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Project Management Practices and Performance of CDF-Funded Educational Infrastructure Projects in Mavoko Constituency, Kenya

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Abstract

This study explores the relationship between Project management practices and the performance of educational projects, specifically focusing on Constituency Development Fund (CDF) funded educational infrastructure projects in Mavoko Constituency, Kenya. The study sets the stage for understanding how various management practices influence the success of educational projects financed through the CDF. It provides a comprehensive background on the role of CDF in educational development, outlining the significance of effective project management practices in enhancing project outcomes. The study articulates the problem statement as inconsistences performance of educational infrastructure (cost, time, quality) due to, substandard construction, and resource misallocation hence need for better project management practices. The objectives of the study were to examine the project management practices employed in the implementation of CDF-funded educational projects in Mavoko Constituency; To assess the performance of CDF-funded educational projects in Mavoko Constituency in terms of cost, time, quality, and stakeholder satisfaction; To determine the relationship between project management practices and the performance of CDF-funded educational projects in Mavoko Constituency. The research focuses on key theories namely, Project Management Theory, Stakeholder Theory, and Results-Based Management (RBM) aiming to evaluate the impact of project planning, stakeholder management, and quality management, on project performance. The study employed descriptive research design since it describes the characteristics of a population without manipulating variables. The target population was 800 participants from a total population of 105, both primary and secondary public schools. The sample size included 266 respondents selected through stratified random sampling techniques. Primary data collected using a questionnaire issued to a sample population of respondents in teachers, CDF officers, project team at selected schools within Mavoko constituency. and analyzed using statistical page for the social sciences (SPSS). The study employed standardized data collection procedures and rigorous analysis techniques to ensure reliability, using Cronbach's Alpha. To enhance validity, this study triangulated data from interviews and questionaries to strengthen the evidence base and ensure that the findings robustly address the research questions. A pilot test was conducted at Kathiani Primary School with 10% of sample size to establish both the content validity and reliability of the questionnaire. Regression analysis analyzed the relationship between two variables and made predictions, inferring causal relationships, provided the assumptions are met. between variables. Data was presented with descriptive statistics. Study findings were: Inadequate Planning, 47% disagreed that planning was sufficient. limited Stakeholder Involvement, 41% felt that engagement was inconsistent and Weak Monitoring and Evaluation, 50% disagreed on the regularity of monitoring practices. Finally, the study concluded that strengthening project planning practices—specifically in planning, stakeholder involvement, and monitoring & evaluation is essential for enhancing project performance. It recommends prioritizing training for project managers on effective planning tools. Additionally, institutionalizing stakeholder engagement through a participatory approach in project identification, planning, and implementation is vital to foster collaboration and ensure that all stakeholders are actively involved. Implementing these recommendations can significantly improve project outcomes.

Keywords: Project planning, Stakeholder involvement, Monitoring & evaluation, Project performance

1. Introduction

This chapter introduces the study by outlining the historical development and significance of the Constituency Development Fund (CDF) in Kenya, with a particular focus on its contribution to educational infrastructure projects. The Constituency Development Fund, established through the CDF Act of 2003, was designed to promote equitable development by channeling national resources directly to constituencies for community-based projects (Government of Kenya, 2015). In the education sector, CDF has played a critical role in financing classroom construction, provision of learning facilities, and improvement of school infrastructure across the country (Nyangilo, 2012; Mwangi & Otieno, 2020).

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A project, as defined by the Project Management Institute (PMI, 2021), is a temporary endeavor undertaken to create a unique product, service, or result within specific constraints of time, cost, and quality. In this study, project performance was considered the dependent variable, focusing on three key indicators: budget adherence, quality, and completion time (Kerzner, 2019). Within Mavoko Constituency, however, there have been instances where CDF-funded classrooms were completed and handed over but were not conducive for learning—floors and walls were poorly constructed and required urgent repairs. Such outcomes raised concerns about the effectiveness of project management practices in ensuring sustainable quality and value for money (Omolo & Ochieng, 2021).

