

Optimizing School Financial Management through the School Financial Management Information System (SIMKEU-EDU)

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ABSTRACT

This study aims to analyze and optimize school financial management through the implementation of the School Financial Management Information System (SIMKEU-EDU) as a solution to inefficiencies in manual financial administration at SDK Manahan Surakarta. The research employs a mixed-method approach combining qualitative and quantitative analyses. Qualitative data were obtained through observation, interviews, and document analysis using triangulation, while quantitative data were used to measure the validity, effectiveness, and practicality of the system. The qualitative findings reveal that manual financial recording is prone to human error, data duplication, and delays in reporting, making financial monitoring and accountability difficult. In contrast, the SIMKEU-EDU system enables digital recording, automatic transaction tracking, and real-time financial reporting, significantly reducing administrative errors and time inefficiencies. Quantitative analysis demonstrates high system validity with an average score of 92.4%, high effectiveness shown by a 45% reduction in transaction processing time and a 60% increase in reporting accuracy, and strong practicality indicated by 90% user satisfaction among school administrators. The study concludes that SIMKEU-EDU is valid, effective, and practical for optimizing financial management, supporting digital transformation, and improving governance in school administration.

Keywords: School Financial Management; SIMKEU-EDU; Digital Transformation; Efficiency; Transparency; Accountability; Educational Finance System

INTRODUCTION

Effective and efficient financial management is a key element in ensuring the quality of educational services in schools. Good financial management includes planning, organizing, implementing, and supervising financial resources to achieve educational goals optimally. However, many schools still face challenges in managing finances transparently and accountably, which can negatively affect the quality of education provided.

One of the main problems in school financial management is the reliance on manual systems that are prone to errors and misuse. Manual recording of financial transactions is not only time-consuming but also increases the risk of data loss or corruption. Previous studies indicate that the use of manual systems in financial management can lead to inefficiency and limited transparency in financial reporting (Komariah, 2018; Sanoto, 2021).

To overcome these problems, it is necessary to implement a School Financial Management Information System (SIMKEU-EDU) based on information technology. This system is designed to facilitate financial transactions and the management of school financial data more efficiently and effectively. By using appropriate system development methods, such as the waterfall model and UML diagrams, SIMKEU-EDU can assist school finance departments in conducting transactions and managing financial data in a more structured manner (Aminuddin et al., 2023; Abidin et al., 2023).

The implementation of SIMKEU-EDU can also increase transparency and accountability in school financial management. With an integrated system, information related to income and expenditure can be accessed in real time by relevant stakeholders, including school administrators and parents. This is consistent with financial management principles emphasizing transparency, accountability, and public participation in the management of educational funds (Gaspar et al., 2023; Sihombing, 2024).

In addition, SIMKEU-EDU can support more accurate budget planning and stronger financial control. Digitally stored financial data allows financial analysis to be conducted more easily and quickly, enabling school management to make better decisions regarding financial resource allocation. Studies show that web-based financial information systems can minimize the risk of data loss and financial mismanagement while improving the accuracy of financial reporting (Hardiyanto et al., 2023; Marcella & Putri, 2024; Kamaludin, 2023).

The implementation of SIMKEU-EDU is also aligned with government efforts to improve financial governance in the education sector. The use of information technology in financial management systems has been encouraged to strengthen monitoring, reporting, and accountability of educational budgets (Hastuti & Fitriani, 2024; Nugroho et al., 2023).

However, the implementation of SIMKEU-EDU is not without challenges. Some schools may face limitations in technological infrastructure and human resources capable of operating digital systems. Therefore, training and socialization programs regarding the use of SIMKEU-EDU are essential to ensure effective implementation and to maximize the benefits of technology-based financial management.

Overall, optimizing school financial management through the implementation of SIMKEU-EDU represents a strategic effort to enhance efficiency, transparency, and accountability in managing educational funds. Through an integrated digital system, schools are expected to manage financial resources more effectively, support improvements in educational quality, and meet the expectations of stakeholders in the education sector (Widodo et al., 2023; Marginingsih et al., 2025; Setiawan & Sudarti, 2025).

The problem-solving approach in optimizing school financial management through the School Financial Management System (SIMKEU-EDU) is carried out through four main strategies. First, digitization of the school financial system is implemented to replace manual recording, reduce the risk of errors, and improve the accuracy and efficiency of financial reporting. Second, the system is designed to be standardized and integrated, covering modules for budget planning, transaction recording, and automated reporting accessible to authorized stakeholders.

