Digital Financial Management and Financial Accountability in Community Learning Centers: The Mediating Role of BOS Fund Management Effectiveness

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Abstract
The increasing demand for transparent and accountable financial governance has encouraged educational institutions to adopt digital financial management systems. However, empirical evidence explaining how digital financial systems improve accountability through organizational management processes remains limited, particularly in Community Learning Centers (CLC). This study aimed to examine the effects of the ARKAS application system on the effectiveness and accountability of fund management of *Bantuan Operasional Sekolah* (*BOS*), as well as the mediating role of management effectiveness. A quantitative survey was conducted involving 62 members of *BOS* fund management teams from CLC in Bandung Regency, Indonesia, selected through purposive sampling. Data were collected using a structured questionnaire and analyzed using descriptive statistics, multiple regression, path analysis, and the Sobel test. The results revealed that the ARKAS application system significantly improved both the effectiveness and accountability of *BOS* fund management. Furthermore, management effectiveness significantly enhanced accountability and mediated the relationship between the ARKAS application system and accountability. These findings imply that CLC should integrate digital financial management with continuous managerial capacity development to strengthen financial governance. The study contributes to educational financial management literature by demonstrating that management effectiveness constitutes the organizational mechanism through which digital financial systems enhance accountability in non-formal education.

1. Introduction

The rapid advancement of digital technology has fundamentally transformed governance practices across public sector institutions, including the education sector. Governments in many countries have increasingly adopted digital governance approaches to improve administrative efficiency (Agasisti & Shibanova, 2022; Kupriyanova et al., 2020), strengthen financial transparency, and enhance public accountability (Hevia & Vergara-Lope, 2019; Kuyini, 2025; Tsiligkiris et al., 2026) in managing educational resources (Alshubiri, 2021; Fan & Chatterjee, 2018; Kountchou, 2025; Rukumnuaykit & Pholphirul, 2026). Within this transformation, financial management has become a strategic component because the effectiveness of educational services depends not only on the availability of financial resources but also on how those resources are planned, allocated, implemented, monitored, and reported. Consequently, digital financial management systems are no longer viewed merely as administrative instruments but as governance mechanisms that support transparent decision-making, reduce administrative inefficiencies, and reinforce institutional accountability (Belete et al., 2022; Marnnoi et al., 2026).

This transformation is particularly relevant for educational institutions that manage public funds, where accountability has become an essential indicator of organizational performance and public trust (Agasisti & Shibanova, 2022). The growing emphasis on accountable financial governance has also shifted scholarly attention from the amount of educational funding toward the effectiveness of financial management processes. Previous studies consistently demonstrate that sound financial management requires systematic planning, budget implementation, financial monitoring, internal control, and transparent reporting to ensure that educational resources are utilized efficiently and responsibly (Brent & Finnigan, 2009; King & Mestry, 2023; Sebidi et al., 2023)

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Conversely, weaknesses in financial management frequently lead to budget inefficiencies (Cosman et al., 2020), limited transparency, and declining stakeholder trust (Buerger, 2020), despite the existence of formal financial regulations and operational guidelines (Rukumnuaykit & Pholphirul, 2026). Similar concerns are also reflected in the Indonesian educational context, where improving accountability in the management of government education funds has become a continuing priority through various financial governance reforms, including the introduction of digital financial management systems for educational institutions (Desmawati et al., 2026). *Bantuan operasional sekolah* (*BOS*) is an Indonesian government funding scheme that provides operational grants for schools and community learning centers (CLC) to support educational activities and improve access to quality education. The management of *BOS* funds demands not only compliance with administrative procedures but also effective financial governance capable of ensuring that public resources directly support educational quality and institutional accountability (Kemendikbudristek, 2022; Noor & Monita, 2021; Syahbuddin, 2020).

Pusat Kegiatan Belajar Masyarakat or Community Learning Centers (CLC) represent one of the most important pillars of non-formal education in supporting lifelong learning (Widodo, 2019), educational equity across gender (Dadi, 2021), and community empowerment, particularly for learners who have limited access to formal education (Sompong & Rampai, 2015). Unlike formal schools, CLC often operate under more constrained organizational and financial conditions, requiring managers to administer limited public resources while maintaining educational quality and institutional sustainability. Recent international literature has increasingly recognized CLC as strategic institutions for expanding educational participation; however, their effectiveness is strongly influenced by governance capacity, leadership, financial management, and institutional accountability (Belete et al., 2022). Likewise, recent studies on Indonesian CLC indicate that governance quality. Including accountability mechanisms, policy alignment, leadership capacity, and digital governance. These plays a decisive role in determining institutional effectiveness and long-term sustainability (Lutfiansyah et al., 2026). These findings suggest that strengthening financial governance within CLC is no longer merely an administrative concern but has become a strategic prerequisite for sustaining community-based educational services.

Responding to these challenges, the Indonesian government has introduced the *Aplikasi Rencana Kegiatan dan Anggaran Sekolah* (ARKAS). An innovative application for educational institution fund management which is grounded as part of broader efforts to modernize the management of education funds through digital technology. ARKAS was developed to facilitate planning, budgeting, implementation, financial recording, and reporting in a more integrated, transparent, and accountable manner, thereby supporting better governance of *BOS* funds. Although the application has been widely implemented across educational institutions, the effectiveness of digital financial management cannot be assumed solely from the existence of the technology itself. Previous studies emphasize that digital financial systems contribute to improved governance only when they are accompanied by effective managerial practices, organizational commitment, and appropriate implementation capacity (Akadira, 2024; Marnnoi et al., 2026). This perspective is consistent with the original thesis underlying the present study, which positions ARKAS not merely as an administrative application but as a management system expected to strengthen the effectiveness and accountability of *BOS* fund management within CLC.

