

# Factors Influencing Successful Completion of Construction Projects In Public Primary Schools: A Case Study of Dagoretti South Sub-County

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**Abstract:** Project completion has always been a challenge to many public primary schools in Kenya. Over the years' primary school construction projects are managed by the Board of Management (BOM) and the Parent Teachers Association (PTA) whose function is to oversee the regular running of the school without interfering with the day to day running. In most cases, the school heads have a significant role in the management of the school projects. Ensuring that projects in the schools completed has been a significant concern to both the contractors and the education stakeholders. In the recent past, it has been noted that some of the school projects have stalled having incomplete classrooms, toilets, and so on. With the introduction of Community Development Fund (CDF) which was geared towards supporting infrastructure in schools, in line with the Kenya vision 2030 goals, some of the projects are partially completed, and others poorly did. With this outcome of events, it will be a challenge to achieve these goals. Though it has been a challenge; there are some schools that have managed to complete their proposed constructions in due time, for this reason, it is vital to understand the reason for the success. This project is aimed at investigating and documenting the successful strategies that have been used by project managers in the construction projects. The research was conducted with a mixed design approach which incorporates both qualitative and quantitative components of research. A sample of 21 schools from the target population of 27 schools, from Dagoretti South Sub-County, was collected. Given all the tasks were achieved. Data were collected from the head teachers and teacher in charge then a follow-up interview will be conducted with the BOM at the school management level. From the study, it was found that the factors investigated had to influence on construction project completion in Primary schools. These were; project communication, project funding and project technical expertise and project monitoring and evaluation. In fact, all the factors reviewed in this study affect project completion. The findings showed that there was a significant relationship between the four independent variables and completion of construction projects. Amongst all the independent variables, availability of funds statistically was seen to have the most significant relationship with successful completion of projects (p-value = 0.000). This study particularly showed that the primary schools in Dagoretti South Sub-County, lack adequate funding, adequate project management skills for school principals and project communication required to complete projects.

**Keywords:** Successful completion, Consultant, Client, Project Delay

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## 1. INTRODUCTION

The construction industry plays a significant role in socio-economic development as it provides the basis upon which other sectors can grow by constructing the physical facilities required for the production and distribution of goods and services. The most common criteria for measuring project success is based on the triple constraint model; time cost, the scope of quality being the central theme. Any change in one of the factors affects the other two. For instance, an increase in scope without a corresponding increase in time and cost leads to poor quality of work or decrease in time without a decrease in scope leads to poor quality if cost remains constant. [4], a project is generally considered to be successfully

implemented if it is on schedule, within budget, and achieves all the goals initially set for it and is accepted and used by the clients for whom it is intended.

Inability to complete projects in time is among the challenges faced in the course of executing construction projects [2]. [1] Explained that achieving project completion on time, within budget, at specified quality standards, and most importantly without unprecedented cost escalations is a significant criterion of success of a project. This research focused on completion of projects regarding quality (satisfying client specifications), time and cost. There are many factors that affect project completion. The construction industry in Kenya faces a lot of challenges such as expenditure exceeding the budget, delay to complete the project in time, the building defects, and over-reliance on foreign workers [1]. Therefore, due to the massive investments, it is necessary to study the factors which influence project completion of projects to realize the economic and social benefits of these projects and also eliminate such effects such as cost overruns and possibly low-quality products.