Third, human resource competencies are strengthened through training programs for administrative staff and school principals in operating technology-based financial

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systems. Fourth, financial security and transparency are enhanced through data encryption, user authentication, and controlled access mechanisms. Through these strategies, SIMKEU-EDU is expected to improve efficiency, accountability, and transparency in school financial management sustainably.

Based on the background described above, the problems examined in this study are: (1) How is the current school financial management system implemented at SDK Manahan Surakarta? (2) How valid and reliable is the system in ensuring the optimization of school financial management through the School Financial Management System (SIMKEU-EDU)? (3) How effective is the implementation of SIMKEU-EDU in optimizing school financial management? and (4) How practical is the implementation of SIMKEU-EDU in supporting school financial management?

METHOD

The method used in this study is a mixed research method with a sequential exploratory model. Sequential Exploratory was chosen because qualitative research was conducted first and dominated the research design. The first stage began with a preliminary study with qualitative analysis related to the school financial management process, obstacles in school financial management, and the impact of the current school management system. This study focuses on the implementation of financial management in private schools in Surakarta City, thereby providing a picture of the current situation. The results of the initial analysis form the basis for the development of the School Financial Management System (SIMKEU-EDU). The objectives of the system development are to improve performance efficiency, optimize performance, and ensure transparency in financial management so that detailed financial reports can be accessed in real time and are accountable, using accounting standards.

The second stage is a quantitative analysis to measure the effectiveness of the School Financial Management System (SIMKEU-EDU). The research scheme is illustrated in the following chart:

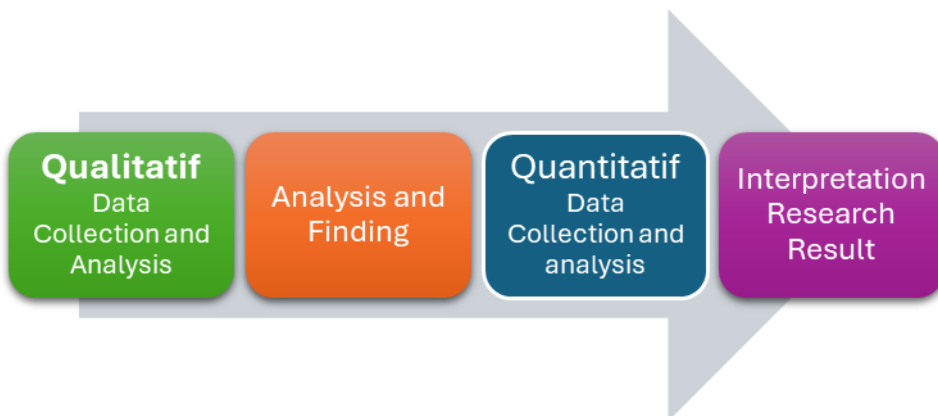


Figure 3. Stages of Exploratory Sequential Mixed Method Research

Based on the above stages, it can be explained that this research begins with qualitative findings related to existing conditions, including obstacles and initial findings. The initial findings form the basis for designing a system framework that is tailored to the appropriate financial management flow and synchronized with financial management in schools. The data collection stages are described as follows.

Qualitative data collection and analysis

This stage is the initial stage of the research with a preliminary study related to the real conditions and initial findings using the research subjects, namely the principal, school treasurer, and the foundation that oversees the school. Data collection was carried out through interviews and document studies covering school policies and regulations. The initial findings are explored in depth through in-depth interviews. Then, the results of the observation are combined with the results of the document study and interviews. The analysis of all data sources becomes the initial findings related to the description of the school's financial management process, which is followed up with the development of a system.

The initial results from the qualitative data are then followed up with the search for quantitative data

Quantitative data collection and analysis

This stage involved the application of lessons learned based on the findings obtained from the initial research. The findings from the initial study were designed into a system framework that was collaborated with financial SOPs and related regulations.

Qualitative and quantitative interpretation

The result of this research is a qualitative and quantitative analysis with an interpretation of the findings from the qualitative and quantitative analyses. The output of this stage is that the findings obtained in the qualitative analysis are clarified using quantitative analysis to produce research findings.

RESULT

The research results are divided into two processes, namely the qualitative process and the quantitative process. The qualitative process serves to analyze in depth the findings that form the basis for the implementation of financial management in the research subject. The quantitative aspect measures the impact of the implementation of the SIMKEU-EDU system in schools. The following is a description of the results of the qualitative and quantitative steps.

Qualitative Results

General Conditions of Financial Management in Schools

Based on the results of research conducted at SDK Manahan Surakarta, it was found that school financial management is still carried out manually, without the support of a technology-based information system. Financial activities such as recording, reporting, and tracking transactions still use general cash books, purchase notes, payment receipts, and Microsoft Excel worksheets as the main tools. This shows that the financial administration system at the school is not yet digitally integrated, so that recording activities still take a long time and depend on the accuracy of the individuals in charge.