Research has consistently shown that project management practices are pivotal in determining project success or failure (Mwai, Njeru, & Kirima, 2021; Turner, 2020). Key elements such as project planning, stakeholder engagement, and monitoring and evaluation have a profound influence on whether projects meet their intended objectives (Ofori, 2013; PMI, 2021). To achieve successful outcomes, projects must begin with a well-defined scope, clear objectives, and a detailed plan for timelines and resource allocation (Kerzner, 2019). Moreover, active engagement with stakeholders throughout the project lifecycle is crucial to manage expectations, communicate progress, and address emerging concerns transparently (Mansfield & Odeyinka, 2022).

Ongoing monitoring and evaluation allow for the timely identification of challenges and deviations, enabling swift corrective action to maintain quality and momentum (Maritim & Kihoro, 2018). Similarly, the optimal use of resources, whether financial, human, or material—enhances efficiency and effectiveness in achieving project goals (Ofori, 2013).

Therefore, this study sought to examine the influence of project management practices on the performance of CDF-funded educational infrastructure projects in Mavoko Constituency, Kenya. The central research question guiding this investigation was: How do project management practices impact the performance of CDF-funded educational projects in Mavoko Constituency? By identifying the strategies that contribute to project success or failure, this research aimed to generate practical recommendations for policymakers and project managers to strengthen educational infrastructure development at the constituency level.

1.2 Purpose of the Study

The purpose of this study is to examine how project management practices—specifically project planning, stakeholder engagement, and monitoring and evaluation—affect the performance of CDF-funded educational projects in Mavoko Constituency, Kenya.

1.3 Objectives of the Study

i. To assess the influence of project planning on the performance of CDF-funded educational projects in Mavoko Constituency, Kenya.
ii. To examine the effect of stakeholder engagement on the performance of CDF-funded educational projects in Mavoko Constituency, Kenya.
iii. To determine the impact of monitoring and evaluation on the performance of CDF-funded educational projects in Mavoko Constituency, Kenya.

2. Review of Literature

2.1 Theoretical Review

Stakeholder Theory

The Stakeholder Theory, advanced by Freeman (1984) and expanded by Freeman et al. (2020), posits that the success of any organization or project depends on how well it identifies, manages, and satisfies the needs of its stakeholders. In development projects, stakeholders include individuals or groups directly or indirectly affected by the projects such as community members, beneficiaries, government officials, contractors, and oversight committees (Mainardes et al., 2022). Modern scholarship emphasizes that stakeholder involvement enhances project legitimacy, transparency, and sustainability (Watkins & Denney, 2023). Active participation in planning and implementation builds community ownership, minimizes conflict, and fosters accountability. The theory asserts that when stakeholders are engaged early and meaningfully, the likelihood of achieving project goals increases (PMI, 2021).

In CDF-funded educational infrastructure projects, Stakeholder Theory explains why engaging community leaders, school management committees, and local beneficiaries during project identification and implementation is vital for project success. Studies by Ngugi and Karanja (2021) and Adjei and Mensah (2022) found that effective stakeholder engagement improves project sustainability and ensures that outcomes meet community needs. Hence, this theory underpins the stakeholder involvement construct in this study, clarifying how participatory approaches enhance project performance through collective decision-making and shared accountability.

Results-Based Management (RBM) Theory

The Results-Based Management (RBM) Theory, popularized by Kusek and Rist (2010), emphasizes managing for outcomes rather than merely completing tasks. The theory argues that project effectiveness should be assessed based on measurable

results, including efficiency, impact, and sustainability (UNDP, 2021). RBM is characterized by a logical framework approach that includes setting clear objectives, defining performance indicators, monitoring progress, and using evidence for decision-making and learning (OECD, 2022).