Despite the growing body of literature on educational financial management, several important gaps remain. Existing studies have predominantly examined financial management from the perspectives of governance, budgeting, financial auditing, leadership, and institutional capacity (Brent & Finnigan, 2009; King & Mestry, 2023; Sebidi et al., 2023). More recent studies have also highlighted the importance of digital governance and digital financial management in strengthening educational organizations (Akadira, 2024; Lutfiansyah et al., 2026; Marnnoi et al., 2026). However, most of these studies either focus on formal educational institutions or discuss digital financial governance at a conceptual level without empirically examining how digital financial management systems contribute to improved financial accountability in community-based non-formal education. Consequently, empirical evidence concerning the implementation of digital financial management systems within CLC, particularly in relation to *BOS* fund management, remains relatively limited.

Beyond this contextual limitation, a more fundamental knowledge gap concerns the organizational mechanism through which digital financial management systems enhance accountability. Previous studies generally acknowledge that digital systems may improve transparency and financial governance, yet they rarely explain whether improvements in accountability occur directly as a consequence of technology adoption or indirectly through stronger financial management practices. This distinction is theoretically important because the implementation of a digital application alone does not necessarily guarantee accountable financial governance unless it successfully improves the effectiveness of planning, budgeting, implementation, monitoring, and financial reporting. Building upon this gap, the present study proposes that the effectiveness of *BOS* fund management constitutes a critical organizational mechanism linking the implementation of the ARKAS application with financial accountability.

Accordingly, this study aims to examine: (1) the effect of the ARKAS application system on the effectiveness of *BOS* fund management; (2) the effect of the ARKAS application system on the accountability of *BOS* fund

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management; (3) the effect of the effectiveness of *BOS* fund management on financial accountability; and (4) the mediating role of management effectiveness in the relationship between the ARKAS application system and the accountability of *BOS* fund management in CLC in Bandung Regency. These objectives remain consistent with the conceptual model developed in the original thesis while extending its contribution by positioning the findings within the broader discourse of digital financial management and accountability in non-formal education.

The present study contributes to the existing literature in several respects. First, it extends the discussion on digital financial management by providing empirical evidence from CLC, a non-formal education context that has received considerably less scholarly attention than formal schools. While previous studies have primarily examined financial governance, institutional capacity, or accountability separately, this study empirically integrates these issues by examining the relationship between the ARKAS application system, the effectiveness of *BOS* fund management, and financial accountability within a single analytical model. In doing so, the study enriches the growing discourse on digital governance in education by demonstrating that the contribution of digital financial systems should be understood not merely in terms of technology adoption but also in terms of their capacity to strengthen managerial effectiveness as a foundation for accountable financial governance.

This perspective complements previous discussions concerning governance capacity, digital transformation, and financial sustainability in CLC and other educational institutions (Akadira, 2024; Belete et al., 2022; Lutfiansyah et al., 2026). The findings of this study are expected to provide evidence for policymakers, education authorities, and CLC managers regarding the importance of optimizing the implementation of digital financial management systems to strengthen the effectiveness and accountability of *BOS* fund management. Rather than viewing ARKAS solely as a technological innovation, the study emphasizes that accountable financial governance depends on how digital systems support better planning, implementation, monitoring, and reporting practices within educational organizations. Accordingly, the findings are expected to inform future strategies for strengthening financial governance in non-formal education institutions while contributing to broader efforts to improve transparency, public accountability, and the quality of educational management in Indonesia.

2. Method

2.1. Research Design

This study employed a quantitative descriptive research design (Charli et al., 2022; Creswell & Creswell, 2018; Sidel et al., 2018) to examine the relationships between the ARKAS application system, the effectiveness of *BOS* fund management, and the accountability of *BOS* fund management in CLC. A quantitative approach was selected because the study aimed to empirically test the causal relationships among measurable organizational variables using statistical analysis (Bauer et al., 2021; Rana et al., 2022; Shaver, 2021). Quantitative approaches are widely applied in educational financial governance research to evaluate the effectiveness of financial management systems and their implications for institutional accountability (King & Mestry, 2023; Marnnoi et al., 2026). In line with the original research design, the study combined descriptive statistical analysis with inferential analysis to describe the characteristics of each variable while simultaneously examining the direct and indirect relationships among the proposed variables.

2.2. Research Setting and Participant

The study was conducted in CLCs located in Bandung Regency, West Java Province, Indonesia. CLC constitutes an important component of Indonesia's non-formal education system, providing educational services through government-funded programs, including *BOS* funding. Recent literature highlights that CLC require effective financial governance and accountability to ensure institutional sustainability and educational quality (Akadira, 2024; Belete et al., 2022). Accordingly, CLC provides an appropriate context for examining how digital financial management systems support organizational effectiveness and accountability. The participants consisted of members of the *BOS* fund management teams in each CLC who were directly responsible for planning, implementing, administering, and reporting *BOS* finances. These participants were selected because they possessed practical experience in operating the ARKAS application and were directly involved in financial management activities.

