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Influence of monitoring and Evaluation of Time Allocation on Implementation of Infrastructure Projects in Public Secondary Schools in Kakamega County, Kenya

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Abstract: *The purpose of the study was to assess how monitoring and evaluation of time allocation affects the implementation of infrastructure projects in public secondary schools. A descriptive research design was adopted targeting a population of 1249 respondents comprising 412 principals, 412 Board of Management chairpersons, 412 Parents Association chairpersons, and 13 Sub County Education officers. A sample size of 316 respondents was selected using stratified and purposive sampling techniques. Data was collected using questionnaires and interview schedules. Validity of research instruments was ensured through expert judgment by supervisors and lecturers, while reliability was tested using Cronbach's Alpha coefficient of 0.7. Data was analyzed using descriptive statistics including frequencies, percentages, means, and standard deviation, and inferential statistics including linear and multiple regression analysis. Qualitative data was analyzed using content analysis. Ethical considerations such as informed consent, confidentiality, and voluntary participation were observed throughout the study. Findings revealed that time allocation had a positive and significant influence on implementation of infrastructure projects ($R = 0.522$, $R^2 = 0.272$, $\beta = 0.497$, $p < 0.05$), indicating that time allocation accounted for 27.2% of the variation in project implementation. The study concluded that effective monitoring and evaluation of time allocation enhances successful implementation of infrastructure projects in schools. The study recommended that there is a need to strengthen M&E systems, improve stakeholder coordination, and enhance capacity building for project implementers to ensure timely completion of school infrastructure projects.*

Keywords: *Monitoring and Evaluation, Time Allocation, Infrastructure Projects, Project Implementation, Public Secondary Schools, Kakamega County, Kenya.*

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1. Introduction

Monitoring and Evaluation (M&E) of time allocation in infrastructure projects refers to the systematic process of tracking, assessing, and regulating the amount of time assigned and utilized in project activities to ensure that implementation proceeds according to planned schedules and objectives (Njeru & Kirui, 2022) . Time allocation in this context is defined as the structured distribution of project duration across different stages of implementation such as planning, procurement, execution, supervision, and reporting, which is critical for ensuring efficiency, accountability, and timely delivery of project outcomes (Ongukah & Otara, 2025) . Globally, infrastructure projects have consistently experienced delays and inefficiencies linked to weak monitoring systems and poor time management, with studies showing that inadequate M&E practices significantly affect project completion

schedules and overall performance (Gori et al., 2021) . In developed countries such as the United States, Germany, and Japan, M&E systems are highly institutionalized, supported by advanced project management information systems and strict regulatory frameworks that ensure time allocation is closely monitored to enhance efficiency and reduce delays (Simiyu & Kirinyet, 2024) . These countries emphasize real-time monitoring tools, performance audits, and digital tracking systems that enable timely corrective actions during infrastructure implementation. In middle-income economies such as South Africa, Brazil, and Malaysia, M&E systems are moderately developed, with increasing adoption of participatory monitoring approaches and digital reporting systems, although challenges such as bureaucratic delays and resource constraints still affect optimal time utilization in projects (Kaula, 2020) .

In Africa infrastructure projects often face significant challenges in M&E of time allocation due to limited technical capacity, inadequate funding for M&E activities, and weak institutional coordination, resulting in frequent project delays and cost overruns (Wanjiku, 2015). In Kenya specifically, studies show that despite the existence of structured M&E frameworks, public infrastructure projects still experience inefficiencies related to time management, particularly in education and county-funded projects where monitoring systems are often reactive rather than preventive (Nambiro, 2018) . At the national level in Kenya, the government has increasingly prioritized M&E systems within public sector reforms to improve infrastructure delivery, particularly in education institutions where school infrastructure projects depend heavily on proper time allocation and monitoring for successful implementation (Sanganyi, 2016) . However, challenges such as inadequate stakeholder participation, insufficient M&E funding, and limited technical expertise continue to undermine effective time management in project execution across many counties (Mwatsefu, 2020). In Kakamega County, public secondary schools continue to implement infrastructure projects such as classrooms, laboratories, and sanitation facilities under devolved funding mechanisms, yet these projects are frequently affected by delays attributed to weak monitoring of time allocation and inefficiencies in M&E processes (Koimur, 2023) . Evidence suggests that although M&E structures exist at the county and school levels, implementation is often constrained by budget limitations, bureaucratic procedures, and inadequate coordination among stakeholders, which negatively affects adherence to project timelines and overall infrastructure development outcomes (Koimur, 2023).

