., Turnbull, D., Cowling, M. A., Vanderburg, R., & Vanderburg, M. A. (2023). Implementing Educational Technology in Higher Education Institutions: A Review of Technologies, Stakeholder Perceptions, Frameworks and Metrics. *Education and Information Technologies, 28*(12), 16403–16429. https://doi.org/10.1007/s10639-023-11846-x

Fatihah, N. R., Natasyah, S., Iswandi, R. N., Zhafira, R. N., & Nasution, D. (2024). Design and Building of Web-Based Letter Archives Management in the Medan Mayor's Office. *Journal of Information Technology, Computer Science and Electrical Engineering, 1*(1), 61–69.

Febrianto, A. S., & Nurwaqiah, P. (2023). Pemanfaatan Sistem Otomatisasi Kantor dalam Menunjang Efektivitas Kinerja Karyawan pada PT Kereta Api Indonesia Persero. *Coopetition: Jurnal Ilmiah Manajemen, 14*(2). https://doi.org/10.32670/coopetition.v14i2.3218

Gall, M. D., Borg, W. R., & Gall, J. P. (2007). *Educational Research: An Introduction* (8th ed.). Pearson.

Habibah, A. N., & Setiawan, H. (2025). Implementasi Manajemen Sistem Informasi Kearsipan Surat Masuk dan Surat Keluar di SMA Bina Muda Cicalengka. *Shaut Al-Maktabah: Jurnal Perpustakaan, Arsip dan Dokumentasi.* https://doi.org/10.37108/shaut.v17i1.1826

Hakiki, M., Surjono, H. D., Fadli, R., Budiman, R. D. A., Ramadhani, W., Habibie, Z. R., Suhardiman, S., & Hidayah, Y. (2023). Enhancing Practicality of Web-Based Mobile Learning in Operating System Course: A Developmental Study. *International Journal of Interactive Mobile Technologies, 17*(19). https://doi.org/10.3991/ijim.v17i19.42389

Imaniyati, N., Sobandi, A., & Adman, A. (2025). Optimizing Electronic Archive Management Through Information and Communication Technology for Educational SDGs Advancement. *Jurnal Cakrawala Pendidikan, 44*(3), 714–729. https://doi.org/10.21831/cp.v44i3.88764

Jannah, K., Wulandari, S. S., & Hariyati, H. (2024). Development of an Electronic Archive System Application (STAR App) as Archival Learning Media at IPIEMS Vocational High School Surabaya City. *Electronic Journal of Education, Social Economics and Technology, 5*(2), 35–43. https://doi.org/10.33122/ejeset.v5i2.224

Jaya, M. Y. R., Tuala, R. P., Putri, D. C., & Alamsyah, Y. A. (2026). Digital Transformation in School Administration: Enhancing Correspondence and Archival Systems. *Journal of Educational Management Research, 5*(4), 3836–3848.

Khan, N. A., Rashid, K. A., Siddiqi, A. M. U., Khalid, M. N., Ahmed, M., & Hamdaoui, R. (2025). Development of Intelligent Student Information System. *Asian Journal of Basic Science & Research, 7*(1), 1–9. https://doi.org/10.38177/AJBSR.2025.7101

Kusnadi, K., Hatta, M., Brotosaputro, G., Amri, A., & Harris, S. (2025). Information Technology and Its Impact on Modern Classroom Dynamics: A Computer Science Perspective. *Aptisi Transactions on Technopreneurship, 7*(1), 282–293. https://doi.org/10.34306/att.v7i1.523

Labibah, L., Qomaruddin, Q., Ahmad, N. F., & Mahfudloh, R. I. (2025). Digital-Based Management of Incoming and Outgoing Mail Archiving at Educational Institution. *Mudir: Jurnal Manajemen Pendidikan, 7*(2), 339–343. https://doi.org/10.55352/mudir.v7i2.1735

Laudon, K. C., & Laudon, J. P. (2020). *Management Information Systems: Managing the Digital Firm* (16th ed.). Pearson.