2.3. Population and Sampling

The population comprised *BOS* fund management teams from 88 CLCs operating in Bandung Regency during the 2024 fiscal year. Samples were selected using purposive sampling (Ahmed, 2024; Johnson & Christensen, 2024) because the study required respondents who were actively responsible for managing *BOS* funds and had experience using the ARKAS application. Based on these criteria, 62 respondents were included in the study, representing approximately 70.45% of the total CLCs population. Data were collected through an online survey. The purposive sampling strategy was considered appropriate because the study specifically investigated organizational practices associated with digital financial management among personnel directly

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involved in *BOS* administration. Similar sampling approaches have been adopted in studies examining financial governance in educational institutions (King & Mestry, 2023; Yizengaw & Agegnehu, 2021).

2.4. Research Instrument and Data Collection

Primary data were collected using a structured questionnaire distributed electronically to the respondents (Elangovan & Sundaravel, 2021; Yavuz, 2023). The questionnaire measured three research variables: (1) the ARKAS application system, (2) the effectiveness of *BOS* fund management, and (3) the accountability of *BOS* fund management. The ARKAS variable consisted of ten indicators covering planning and organizing, directing and coordinating, monitoring and controlling, reporting, and ease of use with technical support. Accountability was measured using ten indicators related to information transparency, compliance with regulations, stakeholder participation, monitoring and evaluation, and financial responsibility. Meanwhile, the effectiveness of *BOS* fund management was measured through ten indicators reflecting educational goal achievement, learning support, efficiency, fund utilization, and support for institutional vision and mission. Overall, the instrument comprised 30 questionnaire items developed from previous studies and relevant government guidelines concerning *BOS* management which is designed through a Likert Scale (Robinson, 2023) to accommodate responses.

In addition to questionnaire data, secondary data were obtained through document analysis of *BOS* financial reports from participating CLC. These documents were used to complement the survey findings by examining financial reporting practices generated through the ARKAS application. Combining questionnaire responses with documentary evidence enhances the credibility of financial governance research (Creswell & Creswell, 2018), because it enables researchers to compare reported managerial practices with administrative documentation (Sebidi et al., 2023). Prior to data collection, the questionnaire was subjected to validity and reliability testing. Item validity was evaluated using the Product-Moment correlation coefficient by comparing the calculated correlation coefficient (r-count) with the critical r-table value. Items with r-count greater than r-table were considered valid. Reliability was assessed using Cronbach's Alpha coefficient, where higher coefficients indicated greater internal consistency.

The results demonstrated that 28 of the 30 questionnaire items were statistically valid, while two items (Items 15 and 23) did not meet the validity criterion. Nevertheless, these two items were retained and revised because they represented conceptually important dimensions of stakeholder participation and educational outcomes. All questionnaire items achieved satisfactory reliability, with Cronbach's Alpha values ranging from 0.964 to 0.976, indicating a high level of internal consistency across all research constructs. These results confirm that the instrument was appropriate for measuring the relationships among the study variables.

Prior to hypothesis testing, all questionnaire items were subjected to validity and reliability assessment. Twenty-eight of the thirty items met the validity criterion (r-count > r-table), while two items were retained after revision because they represented conceptually important dimensions. Cronbach's Alpha coefficients ranged from 0.964 to 0.976, indicating excellent internal consistency. Furthermore, prerequisite tests confirmed that the data satisfied the assumptions of normality, linearity, and multicollinearity before regression and path analyses were performed.

2.5. Data Analysis

Data analysis was conducted using IBM SPSS Statistics (Ghozali, 2018). The analytical procedure consisted of four stages. First, descriptive statistics were employed to describe the characteristics of each research variable. Second, prerequisite tests were performed before hypothesis testing, including normality, linearity, and multicollinearity tests. The normality test using the Kolmogorov–Smirnov procedure as described by Sulewski and Stoltmann (2026). It has produced significance values of 0.056 for Model 1 and 0.200 for Model 2, indicating that both models satisfied the normality assumption. The linearity test also confirmed linear relationships among all variables, with significance values of 0.232 for ARKAS–Effectiveness, 0.385 for ARKAS–Accountability, and 0.771 for Effectiveness–Accountability. Furthermore, multicollinearity diagnostics indicated no multicollinearity problem because all tolerance values exceeded 0.10 and all Variance Inflation Factor (VIF) values were below 10.

Following these prerequisite tests, hypotheses were examined using simple linear regression, multiple linear regression, and path analysis. Simple linear regression was employed to evaluate the direct effects of the ARKAS application system on the effectiveness of *BOS* fund management and on accountability. Multiple linear regression was subsequently applied to examine the simultaneous effects of the ARKAS application system and management effectiveness on accountability. Finally, path analysis combined with the Sobel test was conducted to determine whether the effectiveness of *BOS* fund management significantly mediated the relationship between the ARKAS application system and accountability. This analytical strategy is consistent with previous studies investigating causal mechanisms within educational financial governance and organizational accountability.