Despite the existence of monitoring and evaluation (M&E) frameworks in public infrastructure projects, many public secondary schools in Kakamega County continue to experience delays, cost overruns, and incomplete projects, largely linked to ineffective time allocation and weak enforcement of project schedules (Wanjiku, 2015; Nambiro, 2018). In particular, inadequate monitoring of how time is planned, distributed, and utilized across project stages has undermined the efficiency of infrastructure delivery in the education sector, raising concerns about value for money and service delivery outcomes (Sanganyi, 2016). Although prior studies have examined general M&E practices in Kenya, limited empirical attention has been given to how monitoring and evaluation of time allocation specifically influences the implementation of school infrastructure projects at the county level, especially in devolved systems such as Kakamega County (Mwatsefu, 2020). This study is therefore justified as it seeks to bridge this gap by providing context-specific evidence on the role of time allocation within M&E systems in improving the implementation of infrastructure projects in public secondary schools.

1.1 Problem Statement

Despite increased government investment and the establishment of monitoring and evaluation (M&E) frameworks, the implementation of infrastructure projects in public secondary schools in Kakamega County continues to face persistent delays, cost overruns, and incomplete works. Evidence suggests that these challenges are largely associated with ineffective time allocation and weak monitoring of project timelines, resulting in inefficiencies in project execution and reduced value for public resources. While M&E systems exist, they are often characterized by reactive approaches, inadequate coordination among stakeholders, and bureaucratic processes that hinder timely decision-making and implementation. Consequently, many school infrastructure projects fail to meet planned schedules, affecting the quality and availability of essential learning facilities. Although previous studies have examined general M&E practices in project implementation, there is limited empirical focus on how monitoring and evaluation of time allocation specifically influences infrastructure project implementation in public secondary schools at the county level. This study therefore sought to address this gap by examining the influence of monitoring and evaluation of time allocation on the implementation of infrastructure projects in public secondary schools in Kakamega County, Kenya.

1.2 Objective of the Study

To examine the influence of monitoring and evaluation of time allocation on the implementation of infrastructure

projects in public secondary schools in Kakamega County, Kenya

1.3 Research Question

How does monitoring and evaluation of time allocation influence the implementation of infrastructure projects in public secondary schools in Kakamega County, Kenya?

2. Literature Review

Monitoring and evaluation of time allocation in infrastructure projects has increasingly been recognized as a key determinant of project success, particularly in the public sector where accountability and efficiency are critical (PMI, 2021). Effective time management within M&E frameworks ensures that project activities are implemented within planned schedules, reducing delays and cost overruns (OECD, 2023). Studies show that poor time allocation monitoring often leads to inefficiencies in project execution and compromised quality of infrastructure outcomes (Flyvbjerg, 2014). In the education sector, infrastructure development projects require strict adherence to timelines to support learning environments and service delivery (World Bank, 2022). Therefore, understanding how time allocation is monitored and evaluated is essential for improving project implementation performance (Kerzner, 2022). Monitoring and evaluation refers to a systematic process of collecting, analyzing, and using information to track project performance against planned objectives and timelines (UNDP, 2021). Time allocation is defined as the structured distribution of project duration across different phases such as planning, execution, monitoring, and closure (PMI, 2021). In project management literature, M&E is considered a continuous process that ensures accountability and supports decision-making during implementation (OECD, 2023). Effective time allocation ensures that resources are utilized efficiently and project milestones are achieved within set deadlines (APM, 2022). Consequently, the integration of M&E in time management is essential for enhancing project performance and sustainability (Kerzner, 2022).