Lestari, D. D., Ika, N., Ningsih, R., Sopiah, S., & Rahayu, S. D. (2022). Optimalisasi E-Arsip Berbasis Microsoft Access pada Masa Pandemi Covid-19. *Jurnal Pendidikan Manajemen Perkantoran, 7*(2). https://doi.org/10.17509/jpm.v7i2.47052

Liu, C. (2024). Automating Student Assessment Using Digital Data to Improve Education Management Effectiveness in Higher Education Institutions. *Education and Information Technologies, 29*(2), 1885–1901. https://doi.org/10.1007/s10639-023-11898-z

Liu, T., Luo, Y. T., Pang, P. C.-I., & Kan, H. Y. (2025). Exploring the Impact of Information and Communication Technology on Educational Administration: A Systematic Scoping Review. *Education Sciences, 15*(9), 1114. https://doi.org/10.3390/educsci15091114

Mahardi, T. A., Kriatiadi, D. D. P., Setiawan, Y. A., & Albar, F. M. (2024). Perancangan Sistem Informasi Surat Menyurat Berbasis Web pada Kampus STMIK Kuwera. *Jurnal Sistem Informasi dan Teknologi (Sintek), 4*(1), 19–25. https://doi.org/10.56995/sintek.v1i4.65

Mulyo, B. M. (2021). Implementation of Management Information System Website-Based Letter Archives. *JEECS (Journal of Electrical Engineering and Computer Sciences), 6*(1), 963–968. https://doi.org/10.54732/jeecs.v6i1.184

Nasution, S. D. K., Karnati, N., & Rugaiyah, R. (2025). School Administration Transformation: Improving the Performance of Principals, Administrators, and Science Teachers With a Management Information

System (SIMA) Model. *Jurnal Ilmiah Ilmu Terapan Universitas Jambi, 9*(1), 36–52. https://doi.org/10.22437/jiituj.v9i1.38739

Nugraha, M. F., Sulistiani, Y., & Rahayu, A. (2023). Design and Build of an Information System for Management of Incoming and Outgoing Mail Archives Based on a Website at the Bandung Subdivre Logistics Affairs Agency (BULOG). *International Journal of Research in Community Services, 4*(4), 153–164. https://doi.org/10.46336/ijrcs.v4i4.510

Pasaribu, A. (2022). *Perancangan Sistem Informasi Surat Masuk dan Keluar di Dinas Perumahan dan Kawasan Permukiman Berbasis Web dan Menggunakan PHP dan MySQL* [Undergraduate thesis]. Universitas Pembangunan Panca Budi. http://eprints.pancabudi.ac.id/id/eprint/47

Putri, F. N., & Pahlevi, T. (2023). Developing Microsoft Access-Based E-Siska Learning Media for Vocational High School Students. *Jurnal Pendidikan Administrasi Perkantoran (JPAP), 11*(3), 147–159.

Saputra, D., Silvana, H., & Khoerunnisa, L. (2024). Advantages and Disadvantages of Technological Implementation in Archive Systems. *Record and Library Journal, 10*(2), 388–412. https://doi.org/10.20473/rlj.V10-I2.2024.388-412

Sari, R. Y., Subandi, A., & Irsyad, I. (2024). Pengaruh Penggunaan Sistem Informasi Manajemen Berbasis Digital terhadap Efisiensi Administrasi Pendidikan. *Academy of Social Science and Global Citizenship Journal, 4*(1), 21–29. https://doi.org/10.47200/aossagcj.v4i1.2389

Sembiring, E. (2025). Implementation of the Incoming and Outgoing Mail Management Information System Application at STMIK Neumann Indonesia. *Jurnal Komputer Teknologi Informasi Sistem Informasi (JUKTISI), 4*(2), 751–758. https://doi.org/10.62712/juktisi.v4i2.519

Trina, A. S., Faslah, R., & Adha, M. A. (2025). Electronic Archive Learning Media Based on PHPRAD on Digital Archiving Material. *Jurnal Pendidikan Ekonomi, Perkantoran, dan Akuntansi, 6*(1), 203–213. https://doi.org/10.21009/jpepa.0601.18

Trirahayu, Y. E., Sumartiningsih, S., & Laksito, W. (2022). Development of Microsoft Access-Based Electronic Records Management Information System (E-Archives) in Postgraduate. *Educational Management, 11*(2), 307–323.

Wulandari, D. A., Agustina, Y., Nurabadi, A., Andriningrum, H., Putri, A. F., Amelia, T., Harisman, A. S. M., & Zahro, Z. R. (2020). Development of Microsoft Access-Based E-Archive Learning Media Applications on Archival Subjects for 10th Grade Office Administration Students. In *Proceedings of the 1st International Conference on Information Technology and Education (ICITE 2020)* (pp. 186–191). Atlantis Press. https://doi.org/10.2991/assehr.k.201214.234