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2.6. Research Hypotheses

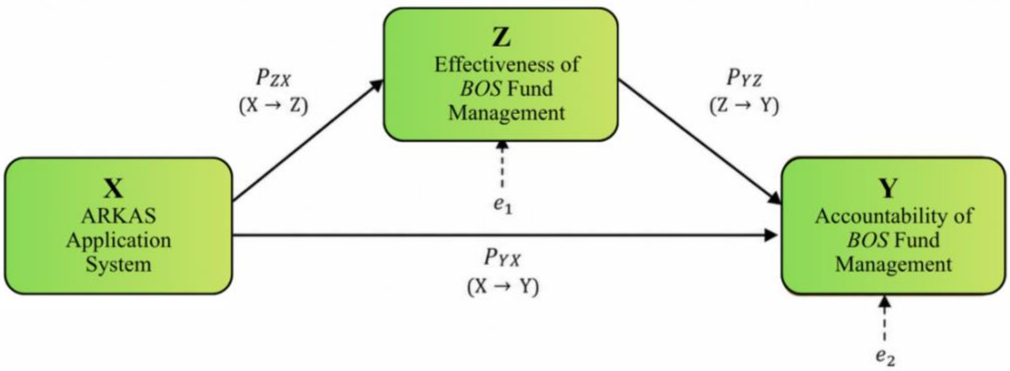
Based on the proposed conceptual framework, we have proposed the Path Analysis model through Figure 1 and building four hypotheses were tested.

a. H1: The ARKAS application system (X) has a positive and significant effect on the effectiveness of *BOS* fund management (Z).

b. H2: The ARKAS application system (X) has a positive and significant effect on the accountability of *BOS* fund management (Y).

c. H3: The effectiveness of *BOS* fund management (Z) has a positive and significant effect on the accountability of *BOS* fund management (Y).

d. H4: The effectiveness of *BOS* fund management (Z) mediates the relationship between the ARKAS application system (X) and the accountability of *BOS* fund management (Y).



Notes:
P_{ZX} = path coefficient from ARKAS Application System (X) to Effectiveness of BOS Fund Management (Z)
P_{YX} = path coefficient from ARKAS Application System (X) to Accountability of BOS Fund Management (Y)
P_{YZ} = path coefficient from Effectiveness of BOS Fund Management (Z) to Accountability of BOS Fund Management (Y)
e_1 = error term for the Effectiveness of BOS Fund Management (Z)
e_2 = error term for the Accountability of BOS Fund Management (Y)

Figure 1. Path Analysis Model

3. Results and Discussion

3.1. Results

3.1.1. Respondent Characteristics and Descriptive Statistics

The study involved 62 respondents representing members of the *BOS* fund management teams from CLC in Bandung Regency, West Java, Indonesia. Participants were selected using purposive sampling from a population of 88 CLCs, representing 70.45% of the total population. All respondents were directly involved in planning, implementing, administering, and reporting *BOS* funds during the 2024 fiscal year and had experience using the ARKAS application system. Therefore, the respondents were considered appropriate to evaluate the implementation of ARKAS and its relationship with the effectiveness and accountability of *BOS* fund management.

3.1.2. ARKAS Application System

Table 1 presents the descriptive distribution of respondents' perceptions regarding the implementation of the ARKAS application system. The distribution demonstrates that respondents generally perceived the implementation of the ARKAS application system positively. Most respondents placed the implementation in the good and high categories, indicating that ARKAS has been widely adopted and effectively utilized in supporting *BOS* fund administration within CLC. Overall, the findings suggest a favorable level of acceptance and implementation of the digital financial management system among the participating institutions.

Table 1. Descriptive Statistics of the ARKAS Application System

Category	Frequency	Percentage (%)
Very Low	0	0.0
Low	0	0.0

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Category	Frequency	Percentage (%)
Moderate	5	8.1
Good	25	40.3
High	32	51.6
Total	62	100.0

3.1.3. Effectiveness of *BOS* Fund Management

Table 2 summarizes respondents' assessments of the effectiveness of *BOS* fund management. Respondents consistently evaluated the effectiveness of *BOS* fund management at positive levels. The concentration of responses within the good and high categories indicates that financial planning, implementation, utilization, and reporting were generally perceived to operate effectively following the implementation of ARKAS.

Table 2. Descriptive Statistics of the Effectiveness of *BOS* Fund Management

Category	Frequency	Percentage (%)
Very Low	0	0.0
Low	0	0.0
Moderate	3	4.8
Good	31	50.0
High	28	45.2
Total	62	100.0

3.1.4. Accountability of *BOS* Fund Management

Respondents' perceptions of accountability are presented in Table 3.

Table 3. Descriptive Statistics of the Accountability of *BOS* Fund Management

Category	Frequency	Percentage (%)
Very Low	0	0.0
Low	0	0.0
Moderate	3	4.8
Good	33	53.2
High	26	41.9
Total	62	100.0

3.1.5. Hypothesis Testing

To examine the proposed relationships among the study variables, hypothesis testing was conducted using simple and multiple linear regression analyses. The first regression model evaluated the effect of the ARKAS application system on the effectiveness of *BOS* fund management (H1). The second model examined the direct effect of the ARKAS application system on accountability (H2), while the third assessed the effect of the effectiveness of *BOS* fund management on accountability (H3). The regression results are summarized in the following Table 4 until Table 6.

3.1.5.1. H1. Effect of the ARKAS Application System on the Effectiveness of *BOS* Fund Management

The regression analysis demonstrated that the ARKAS application system significantly predicted the effectiveness of *BOS* fund management. The model explained 59.2% of the variance in management effectiveness (R^2 = .592), indicating substantial explanatory power. The standardized regression coefficient was positive and statistically significant (β = .769, t = 9.326, p < .001), supporting H1. These findings indicate that better implementation of the ARKAS application system was associated with higher levels of effectiveness in *BOS* fund management.