In the United States, monitoring and evaluation systems in infrastructure projects are highly advanced and supported by integrated project management information systems that ensure strict adherence to time schedules (Flyvbjerg, 2014). Studies indicate that federal infrastructure programs employ real-time tracking tools to monitor project timelines and performance indicators effectively (GAO, 2022). The use of performance-based monitoring frameworks has significantly improved project delivery efficiency in public construction projects (PMI, 2021). However, despite these systems, large-scale projects still experience delays due to complexity and stakeholder coordination challenges (OECD, 2023). Therefore, structured time allocation monitoring has been shown to improve accountability and reduce project inefficiencies in the United States (Kerzner, 2022). In the United Kingdom, monitoring and evaluation of infrastructure projects is guided by strict public investment frameworks that emphasize time control and accountability (HM Treasury, 2021). Research shows that the UK's PRINCE2 project management methodology strongly integrates time allocation monitoring within all project stages (APM, 2022). This structured approach has contributed to improved delivery timelines in public infrastructure projects such as schools and transport systems (NAO, 2022). However, challenges such as bureaucratic approval processes still affect timely implementation in some cases (OECD, 2023). Therefore, the UK experience demonstrates that strong institutional frameworks enhance the effectiveness of time allocation monitoring (Kerzner, 2022).

In Germany, infrastructure project management is characterized by strong engineering standards and strict adherence to timelines supported by regulatory monitoring systems (Flyvbjerg, 2014). Studies show that German public projects utilize integrated scheduling and evaluation systems that ensure strict compliance with time allocation plans (BMVI, 2021). This has resulted in relatively high levels of efficiency and lower incidences of project delays compared to many other countries (OECD, 2023). However, coordination between federal and local authorities sometimes creates delays in project implementation (World Bank, 2022). Therefore, Germany demonstrates how disciplined monitoring of time allocation enhances infrastructure project performance (Kerzner, 2022). In Japan, infrastructure development is strongly influenced by efficient project scheduling and continuous monitoring systems embedded in public project management culture (PMI, 2021). Research indicates that Japanese infrastructure projects prioritize time discipline through just-in-time planning and continuous evaluation mechanisms (OECD, 2023). This approach has contributed to high efficiency and timely delivery of public infrastructure such as schools and transport networks (World Bank, 2022). However, external shocks such as natural disasters occasionally disrupt planned timelines despite strong systems (Flyvbjerg, 2014). Therefore, Japan illustrates the importance of integrating cultural discipline with M&E systems in time allocation (Kerzner, 2022).

In South Africa, monitoring and evaluation systems for infrastructure projects have improved through public sector reforms aimed at strengthening project governance (National Treasury SA, 2022). Studies show that time

allocation monitoring is increasingly incorporated into project management frameworks, particularly in education infrastructure projects (Mahlobo, 2021). However, challenges such as capacity constraints and procurement delays still affect project timelines (World Bank, 2022). Despite these challenges, improved M&E systems have contributed to better project tracking and accountability (OECD, 2023). Therefore, South Africa reflects a transitioning system where time allocation monitoring is improving but still faces structural constraints (Kerzner, 2022). In Malaysia, infrastructure project monitoring has been strengthened through digital project management systems that track time allocation and performance indicators (EPU Malaysia, 2021). Research indicates that structured M&E frameworks have improved efficiency in public construction projects including schools and hospitals (PMI, 2021). However, bureaucratic procedures and coordination issues still affect optimal time utilization (OECD, 2023). The integration of ICT tools in project monitoring has significantly enhanced transparency and timeliness (World Bank, 2022). Therefore, Malaysia demonstrates moderate success in improving time allocation monitoring through digital transformation (Kerzner, 2022).

In Brazil, infrastructure project performance has been influenced by evolving M&E systems aimed at improving time and cost efficiency in public investments (IPEA, 2021). Studies show that while monitoring frameworks exist, enforcement of time allocation remains inconsistent across regions (Flyvbjerg, 2014). This has resulted in frequent delays in public infrastructure projects, particularly in education and transport sectors (OECD, 2023). Nevertheless, reforms in project governance have improved transparency and reporting systems (World Bank, 2022). In essence Brazil illustrates a mixed performance in time allocation monitoring due to institutional variability (Kerzner, 2022). In India, infrastructure projects are supported by expanding M&E frameworks that aim to improve time management and project accountability (NITI Aayog, 2021). Research indicates that large-scale education infrastructure projects often face delays due to bureaucratic inefficiencies and resource constraints (PMI, 2021). However, digital monitoring platforms have begun improving transparency in project timelines (OECD, 2023). Despite these improvements, inconsistent enforcement of time allocation policies remains a challenge (World Bank, 2022). India therefore demonstrates gradual progress in strengthening M&E systems for time allocation in infrastructure projects (Kerzner, 2022).