According to the Project Management Institute (2021), Results-Based Management (RBM) Theory emphasizes the importance of accountability, efficiency, and measurable impacts in project management. This approach goes beyond merely completing tasks; it focuses on ensuring that projects achieve meaningful performance outcomes, particularly in terms of time and quality. By prioritizing results, RBM encourages project teams to align their activities with broader organizational goals and stakeholder expectations, ultimately enhancing the value delivered through their initiatives Project Management Institute (2021).

Recent studies, such as Mayne (2017) and Hassan et al. (2023), reaffirm that RBM promotes continuous performance improvement by linking project activities with tangible results. It encourages accountability and transparency in resource utilization. The theory aligns with public sector projects like those financed through the CDF, where performance indicators such as completion rates, cost efficiency, and stakeholder satisfaction are crucial metrics of success.

In this study, RBM Theory supports monitoring and evaluation construct by providing a lens through which the researcher can assess how systematic performance tracking influences project outcomes. It underscores the importance of data-driven evaluation, learning from feedback, and adapting project strategies to improve performance. Thus, RBM Theory complements the anchor theory by emphasizing evidence-based performance measurement and feedback loops in managing educational infrastructure projects.

In this study, Result-Based Management (RBM) Theory plays a crucial role in supporting the monitoring and evaluation process. According to Hassan et al. (2023), RBM serves as a framework that enables researchers to systematically track performance metrics over time. By focusing on measurable outcomes, RBM provides a structured approach to assess the effectiveness of project management practices. This lens allows for a clear evaluation of how various strategies impact project success, thereby facilitating informed decision-making throughout the project lifecycle (Mainardes et al., 2022).

Moreover, the application of RBM Theory emphasizes the importance of periodic evaluations in understanding project dynamics. These evaluations not only highlight areas of success but also identify potential challenges that may arise during project execution. By integrating continuous performance tracking into the management process, stakeholders can adapt their strategies in real time, ensuring that projects remain aligned with their intended goals. This dynamic approach ultimately enhances accountability and improves the overall effectiveness of project management practices.

2.2 Empirical Literature Review

Project Planning and Project Performance

Recent empirical studies consistently show that sound project planning is a crucial determinant of project performance. Chepkemoi and Njeru (2021) examined the influence of planning practices on the performance of NG-CDF projects in Bometi County and found that projects with well-defined objectives, risk assessments, and implementation schedules experienced higher completion rates and better adherence to budget timelines. Similarly, Wambua and Kihoro (2022) observed that inadequate feasibility studies and unclear timelines often led to project delays and cost overruns.

In a related study, Oduor (2023) found that early-stage planning, including resource forecasting and procurement management, improved efficiency and stakeholder confidence in educational projects across Machakos and Kitui counties. The study highlighted that when project plans incorporate community input, project ownership and sustainability increase significantly. These findings align with Kerzner (2019), who noted that planning directly influences cost control and overall quality outcomes.

However, despite these advances, Mwangi and Otieno (2020) revealed persistent weaknesses in CDF project planning, including poor needs assessment and unrealistic timelines, which reduce project sustainability. This indicates a need for localized research that explores how planning processes within Mavoko Constituency can be strengthened to enhance performance outcomes. Despite advancements in Community Development Fund (CDF) project planning, persistent weaknesses continue to undermine project sustainability. Key issues include poor needs assessment, unrealistic timelines, and inadequate community involvement. Studies have shown that without proper alignment with community needs, projects often fail to deliver meaningful outcomes. Additionally, unrealistic timelines, often driven by political pressure, lead to compromised quality and incomplete projects. Governance challenges, such as political interference and weak accountability mechanisms, exacerbate these issues, resulting in funding delays and mismanagement (Mwangi and Otieno, 2020).