Table 4. Effect of the ARKAS Application System on the Effectiveness of *BOS* Fund Management

Statistic	Value
R	0.769
R^2	0.592
Adjusted R^2	0.585
β	0.769
t	9.326
p	< .001

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3.1.5.2. H2. Effect of the ARKAS Application System on the Accountability of *BOS* Fund Management

The ARKAS application system also exerted a significant positive effect on the accountability of *BOS* fund management. The regression model accounted for 57.6% of the variance in accountability (R^2 = .576). The standardized regression coefficient confirmed a positive and statistically significant relationship (β = .551, t = 5.115, p < .001), indicating that improvements in the implementation of the ARKAS application system were associated with higher levels of accountability. Therefore, H2 was supported.

Table 5. Effect of the ARKAS Application System on the Accountability of *BOS* Fund Management

Statistic	Value
R	0.756
R^2	0.576
Adjusted R^2	0.574
β	0.551
t	5.115
p	< .001

3.1.5.3. H3. Effect of the Effectiveness of *BOS* Fund Management on Accountability

The effectiveness of *BOS* fund management significantly influenced accountability. The regression coefficient indicated a positive association between the two variables (β = .349, t = 3.236, p = .002), demonstrating that more effective financial management practices were associated with greater accountability in managing *BOS* funds. Accordingly, H3 was supported.

Table 6. Effect of the Effectiveness of *BOS* Fund Management on Accountability

Statistic	Value
β	0.349
t	3.236
p	.002

3.1.5.4. H4. Mediating Role of the Effectiveness of *BOS* Fund Management

To examine H4, path analysis and the Sobel test were employed to determine whether the effectiveness of *BOS* fund management significantly mediated the relationship between the ARKAS application system and accountability. The path coefficients were obtained from the regression models presented in the previous analyses, while the significance of the indirect effect was evaluated using the Sobel test. The mediation model is presented in Figure 2.

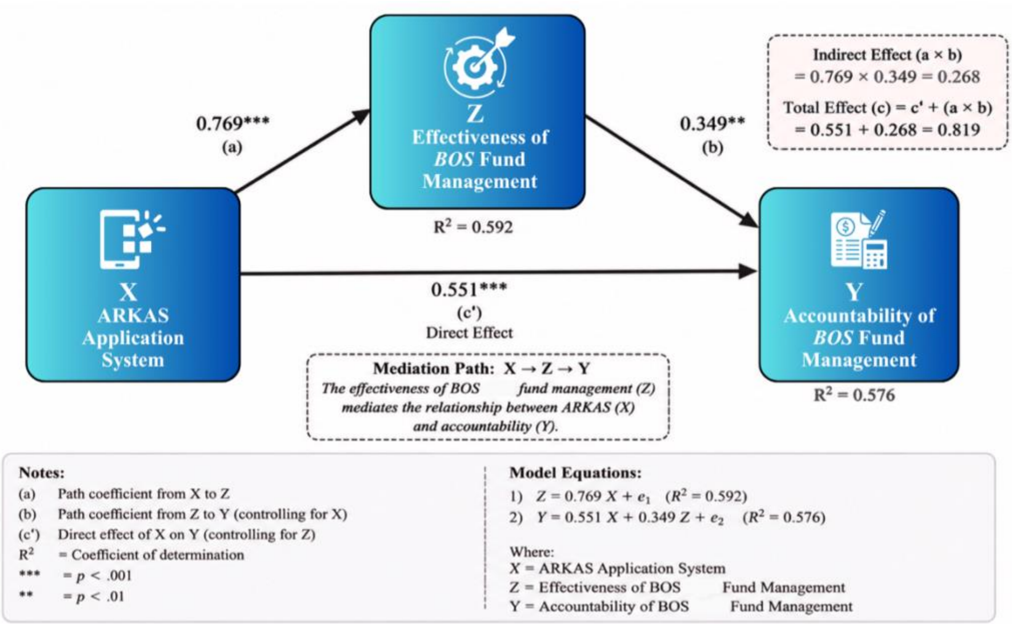

Figure 2. Path Analysis Model of the Proposed Mediation Relationship

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Table 7. Direct and Indirect Effects of the ARKAS Application System on Accountability

Relationship	Standardized Coefficient (β)
ARKAS Application System → Effectiveness of *BOS* Fund Management	0.769
ARKAS Application System → Accountability of *BOS* Fund Management	0.551
Effectiveness of *BOS* Fund Management → Accountability	0.349

The path coefficients indicate that the ARKAS application system exerted a positive effect on both the effectiveness of *BOS* fund management and accountability. In addition, the effectiveness of *BOS* fund management was positively associated with accountability, providing the empirical basis for testing the proposed mediation effect. Please look at Table 8.

Table 8. Sobel Test Results

Parameter	Value
Path coefficient (a)	0.769
Standard error (Sa)	0.077
Path coefficient (b)	0.349
Standard error (Sb)	0.106
Sobel significance (p)	0.000
Decision	Supported

The Sobel test confirmed that the indirect effect of the ARKAS application system on accountability through the effectiveness of *BOS* fund management was statistically significant ($p < .001$). These findings indicate that the effectiveness of *BOS* fund management significantly mediated the relationship between the implementation of the ARKAS application system and accountability. Therefore, H4 was supported.