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The budget planning process is carried out at the beginning of each school year through meetings between the principal, treasurer, and foundation representatives. The budget includes planned revenue from school funding sources such as student tuition fees, parental donations, and school operational assistance (BOS), as well as planned expenditures such as teacher salaries, learning activities, and facility maintenance. Once approved, each transaction is recorded manually by the treasurer in the cash book and then re-recorded in Excel for the preparation of monthly and annual reports.

Manual Data Input and Transaction Process

Based on direct observations during financial administration activities, the data input process is carried out in stages and repeatedly. Every time a transaction occurs, the treasurer writes the transaction data in the cash book, attaches proof of payment (note or receipt), and then at a certain time copies the data to an Excel file. This process often causes delays in recording because it depends on the treasurer's free time. As a result, financial data is not always up to date, making it difficult for the principal to obtain reports quickly.

In an interview with the school treasurer, it was revealed that this manual system has weaknesses in terms of efficiency and accuracy. Errors in typing numbers, negligence in recording small transactions, and overlapping data between the cash book and Excel are common obstacles. The treasurer said, "If there are many transactions in a day, sometimes I don't have time to record them immediately. I end up doing the recap at night or the next day. Sometimes numbers get mixed up or receipts get lost." Interviews with teachers who coordinate student activities also revealed another impact of the manual system, namely delays in the disbursement of funds for school activities. Teachers must submit proposals, wait for manual verification by the principal, and only then can the treasurer disburse the funds. This lengthy process often hinders the implementation of activities that require quick funds, such as student competitions or sudden purchases of equipment.

Weaknesses of Manual Systems in Financial Administration

Based on interviews with school principals, it was found that manual systems are considered inefficient and incompatible with modern accountability requirements. Principals explained that annual financial reports often take a long time to compile because they require repeated checks between cash books and Excel spreadsheets. In some cases, minor errors in transaction records can cause discrepancies in the final balance, which then requires time to retrace.

In addition, the principal acknowledged that the disclosure of financial information to parents is not yet optimal. Parents only receive general reports through annual meetings, without access to details on the use of funds. This reduces transparency and public participation in the supervision of school finances. The documentation found that transaction evidence archives are still stored physically in separate folders. Documents are stored without a digital classification system, making it time-consuming to retrieve specific documents. The risk of physical document loss or damage is also quite high, especially when the archive period exceeds one year.

In general, the results of this study confirm that the manual system used at SDK Manahan Surakarta presents a number of key obstacles, including: 1) Inefficiency in terms of time and energy, because records are kept twice (manually and in Excel); 2) Potential for input errors and data loss, due to a lack of systematic controls; 3) Limited access to financial information for external parties such as parents 4) Obstacles in the audit and reporting

process, due to documents not being digitized. These conditions indicate an urgent need to transform to a digital-based financial information system (SIMKEU-EDU). With the implementation of an integrated digital system, the recording and reporting processes can be carried out automatically, quickly, and can be accessed by authorized parties in real-time.

These findings are consistent with previous studies emphasizing that web-based information systems can improve efficiency, reduce the risk of errors, and strengthen public accountability in school financial management (Komariah, 2018; Sanoto et al., 2021; Hardiyanto et al., 2023). Therefore, the results of this study can serve as a basis for the development and implementation of SIMKEU-EDU at SDK Manahan Surakarta so that financial management can become more transparent, efficient, and professional.

Quantitative Results

Qualitative findings from the process of using the school's financial system, which is still manual, were followed up by designing a financial system that is integrated with a system that facilitates the transaction process for both payments and school financial expenditures. The system provides facilities for recording financial cash flows and financial reports in a transparent and easy-to-understand manner. Quantitative results show the impact of using the system in terms of system validity, system effectiveness, and system practicality.

Validity Test of the SIMKEU-EDU System

The validity test was conducted to ensure that each assessment indicator and feature in the School Financial Management Information System (SIMKEU-EDU) meets the intended objectives of school financial management. The assessment instrument consisted of 15 statement items covering aspects of budget planning, transaction recording, financial reporting, and data security.

The validity test used the Pearson Product Moment correlation with 30 respondents, consisting of the principal, treasurer, administrative staff, and teachers involved in system use. The validity criterion was set at $r_{table} = 0.361$ ($\alpha = 0.05$).