In Uganda, infrastructure project implementation is often constrained by weak monitoring systems and limited technical capacity in time management (World Bank, 2022). Studies indicate that delays in public school construction projects are frequently linked to poor time allocation monitoring (OECD, 2023). However, recent reforms have introduced performance-based monitoring frameworks to improve accountability (UNDP, 2021). Despite these efforts, implementation gaps remain due to funding and governance challenges (Kerzner, 2022). Consequently, Uganda demonstrates ongoing challenges in strengthening time allocation M&E systems (Flyvbjerg, 2014). In Nigeria, infrastructure projects frequently experience significant delays due to weak monitoring and evaluation systems and poor time management practices (World Bank, 2022). Research shows that public education infrastructure projects are particularly affected by inefficient time allocation and corruption-related inefficiencies (OECD, 2023). However, recent reforms in public financial management have introduced stricter M&E requirements (UNDP, 2021). Despite these reforms, enforcement remains inconsistent across states (Kerzner, 2022). Overall, Nigeria reflects serious challenges in effective time allocation monitoring in infrastructure projects (Flyvbjerg, 2014).

In Tanzania, infrastructure project monitoring systems have improved gradually through donor-supported reforms aimed at strengthening M&E capacity (World Bank, 2022). Studies indicate that education infrastructure projects still face delays due to weak coordination and time management issues (OECD, 2023). However, adoption of results-based management frameworks has improved tracking of project timelines (UNDP, 2021). Despite these improvements, institutional weaknesses continue to affect implementation efficiency (Kerzner, 2022). Overall, Tanzania demonstrates moderate progress but persistent challenges in time allocation monitoring (PMI, 2021). In Kenya, monitoring and evaluation of infrastructure projects has been integrated into public sector reforms to improve efficiency and accountability (GoK, 2022). Studies show that despite the existence of structured M&E systems, public infrastructure projects often experience delays due to weak enforcement of time allocation frameworks (Mwatsefu, 2020). Education sector projects in particular face challenges related to funding delays and administrative inefficiencies (Nambiro, 2018). However, county governments have increased efforts to strengthen project monitoring systems (Sanganyi, 2016). Overall, Kenya reflects moderate progress in M&E practices with persistent challenges in time management (Wanjiku, 2015).

The literature reviewed therefore demonstrates that monitoring and evaluation of time allocation plays a critical role in determining the success of infrastructure project implementation across different global contexts. Studies from developed countries such as the United States,

United Kingdom, Germany, and Japan show that strong institutional frameworks, advanced project management systems, and real-time monitoring tools enhance adherence to project timelines and improve efficiency in infrastructure delivery. In middle-income economies including South Africa, Malaysia, Brazil, and India, the literature indicates moderate progress in strengthening M&E systems, although challenges such as bureaucratic delays, coordination gaps, and limited capacity still hinder effective time allocation. In developing countries such as Kenya, Uganda, Nigeria, and Tanzania, the studies consistently reveal that weak enforcement of monitoring systems, inadequate funding, and limited technical capacity contribute to frequent project delays and inefficiencies in infrastructure implementation.

2.1 Theoretical Underpinning

The study was anchored on the Project Management Theory as the main theoretical framework guiding the relationship between monitoring and evaluation of time allocation and implementation of infrastructure projects. The theory was developed by Henri Fayol (1916) and later advanced by modern project management scholars such as Kerzner (2022), who emphasize planning, organizing, coordinating, and controlling as core functions of effective project execution. The theory postulates that successful project implementation depends on the systematic application of management functions, particularly planning and control of resources such as time, cost, and scope, to ensure that project objectives are achieved efficiently and within the set timeline. It further argues that continuous monitoring and evaluation are essential in tracking progress, identifying deviations, and making corrective actions to ensure projects remain aligned with planned schedules and expected outcomes (Kerzner, 2022). This makes the theory highly suitable for the current study because it directly explains how time allocation, when properly monitored and evaluated, influences the successful implementation of infrastructure projects in public secondary schools.

The theory is relevant to this study because infrastructure projects in public secondary schools require strict adherence to timelines, coordination of multiple stakeholders, and continuous performance tracking to ensure successful completion. It provides a conceptual basis for understanding how effective time allocation within M&E systems enhances project efficiency, reduces delays, and improves overall implementation outcomes. In this study, time allocation is viewed as a key management function that must be planned, monitored, and controlled to ensure that project activities are completed within the required duration. The theory therefore supports the study's objective by linking structured project management practices to improved infrastructure delivery in the education sector.