3.1.6. The Summary of Findings

The summary of our study can be seen at Table 9. Overall, all proposed hypotheses were supported. The ARKAS application system significantly influenced both the effectiveness and accountability of *BOS* fund management. Furthermore, the effectiveness of *BOS* fund management significantly mediated the relationship between the ARKAS application system and accountability, indicating that improvements in accountability were achieved not only through the implementation of the digital financial management system itself but also through its contribution to more effective financial management practices.

Table 9. Summary of Hypothesis Testing

Hypothesis	Proposed Relationship	Result
H1	ARKAS Application System → Effectiveness of *BOS* Fund Management	Supported
H2	ARKAS Application System → Accountability of *BOS* Fund Management	Supported
H3	Effectiveness of *BOS* Fund Management → Accountability	Supported
H4	ARKAS Application System → Effectiveness → Accountability	Supported

3.2. Discussion

3.2.1. The Effect of the ARKAS Application System on the Effectiveness of *BOS* Fund Management

The findings demonstrate that the implementation of the ARKAS application system significantly enhances the effectiveness of *BOS* fund management in CLC. This result indicates that digital financial management systems can strengthen managerial processes by supporting more systematic planning, budgeting, financial recording, monitoring, and reporting. Rather than functioning solely as an administrative application, ARKAS appears to facilitate a more structured financial management process that enables CLC managers to organize public education funds more efficiently and consistently. Consequently, the effectiveness of *BOS* fund management is influenced not only by the availability of financial resources but also by the quality of the digital system that supports managerial decision-making.

These findings reinforce the view that digital transformation in educational financial management should be understood as an organizational change rather than merely a technological innovation. Financial management effectiveness is achieved when digital systems simplify administrative procedures, reduce manual errors, improve financial documentation, and provide timely access to financial information. Within the context of CLC, where financial and human resources are generally more limited than those of formal schools, the availability of an integrated application such as ARKAS becomes increasingly important for improving managerial performance. This interpretation is consistent with recent studies emphasizing that digital financial

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systems enhance institutional performance by improving the quality of management processes instead of simply replacing conventional administrative practices (Marnnoi et al., 2026).

The present findings also complement previous studies on CLC. Belete et al. (2022) argue that the sustainability of CLC depends heavily on governance capacity and institutional management, while Akadira (2024) identified financial management capacity as one of the principal challenges faced by community-based educational institutions. However, these studies primarily describe governance capacity from an institutional perspective without empirically examining how digital financial management systems contribute to improving management effectiveness. The present study extends this body of knowledge by providing empirical evidence that the implementation of ARKAS constitutes one mechanism through which governance capacity can be strengthened via more effective financial management practices.

The findings are likewise consistent with research on educational financial governance conducted in formal education settings. King and Mestry (2023) emphasize that effective financial governance depends on systematic budgeting, monitoring, and financial oversight. While from Bahir Dar city - Ethiopia, Yizengaw and Agegnehu (2021) report that weaknesses in financial management frequently originate from poor documentation and ineffective monitoring systems. The present study supports these arguments by demonstrating that the implementation of an integrated digital financial management system can improve the managerial processes required to achieve effective financial governance. In this regard, ARKAS serves not only as a budgeting application but also as a managerial tool that strengthens organizational capacity in managing public education funds.

Through a theoretical perspective, this finding contributes to the emerging literature on digital financial management in education by demonstrating that technology contributes to organizational effectiveness only when it supports improvements in managerial processes. Accordingly, the contribution of ARKAS should not be interpreted solely in terms of digitalization, but rather in its ability to enhance planning, implementation, monitoring, and reporting processes that collectively improve the effectiveness of *BOS* fund management within CLC.

3.2.2. The Effect of the ARKAS Application System on the Accountability of *BOS* Fund Management

The findings further indicate that the ARKAS application system has a significant positive effect on the accountability of *BOS* fund management. This result suggests that digital financial management systems contribute to greater transparency, compliance with financial regulations, and responsible reporting of public education funds. By providing standardized procedures for budgeting, recording, and reporting, ARKAS enables CLC managers to produce financial information that is more transparent, traceable, and accessible for institutional monitoring. Consequently, accountability is strengthened because financial decisions are supported by a structured digital documentation system rather than relying solely on manual administrative procedures.

The relationship between digital financial systems and accountability can also be understood from the perspective of governance. Accountability in educational institutions is not determined merely by compliance with financial regulations but also by the ability of organizations to demonstrate responsible and transparent management of public resources. The implementation of ARKAS facilitates this process by improving financial documentation, reducing administrative inconsistencies, and supporting more systematic reporting practices. Consequently, digital financial management strengthens accountability because it improves the integrity and reliability of financial information used by institutional stakeholders. This interpretation aligns with governance studies that position digital systems as instruments for reinforcing transparency and institutional accountability rather than simply increasing administrative efficiency (Lutfiansyah et al., 2026).

These findings corroborate previous research emphasizing the importance of governance and financial oversight in educational organizations. Sebidi et al. (2023) demonstrate that accountability is strengthened through transparent financial reporting and effective auditing processes, whereas King and Mestry (2023) highlight the importance of systematic financial monitoring in maintaining public trust. Nevertheless, previous studies generally focus on financial governance practices without explicitly examining the contribution of digital financial management systems. The present study extends these findings by showing that accountability is also influenced by the implementation of integrated digital financial management systems that facilitate more consistent financial administration within CLC.