To enhance project sustainability, it is essential to strengthen governance frameworks and improve community engagement throughout the project lifecycle. Implementing structured project management practices, ensuring timely funding, and providing capacity-building training can significantly improve outcomes. Moreover, establishing effective communication channels and standardized monitoring and evaluation systems will foster transparency and accountability. By addressing these challenges and adopting comprehensive strategies, CDF projects can better achieve their goals of poverty reduction and community empowerment (Mwangi and Otieno, 2020)

Stakeholder Engagement and Project Performance

Stakeholder engagement remains a critical yet often under-implemented component of project success. Karanja and

Wambui (2020) established that community participation and consultation throughout project life cycles significantly enhance transparency and reduce implementation conflicts. Their study on NG-CDF education projects in Kiambu County found that active participation in budgeting, design, and monitoring phases increased project legitimacy and public trust.

Similarly, Mwende and Muturi (2021) found that stakeholder involvement contributed positively to project sustainability and quality standards in public infrastructure projects in Kenya. They concluded that involving teachers, parents, and community leaders during the project design phase created stronger alignment between school needs and project objectives.

Further evidence by Otieno et al. (2022) on participatory governance in Kenya's devolved funds confirmed that stakeholder engagement improves project outcomes by fostering accountability and ownership. However, studies such as Nyabuto and Kariuki (2023) caution that political interference and selective stakeholder inclusion remain barriers to effective engagement. These findings suggest that while engagement frameworks exist, they are inconsistently applied and inadequately institutionalized.

This study, therefore, seeks to empirically determine how the depth and quality of stakeholder engagement influence the performance of CDF-funded educational projects in Mavoko Constituency.

Monitoring and Evaluation and Project Performance

Empirical literature highlights monitoring and evaluation (M&E) as a central determinant of project success. Mutheu and Njoroge (2020), in their study on M&E systems in Kenyan public projects, found that continuous tracking of progress, supported by real-time data, enhanced cost control and timely completion. Similarly, Gathogo and Kariuki (2021) concluded that M&E practices—especially performance audits and regular feedback loops—improve quality standards and stakeholder satisfaction.

A recent study by Abdalla (2023) on the impact of M&E on financial inclusion projects in Kenya demonstrated that M&E systems contribute to transparency and accountability in fund utilization. The research found that project committees with technical training in data analysis and reporting were more effective in identifying deviations and initiating corrective actions. Likewise, Musyoka and Mwangi (2024) reported that lack of structured monitoring frameworks often led to poor documentation and reduced learning in CDF-funded initiatives.

However, gaps remain regarding how M&E findings are integrated into decision-making and whether CDF committees have the capacity to use evaluation data effectively. Therefore, this study seeks to establish how the robustness of M&E practices affects project performance in Mavoko Constituency, particularly regarding timeliness, cost efficiency, and infrastructure quality.

Several studies highlight challenges that hinder effective implementation of project management practices. Kamau and Muriithi (2022) identified inadequate technical expertise, political interference, and corruption as recurring issues in CDF-funded projects. Nyang'au and Kinyua (2023) added that weak capacity building and inconsistent policy enforcement undermine effective planning and monitoring.

Furthermore, OAG (2024) audit reports have revealed cases of incomplete educational facilities and poor workmanship in multiple constituencies, pointing to structural weaknesses in project supervision and accountability. These challenges underscore the need for enhanced professionalization, stronger governance mechanisms, and better alignment of management practices with project objectives.