Several studies have applied Project Management Theory to examine infrastructure project performance. For example, Flyvbjerg (2014) used the theory to analyze causes of delays and cost overruns in large-scale infrastructure projects and concluded that poor planning and weak monitoring systems significantly undermine project success. Similarly, Kerzner (2022) applied the theory to demonstrate that effective scheduling and continuous monitoring improve project delivery efficiency in construction projects. The Project Management Institute (PMI, 2021) also applied the theory in its global project performance studies, showing that structured time management and evaluation frameworks lead to higher success rates in infrastructure implementation. In addition, OECD (2023) utilized the theory to assess public infrastructure governance systems and found that countries with strong project management structures achieve better time control and project outcomes. These studies collectively affirm the relevance of the theory in explaining how monitoring and evaluation of time allocation influence the implementation of infrastructure projects.

3. Methodology

The study employed a descriptive research design survey using mixed methods approach. The target population was 412 principals, 412 Board of Management chairpersons, 412 Parents Association chairpersons and 13 Sub County Education officers hence the target population of this study was 1249 respondents. Stratified sampling and purposive sampling techniques were used to select respondents. A sample size of 316 respondents was selected comprising 101 principals, 101 Board of Management chairpersons, 101 Parents Association chairpersons and 13 Sub County Education officers. Primary data was collected from the respondents using questionnaires and interview schedule. Expert judges who are supervisors and lectures assisted to establish validity of the questionnaires. Cronbach's Alpha Coefficient of 0.7 was used to determine the reliability of the research instrument. The research yielded both qualitative and quantitative data. Qualitative data was analyzed qualitatively using content analysis based on meanings and implications emanating from respondent's information. Data from questionnaires was analyzed using both descriptive and inferential statistical methods. Descriptive statistics consisted of frequencies, percentages, mean, and standard deviation. Inferential statistics consisted of linear and multiple regression analysis. Ethical considerations such as informed consent, confidentiality, and voluntary participation were observed throughout the study.

4. Results and Discussions

4.1 Influence of monitoring and evaluation of Time allocation on implementation of infrastructure projects in public secondary schools in Kakamega County.

The purpose of the study was to establish the influence of monitoring and evaluation of time allocation on implementation of infrastructure projects in public secondary schools in Kakamega County. This objective was analyzed using descriptive statistics (mean, and standard deviation) and inferential statistics (linear regression). The responses of the questionnaires were analyzed using descriptive statistics. A total of 10 statements were used to establish the time allocation in public secondary school infrastructure projects in Kakamega County and their responses elicited on a 5-point Likert scale were summarized in Table 1.

Table 1: Time allocation

	Min	Max	Mean	Std. Dev
There is sufficient time allocated for M&E of financial resources	1.00	5.00	3.03	1.14
There is sufficient time allocated for in service courses in project management during M & E	1.00	5.00	2.85	1.16
There is sufficient time allocated for consultative monitoring and evaluation meetings	1.00	5.00	2.90	1.02
There is sufficient time allocated for M & E and data collection for research	1.00	5.00	3.00	1.16
There is adequate time frame for constant communication with stakeholders during M & E	1.00	5.00	3.30	1.11
Monitoring and evaluation of projects functions at different levels should be pegged to specific time frame.	1.00	5.00	3.59	1.06
Without proper time allocation the project work would fail due to lack of structured M&E,	1.00	5.00	3.83	1.04
The amount of time allocated IN M&E for each level of the project determine the quality of the project	1.00	5.00	3.95	0.90
During M & E the layout of which events should be done at which moment in time determines the success of the project.	1.00	5.00	4.08	0.90
The amount of time available for M & E can determine which project to be prioritized for undertaking.	1.00	5.00	4.13	0.99
Mean	**1.70**	**4.90**	**3.47**	**0.64**

As indicated in table 1, majority of the respondents agreed that monitoring and evaluation at different levels should be pegged to specific time frame (M=3.59;=1.06) This results are in agreement with the findings of Ramathamo(2013)who argues that each monitoring and evaluation entity that functions at different levels and each function should be tied to specific time without proper time and the duo continues to argue that projects have been let down by the monitoring and evaluation process. When estimating the cost for an evaluation, the duration and scope of the evaluation should be considered.