The findings are also relevant to the Indonesian context, where ARKAS has been introduced as part of broader efforts to strengthen accountability in the management of *BOS* funds. The results indicate that the benefits of ARKAS extend beyond administrative compliance by supporting more transparent financial governance within non-formal education institutions. This is particularly important for CLC because these institutions are required to maintain public confidence while managing government-funded educational

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programs with relatively limited organizational resources. Therefore, digital financial management becomes an essential component of institutional governance that supports both operational accountability and long-term organizational credibility.

From a theoretical standpoint, this finding strengthens the growing discourse on educational digital governance by demonstrating that digital financial management systems contribute directly to accountability through improvements in financial transparency and administrative consistency. The study therefore broadens existing evidence on educational accountability by showing that, within CLC, accountability can be reinforced through the implementation of integrated digital financial management systems designed to support responsible governance of public education funds.

3.2.3. The Effect of the Effectiveness of *BOS* Fund Management on Accountability

The findings indicate that the effectiveness of *BOS* fund management significantly improves accountability within CLC. This result suggests that accountability is not solely a consequence of complying with financial regulations or implementing digital systems but also depends on how effectively financial management processes are carried out. Effective planning, budget implementation, financial monitoring, and reporting enable educational institutions to demonstrate responsible stewardship of public resources, thereby strengthening transparency and institutional accountability. In this regard, management effectiveness functions as an organizational capability that translates administrative activities into accountable financial governance.

This finding supports the argument that accountability should be viewed as the outcome of effective managerial processes rather than merely as a reporting obligation. Financial accountability is achieved when financial information is generated through systematic procedures that ensure consistency, accuracy, and compliance throughout the budgeting cycle. Consequently, improvements in accountability are unlikely to occur without corresponding improvements in managerial effectiveness because transparency and responsibility ultimately depend on the quality of financial management practices. This interpretation reinforces the notion that organizational performance in educational institutions is determined by the effectiveness of management processes rather than by financial resources alone.

The present findings are consistent with previous studies emphasizing the central role of financial management in strengthening educational governance. Riinawati et al. (2022) argue that effective financial management is characterized by systematic planning, implementation, supervision, and evaluation, all of which contribute to improving institutional performance. Similarly, B. Simamora (2022) identifies planning, organizing, directing, controlling, and transparency as essential components of effective financial management. The current study extends these conceptual arguments by providing empirical evidence that management effectiveness significantly contributes to accountability within CLC, thereby confirming that effective managerial practices constitute an important organizational mechanism for achieving accountable financial governance.

The findings also complement international evidence on educational financial governance. King and Mestry (2023) emphasize that accountability depends on continuous financial oversight, while Sebidi et al. (2023) demonstrate that transparent financial management enhances stakeholder trust through credible financial reporting and auditing. However, these studies primarily focus on governance mechanisms without explicitly testing management effectiveness as an explanatory variable. The present study contributes additional empirical evidence by demonstrating that the effectiveness of *BOS* fund management itself significantly influences accountability, thereby highlighting managerial effectiveness as an essential determinant of accountable financial governance in non-formal education institutions.

This finding enriches the literature on educational financial management by demonstrating that accountability is not merely an administrative output but an organizational outcome emerging from effective financial management processes. The study therefore reinforces the argument that strengthening accountability requires continuous improvement in managerial effectiveness, particularly within CLC that manage public education funds under resource-constrained conditions.

3.2.4. The Mediating Role of the Effectiveness of *BOS* Fund Management

One of the principal findings of this study is that the effectiveness of *BOS* fund management significantly mediates the relationship between the ARKAS application system and accountability. This result demonstrates that although the implementation of ARKAS directly contributes to accountability, a substantial portion of its contribution occurs through improvements in management effectiveness. In other words, digital financial management systems do not automatically produce accountable governance. Instead, accountability is strengthened because ARKAS enhances the effectiveness of planning, budgeting, implementation, monitoring, and financial reporting, which subsequently improves the accountability of *BOS* fund management.

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This finding directly addresses the knowledge gap identified in the Introduction. Previous studies have generally examined the relationships between digital governance, financial management, and accountability separately, while providing limited explanation regarding the organizational mechanism connecting these concepts. The present study demonstrates that management effectiveness represents a critical organizational pathway through which digital financial management systems influence accountability. Consequently, the contribution of ARKAS should be understood not merely as technological innovation but as an organizational instrument capable of improving managerial processes that ultimately support accountable governance.

The mediation effect identified in this study also complements recent literature on CLC. Akadira (2024) reports that financial management capacity is a major determinant of institutional sustainability, while Belete et al. (2022) emphasize that effective governance remains one of the principal challenges confronting CLC worldwide. Although both studies recognize the importance of governance capacity, neither explicitly explains how digital financial systems strengthen accountability. The present findings extend this literature by demonstrating that digital financial management contributes to accountability indirectly through improvements in management effectiveness. Accordingly, managerial effectiveness emerges as the mechanism that translates technological adoption into better organizational governance.