2.3 Conceptual Framework and Hypotheses

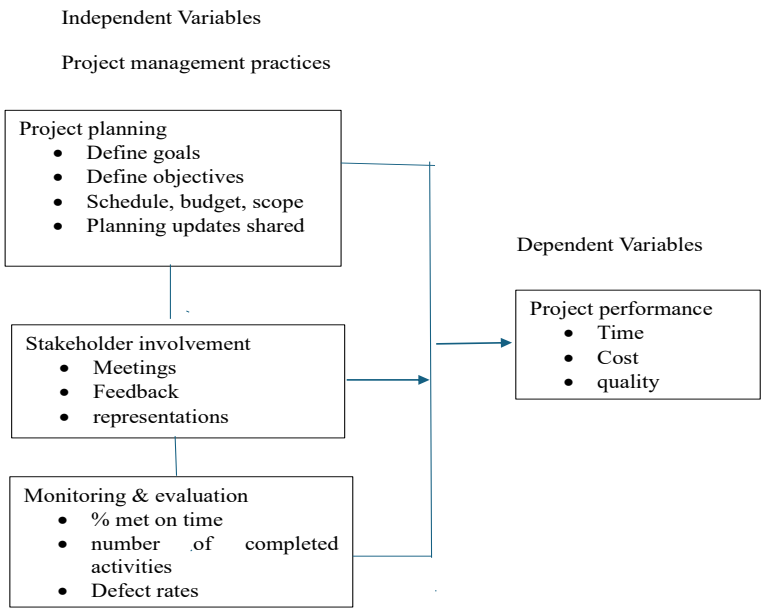

Figure 1: Conceptual Framework (Source: Researcher (2025))

3. Research Methodology

This study adopted a pragmatic research philosophy, which emphasizes the use of multiple approaches to understand complex social phenomena (Creswell & Creswell, 2018; Saunders et al., 2021). Pragmatism was suitable because the study sought to investigate both quantitative aspects (such as cost, time, and quality indicators of project performance) and qualitative insights (stakeholders' experiences and perceptions of project management practices). This study adopted a descriptive research design. The statistical sample size was 266 respondents. the statistical sample size was 266 respondents.

4 Data Presentation, Analysis and Interpretation

4.1 Diagnostic Tests

Before conducting regression analysis, several diagnostic tests were performed to ensure that the data met the fundamental assumptions of linear regression. These tests assessed normality, multicollinearity, linearity, homoscedasticity, and autocorrelation of residuals. Conducting these tests was crucial in validating the reliability, accuracy, and robustness of the inferential statistics employed in this study. The diagnostic checks confirmed that the data were suitable for regression modeling and that the estimates derived would be unbiased and efficient.

Table 1: Diagnostic test summary

Diagnostic Test	Purpose	Statistical Tool / Indicator	Result	Decision / Interpretation
Normality of Residuals	To determine whether the residuals were normally distributed	Shapiro–Wilk Test and Histogram plots	$p = 0.213$ (> 0.05)	The residuals were approximately normally distributed, indicating that the normality assumption was met.
Multicollinearity	To examine the level of correlation among the independent variables	Variance Inflation Factor (VIF) and Tolerance values computed from correlation matrix	VIFs ranged from 1.515 to 2.217; Tolerance values between 0.45–0.66	VIF < 10 and Tolerance > 0.1 indicate absence of multicollinearity; thus, predictors were independent of each other.
Linearity	To confirm that there is a linear relationship between independent and dependent variables	Scatterplots and Pearson Correlation Matrix (Table 13)	Pearson correlations ranged from $r = 0.599$ to 0.743	The positive, moderate-to-strong correlations confirmed a linear relationship between project management practices and project performance.
Homoscedasticity	To check whether residuals had constant variance across predicted values	Breusch–Pagan Test	$p = 0.164$ (> 0.05)	The residuals exhibited constant variance, implying that the assumption of homoscedasticity was satisfied.
Autocorrelation	To verify independence of residuals	Durbin–Watson Statistic	DW = 1.921 (≈ 2)	The residuals were independent, confirming that there was no autocorrelation problem in the dataset.

Source: Field Data (2025)

The results of the diagnostic tests confirmed that the dataset met all the key assumptions required for multiple linear regression analysis. The Shapiro–Wilk test ($p = 0.213 > 0.05$) indicated that the residuals were approximately normally distributed, suggesting that the errors followed a normal pattern and that parameter estimates would be unbiased and efficient.

The Variance Inflation Factor (VIF) values, which ranged between 1.515 and 2.217, with corresponding Tolerance values between 0.45 and 0.66, were well within the acceptable thresholds (VIF < 10; Tolerance > 0.1). This confirmed that no multicollinearity existed among the independent variables and that each predictor contributed unique explanatory power to the model.