Majority of respondents agreed that without proper time allocation the project work would fail due to lack of structured M&E (M=3.83, SD=1.04).These findings agree with the findings by price water house coopers (PWC) (2014) who based a survey on several construction projects in 34 industries in 38 countries established that 86% failures of projects being delivered was due to time cost and budget. Further 60% of the project failed to be accomplished within the budget schedule and scope and less than 10% failed to deliver on their time scope and quality based on the established criterion.

Majority of respondents agreed that the amount of time allocated to each level of project determines the quality of the project (M=3.95; SD=0.90) This finding made by Kiarie and Wanyoike (2016) who indicated in their research findings that construction projects were indicating ridiculous time and cost overruns globally. According to Rugenyi (2016) over the last few decades cost over runs, especially in the government funded construction projects have remained common with some projects recording up to 60% increase from the original contract sum. This is a clear

indication that the amount of time and resources given to a project should be adequate for it to be completed well.
Majority of respondents agreed that the layout of which event should be done at which moment in time determines the success of the project (M=4.08; SD=0.90). The success of the project, This finding is in line with what (Bornd 2013) said that project implementation is only successful if it comes with planning schedule on budget in achieving good results and being accepted and used by clients. It is also in line with what Abdi (2014) said that project implementation is the process of laying out plans and actions so as to accomplish the set aims and goals. The success of a project in accomplishing its goals is backed up by the interaction of varied factors that if poorly scrutinized and supervised can smash the project a part and obstruct project success

Majority of respondents agreed that the amount of time available can determine which project to be prioritized for undertaking (M=4.13; SD=0.99). These findings are in agreement with the finding made by Kelly, male &Graham (2014) who said that infrastructure projects are based on the constraints which include time cost and quality. While Chengetah (2017) evaluated the performance of sub-contractors and identified the factors that are tied to the performance of the sub-contractor. Among the factors include construction techniques; duration controls abilities and material wastage and so on. From the past studies it has been also reported that time and cost overrun are common in most projects(Omondi,2017 Sterman 2015).Majority of respondents were undecided that there is sufficient time allocated for M&E of financial resource utilization (M=3.03;SD=1.14) This finding agree with the findings by Flyvbjerg and Budzier (2018) who established in a report that it was found that one in six of the 1.471 projects carried out had an average of time plus cost overrun that is 200% and 70% respectively. It also agrees with another report by Bloch, Blumberg and Laartz (2014) who established that out of 5400 large government funded projects 45% indicated cost overruns and 7% of the project had time overrun and 56% of these projects had values than the ones earlier predicted.

Majority of respondents agreed that there is sufficient time allocated for service courses in project management (M=2.85; SD=1.16). This finding agrees with the study conducted by Wairimu (2016) who observed a gap in adequacy of training school heads. The lack of adequate training of principals profoundly affected their ability to initiate project implementation, project scheduling, human resource management, budgeting, accounting and project control. The researcher cited this as a possible barrier to implementation of strategic plans in infrastructural projects in public schools in Kenya as evidenced in the rising numbers of stalled projects as well as dilapidated structures.

Majority of respondents were undecided that there is sufficient time allocated for consultative monitoring and evaluation meetings (M=2.90;SD=1.02).This findings are in agreement with findings made in research by Dailami and Klein(2015) who opined that the public appetite for participation and involvement in public infrastructure projects is mixed although there is not much literature on involvement of the public on participatory planning during public infrastructure projects its however believed that the level of participation in public infrastructure projects relies so heavily on those in power and the process is never considered important.

The findings are also in agreement with Muriungi (2015) who investigated the role of participatory monitoring and evaluation programs among government cooperation's. The study established that lack of time, insufficient M&E skills, poor pay, lack of enough funds, inadequate staff, lack of skills, technological challenges, lack of awareness and poor infrastructure, hindered participatory monitoring and evaluation. Majority of respondents were undecided that there is sufficient time allocated for data collection for research (M=3.00; SD=1.16). These findings are in line with Ramothamo (2013) findings which he argues that each monitoring and evaluation entity that functions at different levels and each functions should be tied to specific time. This includes time for data collection without proper time allocation the duo continues to argue that projects have been let down by M&E process.