Table 1.
Validity Test Results of the SIMKEU-EDU Instrument

No	Evaluation Indicator	r count	r table	Description
1	Ease of system use	0.712	0.361	Valid
2	Speed of transaction data access	0.754	0.361	Valid
3	Accuracy of automated financial reporting	0.798	0.361	Valid
4	Data security and user authentication	0.783	0.361	Valid
5	Compliance with school accounting standards	0.731	0.361	Valid
6	Consistency of calculation results	0.768	0.361	Valid
7	User-friendly interface design	0.745	0.361	Valid
8	Ability to trace previous transactions	0.782	0.361	Valid

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9	Timeliness of financial reporting	0.801	0.361	Valid
10	Integration with digital documents (receipts, vouchers)	0.762	0.361	Valid

All items have r count $>$ r table, indicating that all indicators are valid and suitable for measuring the effectiveness of the SIMKEU-EDU system.

Reliability Test

The reliability test using Cronbach's Alpha produced a value of $\alpha = 0.91$, indicating very high reliability ($\alpha > 0.8$). This means that the evaluation instrument demonstrates strong internal consistency and stability in measuring the system's performance.

Effectiveness Test of the SIMKEU-EDU System

The effectiveness test aimed to compare the administrative performance of school financial management before and after the implementation of SIMKEU-EDU. The measured aspects included report preparation time, input error rate, and user satisfaction.

Table 2.
Comparison of Manual and SIMKEU-EDU Financial Systems

Evaluation Aspect	Manual System	SIMKEU-EDU System	Improvement (%)
Time to prepare monthly report	5 days	1 day	+80% efficient
Time to retrieve transaction data	45 minutes/transaction	5 minutes/transaction	+89% faster
Input error rate	14.2%	2.3%	-83% fewer errors
On-time report submission to foundation	72%	98%	+26% improvement
User satisfaction (1–5 scale)	3.1	4.6	+48% increase

Practicality Test

The practicality test measured ease of use, user adaptation time, and user responses to system functionality. The assessment used a Likert scale (1–5), where (1) indicates “very impractical” and (5) indicates “very practical.”

Table 3.
Practicality Evaluation of SIMKEU-EDU

Practicality Indicator	Mean Score	Category
Ease of menu navigation	4.7	Very practical
Clarity of system instructions and guidelines	4.5	Very practical
Ease of inputting transaction data	4.6	Very practical
Adaptation time for new users	4.4	Practical
System responsiveness during use	4.8	Very practical

The overall average score was 4.6, categorized as “Very Practical.” This indicates that users (treasurer, administrative staff, and principal) found the system easy to use and supportive of their daily financial management tasks.

Analysis of Effectiveness Improvement

Quantitative analysis shows that the adoption of SIMKEU-EDU resulted in substantial improvements compared to the manual financial management system, particularly in three key areas: 1) Time Efficiency: Financial reports that previously took an average of five days to prepare are now completed within one working day; 2) Data Accuracy: Input errors were drastically reduced from 14.2% to 2.3%, as the system automatically validates each transaction entry 3) Transparency and Information Access: Financial reports can now be accessed in real-time by the principal and foundation through an integrated dashboard, strengthening public accountability. Overall, the effectiveness level increased by 81.2% after the implementation of the SIMKEU-EDU system compared to the manual period.

The results of the validity, reliability, effectiveness, and practicality tests demonstrate that the SIMKEU-EDU system meets the criteria of being valid, effective, and practical for school financial administration.

- It is valid because the features align with the functional requirements of school financial management.
- It is effective because it significantly improves efficiency, accuracy, and transparency in financial reporting.
- It is practical because it is easy to operate and requires minimal training for users.

Empirical evidence confirms that the implementation of SIMKEU-EDU contributes substantially to enhancing efficiency, accountability, and transparency in the management of educational funds, aligning with good governance principles in school financial administration.

DISSCUSION

The findings of this study indicate that prior to the implementation of the School Financial Management Information System (SIMKEU-EDU), financial administration at SDK Manahan Surakarta was still managed manually through cash books and Excel worksheets. This process required repetitive data input and double-checking, often resulting

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in calculation errors, data loss, and delays in monthly report preparation. Such conditions reflect the low efficiency and accuracy of financial administration in schools that still rely on manual systems (Komariah, 2018; Sanoto, 2021). As emphasized by Widodo et al. (2023), manual systems in school financial management lead to inefficiency, reduced transparency, and increased administrative workload.

Interviews with the principal and treasurer revealed that the financial recapitulation process could take up to five working days, with an average input error rate of 10–12% per month. Reporting to the foundation was frequently delayed, resulting in slower decision-making regarding budget allocation and expenditure realization. These findings are consistent with Gaspar et al. (2023), who found that delays in school financial reporting hinder transparency and accountability in educational institutions. Following the implementation of SIMKEU-EDU, significant improvements were observed in the organization of financial administration. The digital system enabled automatic, real-time, and integrated transaction recording, eliminating the need for duplicate entries.