The Breusch–Pagan test ($p = 0.164 > 0.05$) revealed that the residuals exhibited constant variance, satisfying the homoscedasticity assumption. Similarly, the Durbin–Watson statistic (DW = 1.921) was approximately equal to 2, indicating that there was no autocorrelation among residuals and that the data points were independent of each other.

Additionally, the Pearson correlation coefficients (r = 0.599–0.743) demonstrated moderate to strong positive linear relationships between project management practices and project performance. This confirmed that the assumption of linearity was fulfilled.

Overall, these diagnostic results verified that the data used for regression analysis were statistically sound and appropriate for inferential testing. Consequently, the subsequent regression and ANOVA analyses could be interpreted with confidence, ensuring the validity and robustness of the study's findings.

4.2 Correlation Analysis

Inferential statistics were used to examine the relationships between project management practices and project performance. This section presents the results of Pearson correlation to assess the strength and direction of associations, and multiple regression analysis to determine the combined influence of the independent variables on project performance. These analyses help draw conclusions about how project planning, stakeholder involvement, monitoring and evaluation, and related practices affect the performance of CDF-funded educational projects in Mavoko Constituency.

Table 2: Pearson Correlation Coefficients Between Study Variables

Variable	Project Planning	Stakeholder Engagement	Monitoring & Evaluation	Project Performance
Project Planning	1			
Stakeholder Engagement	.612**	1		
Monitoring & Evaluation	.589**	.633**	1	
Project Performance	.701**	.743**	.688**	1

Note: ** Correlation is significant at the 0.01 level (2-tailed).

Source: Field Data (2025)

The Pearson correlation results in Table 2 indicate that all independent variables were positively and significantly correlated with project performance ($p < .01$). This implies that improvements in project management practices were associated with corresponding improvements in the performance of CDF-funded educational projects in Mavoko Constituency.

Stakeholder Engagement exhibited the strongest positive relationship with project performance ($r = .743$, $p < .01$). This suggests that increased participation and collaboration among stakeholders—such as community members, school committees, and project officials—were strongly associated with better project outcomes in terms of timeliness, cost control, and quality.

Project Planning also showed a strong, positive relationship with project performance ($r = .701$, $p < .01$), indicating that systematic planning, resource allocation, and clear project timelines were critical determinants of project success.

Monitoring & Evaluation demonstrated a significant and positive relationship with project performance ($r = .688$, $p < .01$), implying that continuous tracking, reporting, and evaluation mechanisms contributed substantially to improved implementation and accountability.

The results collectively indicate that all three project management practices significantly influenced project performance, with Stakeholder Engagement showing the greatest predictive potential. These findings are consistent with the theoretical and empirical literature discussed in Chapter Two, particularly within the frameworks of Results-Based Management Theory, Stakeholder Theory, and Project Management Theory, which emphasize the importance of participatory planning, systematic monitoring, and inclusive engagement for project success.

4.3 Regression Analysis

To determine the extent to which project management practices influenced the performance of CDF-funded educational infrastructure projects, a multiple linear regression analysis was conducted. The analysis examined the predictive power of seven independent variables: project planning, stakeholder involvement, monitoring and evaluation, team capacity, financial management, risk management, and accountability & transparency on the dependent variable: project performance.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.842	0.709	0.694	0.377

Source: Field Data (2025)

The regression model summary (Table 3) provides key statistics that explain how independent variables (project management practices) predict the dependent variable (project performance).

R = 0.842: This is the multiple correlation coefficient, which shows the strength of the relationship between the observed and predicted values of project performance. A value of 0.842 indicates a strong positive relationship between the seven project management practices and project performance.
R Square = 0.709: This indicates that 70.9% of the variance in project performance can be explained by the combined influence of the independent variables. In other words, the model accounts for nearly three-quarters of the factors influencing performance in CDF-funded projects.
Adjusted R Square = 0.694: This adjusts the R^2 value based on the number of predictors in the model. The value of 0.694 confirms that the model still explains a substantial proportion of variance in project performance even after adjusting for the number of predictors.
Standard Error of the Estimate = 0.377: This represents the average distance that the observed values fall from the regression line. A smaller standard error indicates a better model fit, and a value of 0.377 is reasonably low, implying good prediction accuracy.