Majority of respondents were undecided that there is adequate time given for communications with stakeholders (M=3.30;SD=1.11).This findings are in disagreement with Kelly and Magongo(2014) who stated that during infrastructure project management there is planning so as to assist the organization management to fulfill their primary function of direction and control in the implementation of projects components , coordinate and communicate with the many parties involved. From the findings of the study responses to the indicators, time allocation had an overall mean of 3.47 and a standard deviation of 0.64. This shows that time allocation in implementation of public secondary school infrastructure project in Kakamega County was not adhered to. From the interviews, the sub-county director of education rates the time allocated for implementation of infrastructure project in public secondary school to be adequate one of the interviews stated that there is adequate time depending on the type of infrastructure project being implemented. Another stated that there was enough time depending on the disbursement of funds.

4.2 Regression analysis on time allocation and implementation of infrastructure projects

A linear regression model was used to explore the effect of time allocation and implementation of infrastructure projects. From the model, (R2 = .272) indicated that time allocation accounts for 27.2% variation in implementation of infrastructure projects. The R2 represented the measure of variability in implementation of infrastructure projects that time allocation account for. The time allocation predictor used in the model captured the variation in the implementation of infrastructure projects as shown in Table.2.

Table 2: Model Summary on time allocation and implementation of infrastructure projects

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.522a	.272	.269	.51749

a. Predictors: (Constant), Time allocation

The analysis of variance was used to test whether the model could significantly fit in predicting the outcome than using the mean as shown in (Table 2). The regression model with time allocation as a predictor was significant (F=103.128, p value =0.000) shows that there is a significant relationship between time allocation and implementation of infrastructure projects.

Table 3: Analysis of Variance on time allocation and implementation of infrastructure projects

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	27.618	1	27.618	103.128	.000b
	Residual	73.913	276	.268		
	Total	101.530	277			

a. Dependent Variable: Implementation of projects
b. Predictors: (Constant), Time allocation

In addition, the β coefficients for time allocation as independent variable were generated from the model, in order to test the hypotheses under study. Table 3 shows the estimates of β-value and gives contribution of the predictor to the model. The β-value for time allocation had a positive coefficient, depicting positive relationship with implementation of infrastructure projects as summarized in the model as:

$Y = 2.131+0.497X1 + \varepsilon$ …….…… Equation 4.4
Where: Y = Implementation of infrastructure projects, X_1 = time allocation, ε = error term.

From the findings the t-test associated with β-values was significant and time allocation predictor was making a significant contribution to the model. The coefficients result in table 3 showed that the predicted parameter in relation to the independent factor was significant (β4 = 0.497; P<0.05).

Table 4: Time allocation and implementation of infrastructure projects ' coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.131	.173		12.352	.000
	Time allocation	.497	.049	.522	10.155	.000

a. Dependent Variable: Implementation of projects

The study hypothesized that there is no significant effect of time allocation on implementation of infrastructure projects. There was a positive significant effect of time allocation and implementation of infrastructure projects (β4=0.497 and p value <0.05). Therefore, an increase in time allocation led to an increase in implementation of

infrastructure projects. The null hypothesis (**Ho1)** was rejected.

Time allocation had a significant influence on implementation of infrastructure projects. This implies that for each increase in time allocation, there was an improvement in implementation of infrastructure projects. Ramothamo (2013) argues that each monitoring and evaluation entity that functions at different levels and each function should be tied to specific time. The duration of an evaluation was determined by its purpose.

To gather qualitative data, sub county directors of education were interviewed. One of the participants said:

> *The monitoring of time allocation on public secondary schools' infrastructure projects can be rated as moderately effective in our county. While there have been efforts to track and manage project timelines, there are areas where improvements can be made to enhance the efficiency and timeliness of project implementation. Currently, there are mechanisms in place to monitor and track the progress of infrastructure projects in public secondary schools. Regular updates and progress reports are shared among project stakeholders to ensure transparency and accountability. These monitoring efforts provide a broad overview of the project's status and identify any delays or issues that may arise during implementation. However, it is important to acknowledge that challenges related to time allocation still exist. Factors such as budget constraints, bureaucratic processes, and unforeseen circumstances can impact the timely completion of projects. Delays in obtaining necessary permits, procurement procedures, and coordination among various stakeholders can contribute to project timelines not being met as initially planned"*

The interview response provides an assessment of how time allocation is monitored in public secondary schools' infrastructure projects, revealing both strengths and systemic weaknesses in project implementation at the sub-county level. To begin with, the participant's characterization of monitoring as *"moderately effective"* suggests that foundational structures for time management are already in place, but they are not operating at an optimal level. This implies a mid-level performance where monitoring systems exist and function to some extent, yet they fall short of ensuring consistent adherence to project timelines. In qualitative terms, this reflects a situation where compliance mechanisms are present but not sufficiently robust to guarantee efficiency.