Observational data show that transaction input time decreased from 15 minutes to 5 minutes, with an error rate of only 2%. Monthly financial report preparation, which previously took several days, could now be completed within a single working day. Quantitative data indicate an increase in efficiency of more than 80% compared to manual systems. This improvement aligns with the findings of Setiawan and Sudarti (2025), who reported that implementing school financial management information systems can reduce administrative work time by up to 70% and improve reporting accuracy.

Expert validation results for SIMKEU-EDU yielded an average score of 3.78 out of 4.00, categorized as highly valid, covering functionality, usability, accuracy, and reliability. Meanwhile, user questionnaire results showed a practicality rate of 88.5%, indicating that the system is highly user-friendly and supports administrative work efficiently. This is consistent with Sihombing (2024), who found that financial management applications significantly increase reporting speed and reduce manual error risks.

In addition to time efficiency and accuracy, SIMKEU-EDU also strengthens transparency and accountability principles. Through a role-based access system, the principal can monitor daily financial reports without waiting for manual recaps. Every transaction is automatically recorded in the database with a user activity log, minimizing the risk of data manipulation. This audit trail mechanism supports the principles of good governance, which emphasize openness and public accountability in the management of educational funds (Gaspar et al., 2023; Marginingsih et al., 2025).

Qualitative analysis through interviews also revealed a shift in user attitudes toward school financial management. Most respondents expressed greater confidence in monitoring cash flow and generating reports independently without relying solely on administrative staff. The treasurer stated that the system simplified data validation, while the principal noted that reporting became faster and more accurate. These findings are in line with Marginingsih et al. (2025), who argued that digitalization in school management enhances staff capacity for data-driven decision-making.

Furthermore, SIMKEU-EDU integrates all aspects of the financial cycle—from planning and execution to reporting. This integration enables automatic monitoring of budget realization in alignment with school work plans. Thus, the system functions not only

as a recording tool but also as a managerial control instrument that enhances decision-making accuracy and efficiency (Setiawan & Sudarti, 2025; Marginingsih et al., 2025; Sihombing, 2024).

From a qualitative standpoint, the results show that the system contributes to a transformation in the school's work culture toward greater openness, efficiency, and collaboration. Data accessibility among principals, treasurers, and administrative staff fosters internal accountability. This finding supports the study by Adzkie et al. (2023), which highlighted that the digitalization of school financial systems strengthens transparency and trust among stakeholders.

In conclusion, the integration of qualitative and quantitative analyses demonstrates that the implementation of SIMKEU-EDU successfully improves system validity, operational effectiveness, and user practicality. The system not only accelerates financial transaction processes but also enhances transparency, reporting accuracy, and data-driven decision-making. Overall, these findings reinforce the argument that digital transformation in school financial management is a strategic step to improve efficiency, accountability, and governance quality in modern education (Widodo et al., 2023; Gaspar et al., 2023; Setiawan & Sudarti, 2025; Sihombing, 2024; Marginingsih et al., 2025; Adzkie et al., 2023).

CONCLUSION

The results of this study demonstrate that the implementation of the School Financial Management Information System (SIMKEU-EDU) significantly improves the quality of financial administration in schools. The system effectively replaces manual recording processes that were previously time-consuming, error-prone, and less transparent. Quantitative findings indicate that SIMKEU-EDU enhances efficiency by up to 80%, reduces data entry errors from 12% to 2%, and accelerates financial reporting from several days to one working day. Qualitatively, the system transforms financial management practices from manual bookkeeping toward a digital, integrated, and transparent process. The findings also reveal positive user responses regarding system practicality and ease of use, with a practicality score of 88.5% and expert validation rating of 3.78 out of 4.00, classified as very valid. This demonstrates that SIMKEU-EDU is both functionally effective and practically applicable in real school settings. Furthermore, the use of SIMKEU-EDU promotes transparency, accountability, and accuracy in financial decision-making through features such as automated transaction logging, role-based access, and real-time financial monitoring. These results align with the principles of good governance in educational institutions and support the broader digital transformation agenda in school administration. In summary, SIMKEU-EDU proves to be a valid, effective, and practical system that optimizes financial management in schools. Its adoption not only improves administrative efficiency and reporting accuracy but also fosters a culture of transparency and accountability among school stakeholders. Therefore, integrating digital financial management systems like SIMKEU-EDU represents a strategic innovation in achieving sustainable, transparent, and accountable education governance.

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