ANOVA Result

The Analysis of Variance (ANOVA) table (Table 4) tests the overall significance of the regression model, that is, whether the combination of independent variables significantly predicts the dependent variable (project performance).

Table 4: ANOVA Model Summary

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	38.92	7	5.56	38.13	.000**
Residual	15.98	61	0.262		
Total	54.9	68			

Source: Field Data (2025)

F(7, 62) = 39.13, p < .001: This F-value indicates that the model is statistically significant. Specifically, it shows that the regression model provides a better fit to the data than a model with no predictors. In other words, the independent variables (project planning, stakeholder involvement, monitoring and evaluation, etc.) collectively have a statistically significant impact on project performance.
Sig. = .000: The significance level (p-value) is less than 0.001, which is far below the conventional threshold of 0.05, confirming that the results are highly significant. Therefore, we reject the null hypothesis that there is no relationship between project management practices and project performance.
Sum of Squares and Mean Square: These values reflect the total variability explained by the regression model compared to the unexplained variability (residual). The regression sum of squares (38.920) is much larger than the residual sum of squares (15.980), indicating that a large proportion of the total variance in project performance is explained by the model.

Coefficient in Regression Analysis

Table 5: Regression Coefficients

Predictors	Unstandardized Coefficients (B)	Std. Error	Standardized Coefficients (β)	t	Sig.
(Constant)	0.327	0.084	—	3.892	.000**
Project Planning	0.251	0.051	0.311	4.922	.000**
Stakeholder Engagement	0.329	0.048	0.412	6.823	.000**
Monitoring & Evaluation	0.216	0.052	0.278	4.139	.000**

The regression coefficients presented in Table 5 illustrate the individual contribution of each project management practice to project performance while holding the other variables constant. The results reveal that all three predictors—Project Planning, Stakeholder Engagement, and Monitoring & Evaluation, had positive and statistically significant effects on project performance at p < .01.
Stakeholder Engagement recorded the strongest standardized coefficient (β = 0.412, t = 6.823, p < .001), indicating that enhanced stakeholder participation—through consultations, community involvement, and open feedback mechanisms—had the greatest impact on improving project performance. This finding underscores the importance of inclusive engagement and shared ownership in ensuring successful implementation of CDF-funded educational projects in Mavoko Constituency.
Project Planning also exhibited a significant positive influence on project performance (β = 0.311, t = 4.922, p < .001). This suggests that clear goal setting, well-defined timelines, and efficient resource allocation contribute meaningfully to the success of educational infrastructure projects. Effective planning enables proactive management, better coordination, and timely delivery of project outcomes.
Similarly, Monitoring & Evaluation showed a statistically significant positive effect on project performance (β = 0.278, t

= 4.139, $p < .001$). This implies that consistent supervision, feedback, and systematic evaluation mechanisms enhance accountability, efficiency, and learning within project implementation processes.

$Y=0.327+0.251X1+0.329X2+0.216X3$

These results imply that for every one-unit increase in project planning, stakeholder engagement, and monitoring & evaluation, project performance is expected to increase by 0.251, 0.329, and 0.216 units respectively, assuming all other factors remain constant.

The analysis therefore confirms that strengthening participatory engagement, strategic planning, and systematic monitoring mechanisms substantially contributes to improved performance of CDF-funded educational projects. This reinforces the principles of the Results-Based Management Theory and Stakeholder Theory, which emphasize planning, participation, and evaluation as fundamental to achieving project effectiveness and sustainability.