The results likewise reinforce broader discussions concerning digital governance in education. Lutfiansyah et al. (2026) identify digital governance as one of the essential dimensions of CLC governance, while Marnnoi et al. (2026) argue that digital systems improve organizational performance only when they are effectively implemented within institutional management practices. The present study empirically supports these arguments by demonstrating that digital financial systems strengthen accountability through their capacity to improve managerial effectiveness rather than through technology adoption alone. This finding suggests that investments in digital financial applications should be accompanied by continuous efforts to strengthen managerial competencies, implementation quality, and organizational financial practices if accountability is to be improved sustainably.

The mediation finding also has important implications for the governance of public education funds. In practice, organizations frequently expect digital systems to resolve accountability problems automatically. However, the present findings indicate that technology constitutes only one component of organizational improvement. Without effective financial management, the potential benefits of digital systems cannot be fully translated into accountable governance. Therefore, institutional efforts to strengthen accountability should simultaneously focus on improving digital financial infrastructure and enhancing managerial effectiveness throughout the financial management cycle.

From a theoretical standpoint, this mediation model represents the principal contribution of the study. Unlike previous research that predominantly examined direct relationships between digital systems and accountability, this study demonstrates that the effectiveness of *BOS* fund management constitutes the organizational mechanism through which the ARKAS application system strengthens accountability. This finding advances the literature on digital financial management in education by providing empirical evidence that technology enhances accountability not directly, but through its capacity to improve the effectiveness of financial management processes. Consequently, the study offers a more comprehensive explanation of how digital financial governance operates within CLC and contributes to accountable management of public education funds.

3.2.5. Implications for the Management of Community Learning Centers

The findings of this study provide important managerial implications for CLC, particularly in strengthening the governance of public education funds through digital financial management. The positive effects of the ARKAS application system on both the effectiveness and accountability of *BOS* fund management suggest that digital financial systems should be viewed as integral components of institutional governance rather than merely administrative reporting tools. Consequently, CLC managers should prioritize the consistent and effective utilization of ARKAS throughout the entire financial management cycle, including planning, budgeting, implementation, monitoring, and reporting.

The study further indicates that managerial effectiveness plays a critical role in translating digital financial systems into accountable governance. Therefore, efforts to improve accountability should not rely exclusively on technology adoption but should also emphasize strengthening the managerial competencies of *BOS* management teams. Regular training, technical assistance, and continuous mentoring are essential to ensure that CLC personnel can effectively utilize digital financial systems and implement sound financial management practices. In addition, education authorities should establish ongoing monitoring and evaluation mechanisms to assess not only compliance with financial regulations but also the effectiveness of financial management processes supported by ARKAS. These findings suggest that sustainable accountability in CLC is achieved through the integration of digital financial management systems with effective managerial practices, thereby

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strengthening institutional governance and enhancing public trust in the management of government-funded educational programs.

3.2.6. Limitation and Future Research Recommendation

This study has two limitations. First, the research was conducted only in Community Learning Centers (CLC) in Bandung Regency, Indonesia. Therefore, the findings should be generalized to other educational contexts with caution. Second, although the study confirms the mediating role of the effectiveness of *BOS* fund management, it does not examine other organizational factors that may also influence financial accountability. Future research is encouraged to validate the proposed model across different educational settings, including formal schools and Community Learning Centers in other regions or countries, to enhance its external validity. In addition, future studies could extend the model by incorporating organizational variables such as managerial competence, leadership, organizational culture, or internal control systems to provide a more comprehensive explanation of how digital financial management systems strengthen financial accountability.

4. Conclusion

This study examined the relationships among the ARKAS application system, the effectiveness of *BOS* fund management, and the accountability of *BOS* fund management in Community Learning Centers (CLC) in Bandung Regency. The findings demonstrate that the ARKAS application system significantly improves both the effectiveness and accountability of *BOS* fund management. Furthermore, the effectiveness of fund management significantly enhances accountability and serves as a significant mediating mechanism through which the ARKAS application system strengthens accountable financial governance. These findings indicate that digital financial management systems contribute to accountability not merely through technology adoption but by improving the effectiveness of financial planning, implementation, monitoring, and reporting.

The findings highlight the importance of integrating digital financial management systems with continuous managerial capacity development in CLC. The successful implementation of ARKAS should therefore be accompanied by sustained professional development, technical assistance, and systematic monitoring to ensure that digital applications effectively support financial governance rather than functioning solely as administrative reporting tools. Strengthening managerial effectiveness alongside digital implementation will enable CLC to improve financial transparency, optimize the utilization of *BOS* funds, and enhance public trust in institutional governance. Theoretically, this study contributes to the literature on educational financial management by demonstrating that the effectiveness of fund management constitutes a key organizational mechanism linking digital financial management systems to accountability. By empirically validating this mediating relationship within the context of CLC, the study extends current understanding of how digital financial governance operates in non-formal education and provides evidence that effective managerial processes are fundamental to achieving accountable management of public education funds.

Author Contributions

Abubakar: Conceptualization, Investigation, Writing - Original draft preparation. Reza Ahmad Madani: Methodology, Data curation, and Visualization. Taufani C. Kurniatun: Software, Supervision, and Validation. Eka Prihatin: Writing - Reviewing and Editing, and Methodology. All authors contributed equally to this paper. All authors have read and approved the final manuscript.

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Data Availability

The datasets generated during and/ or analyzed during the current study are available from the corresponding author on reasonable request.

Declaration of AI Use

The authors declare that no artificial intelligence (AI) or AI-assisted tools were used in the preparation of this manuscript.

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