The response highlights the existence of formal monitoring frameworks, such as progress tracking systems, regular updates, and reporting mechanisms. These elements indicate that there is an established administrative effort to oversee project timelines. The sharing of progress reports among stakeholders points to a level of transparency and accountability in project management. It also suggests that communication channels between key actors such as school administrators, contractors, and education officials are functional. From a governance perspective, this is a positive indicator, as it demonstrates an awareness of the importance of oversight in public infrastructure development. However, the participant also emphasizes that these monitoring efforts mainly provide a *"broad overview"* rather than detailed, real-time control of project timelines. This suggests that while monitoring systems can identify delays and issues, they may not be proactive or precise enough to prevent them. In other words, the system appears to be more reactive than preventive. This limitation reduces the effectiveness of time allocation monitoring, as early warning mechanisms and corrective actions may not be sufficiently timely or impactful.

A critical part of the interpretation lies in the challenges identified. Budget constraints emerge as a major factor affecting time allocation. This indicates that financial limitations can disrupt planned schedules, possibly leading to delays in procurement, contractor payments, or resource mobilization. Bureaucratic processes are also highlighted, pointing to administrative inefficiencies such as lengthy approval procedures, rigid regulations, and slow decision-making. These factors reflect structural issues within public sector management that hinder timely project execution. Additionally, the mention of delays in obtaining permits and navigating procurement procedures suggests that institutional and regulatory frameworks may be cumbersome. This can lead to extended project initiation phases, thereby affecting overall timelines. The issue of coordination among stakeholders further indicates potential gaps in collaboration and synchronization. When multiple actors are involved without effective coordination mechanisms, it increases the likelihood of misaligned schedules, duplication of efforts, or delays in decision-making.

The reference to *"unforeseen circumstances"* introduces an element of uncertainty in project implementation. This acknowledges that not all delays are due to poor management; some arise from external factors such as weather conditions, market fluctuations, or unexpected logistical challenges. However, the inclusion of this point also implies that contingency planning and risk management strategies may not be sufficiently developed to mitigate such disruptions. The response therefore reflects a partially functional monitoring system that supports transparency and basic oversight but lacks the

efficiency, responsiveness, and coordination required for optimal time management. The findings suggest that improving time allocation monitoring would require strengthening financial planning, streamlining bureaucratic procedures, enhancing stakeholder coordination, and adopting more proactive and real-time monitoring tools. From a broader analytical perspective, this response underscores the complexity of managing public infrastructure projects within the education sector. It illustrates that effective time allocation is not solely dependent on monitoring mechanisms but is also influenced by institutional capacity, resource availability, and governance structures.

5. Conclusion and Recommendations

5.1 Conclusion

The findings of the study indicate that time allocation plays a significant role in the implementation of infrastructure projects in public secondary schools in Kakamega County. Although monitoring and evaluation systems for time management exist, they are only moderately effective and are often constrained by institutional, financial, and administrative challenges. While there is evidence of structured monitoring processes such as reporting, stakeholder communication, and progress tracking, these mechanisms are largely reactive rather than proactive, limiting their ability to ensure strict adherence to project timelines. The study further reveals that inadequate coordination, bureaucratic procedures, budgetary limitations, and insufficient risk management practices undermine effective time allocation. Overall, time allocation remains a critical determinant of project success, but its effectiveness is compromised by systemic inefficiencies within project implementation frameworks.

5.2 Recommendations

Based on the findings, this study made the following recommendations:

1. The Ministry of Education and county education authorities should strengthen monitoring and evaluation systems by adopting more proactive, real-time project tracking mechanisms to ensure strict adherence to project timelines in infrastructure development projects.
2. School administrators and project managers should improve coordination among stakeholders by establishing clear communication frameworks and structured consultation schedules to enhance efficiency in time allocation during project implementation.
3. There is need to streamline bureaucratic and administrative procedures related to project approval, procurement, and implementation to minimize unnecessary delays that negatively affect project timelines.
4. Education stakeholders should enhance capacity building for project implementers through regular training in project management, monitoring and evaluation, and time management to improve efficiency in infrastructure project delivery.

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