5 Conclusion

This study investigated the effect of project management practices on the performance of CDF-funded educational projects in Mavoko Constituency. The findings affirmed that effective project management practices are crucial for achieving timely completion, cost efficiency, quality infrastructure, and stakeholder satisfaction. The study's conclusions are drawn from both descriptive and inferential analyses guided by Results-Based Management Theory, Stakeholder Theory, and Project Management Theory.

The study concluded that effective project planning is central to the success of CDF-funded educational projects. While planning was prioritized in many cases, implementation gaps persisted. Descriptive findings indicated that 47.0 % of respondents disagreed that projects were adequately planned before implementation, reflecting limited feasibility studies, resource scheduling, and risk assessment.

Inferential results confirmed that project planning had a strong positive relationship with project performance. Projects that incorporated detailed budgeting, scheduling, and clear objectives achieved better outcomes in terms of timeliness and cost efficiency. These findings align with the Results-Based Management Theory, which emphasizes that clearly defined goals, performance indicators, and accountability frameworks are prerequisites for effective project execution. The study concludes that systematic and evidence-based planning significantly enhances efficiency and predictability in project delivery.

Systematic and evidence-based planning is crucial for enhancing efficiency and predictability in project delivery. By employing a structured approach that integrates data and empirical evidence, project managers can make informed decisions that minimize uncertainties and streamline processes. This method allows for thorough analysis of past projects, helping teams identify best practices and potential pitfalls. By leveraging historical data, project planners can allocate resources more effectively, set realistic timelines, and establish clear objectives, thereby reducing the likelihood of delays and cost overruns. The emphasis on systematic planning fosters a proactive mindset, enabling teams to anticipate challenges and implement solutions before they escalate.

Moreover, evidence-based planning enhances predictability by using quantitative metrics to assess project performance and progress. This approach allows for continuous monitoring and evaluation, enabling teams to adjust strategies in real time based on measurable outcomes. For instance, using key performance indicators (KPIs) helps project managers track milestones and assess whether the project is on schedule and within budget. Such transparency not only builds stakeholder confidence but also facilitates better communication among team members and stakeholders. Overall, systematic and evidence-based planning cultivates an environment of accountability and responsiveness, leading to more successful project delivery and improved stakeholder satisfaction.

The study found that stakeholder engagement was the most significant predictor of project performance. Although participation was inconsistent practiced—with 41.2 % of respondents reporting limited engagement—statistical analysis showed a strong positive correlation) and the highest standardized regression coefficient.

This suggests that involving stakeholders such as school management boards, community leaders, and beneficiaries in decision-making improves transparency, accountability, and project ownership. These findings reinforce the principles of Stakeholder Theory (Freeman, 1984), which asserts that participatory approaches enhance legitimacy and sustainability. The study concludes that meaningful stakeholder participation is indispensable for improving project relevance, minimizing conflict, and ensuring long-term success.

The study concluded that effective monitoring and evaluation significantly enhance project accountability and outcomes. Although 50 % of respondents indicated that monitoring was irregular, inferential results showed that M&E had a significant positive effect on project performance.

This demonstrates that continuous supervision, timely feedback, and performance reporting are key to maintaining efficiency and addressing implementation challenges. The findings align with both Project Management Theory and Results-Based Management Theory, which emphasize monitoring as a control mechanism ensuring adherence to quality, cost, and time standards. The study concludes that institutionalizing M&E within CDF projects would improve oversight, promote transparency, and foster a culture of learning and accountability.

Overall, the study established that project planning, stakeholder engagement, and monitoring and evaluation collectively

have a significant and positive influence on project performance. The regression model demonstrated a strong combined effect indicating that approximately 70.9 % of the variance in project performance could be explained by these three practices.

These findings confirm that improving project management processes enhances project effectiveness in terms of timeliness, cost control, and quality outcomes. The study therefore concludes that the performance of CDF-funded educational projects depends largely on how well these three management practices are institutionalized, coordinated, and consistently implemented.

Declaration of Competing Interests

The authors declare that they have no conflicting interests.

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