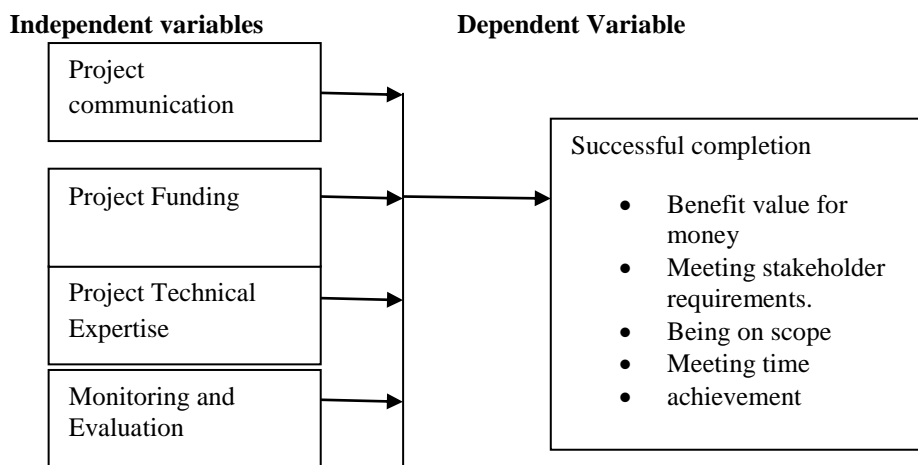
Various studies have been carried out to investigate the factors affecting completion of construction projects. In section 11 of the Education Act, the voluntary organization, which is the founder of the school is given the right to nominate four persons to champion the sponsor's interests in the School Board of Governors if the school is on the second schedule. This organ champions the sponsors' interest in school management. The historical roles where sponsors were the main developers and providers for educational institutions have changed. At this time, the missionaries were the main developers and providers for educational institutions they owned. They developed facilities and provided nearly all essential learning resources. These gave significant roles to sponsors in the management of schools in Kenya.

## 2. EMPIRICAL REVIEW

In a study conducted in Kenya by [8] on factors influencing timely completion of infrastructural projects in public secondary schools in Kenya: a case of Kitutu Masaba constituency, Kenya, using the survey research design to collect the data from a target population of 56 schools in the constituency, the study found that management Skills amongst school managers influences timely completion of school projects. Timely availability of funds also influences these projects. Conflicts between various stakeholders were found to be taking place and affecting timely completion of the projects. The further found that stakeholders are involved but how seriously they play their roles may be a factor that is influencing timely completion of these projects. The study, therefore, recommended that school managers and especially principals should undertake professional courses that are tailored to enable them to acquire relevant skills for project management in schools. Stakeholders like the BOMs and PT As should be composed of individuals who have professional experience in construction work or have attended related courses.

[5], found that change orders, financial and other client-related factors are the most significant causes of delay in project completion time in the United Arab Emirates. This indicates that there are various factors that influence completion of projects and it seems to vary from country to country, but there is convergence on financial constraints as a significant factor. [9] Studied the effect of management support, design specifications and contractor capacity on the completion of road projects.

## 3. CONCEPTUAL FRAMEWORK



#### 4. SUMMARY AND CRITIQUE OF EXISTING LITERATURE

A study by [6] covered financing, monitoring, contractor's capacity and contract variations as factors influencing project completion time. This only covered one parameter of project success (time), it did not cover other metrics of project success such as time and quality. These are primary factors within the project. Others such as political, regulatory changes, decision-making, and co-ordination, etc also affect project completion. A study by [9] on road projects investigated the effect of management support, design specifications and contractor capacity on project completion. This covered road projects and concentrated on internal factors. It left out other factors such as consultant related and external factors.

Most of these researchers believe that the most important responsibilities of a project manager are projected evaluation, setting up the team, setting up systems, planning, monitoring and control, negotiating contract conditions, training and communication. This is however not the case as a project manager's success at managing his or her project is dependent on his or her competence, particularly the leadership style comprising emotional intelligence, management focus as well as intellectual capabilities. From the reviewed literature above it is also evident that the literature lacks in-depth case studies, studies of processes, and studies in real time and studies that would be beneficial to project success and even for understanding fundamental issues of projects and project organizations. From the literature, the majority of the researchers have paid limited interest in the actual work and performance of the project manager and the project management unit.

#### 5. RESEARCH METHODOLOGY

The descriptive research design was used in this study. The study will target public primary schools in Dagoretti South Sub-county from which, Head teachers, BOM chairpersons, accountants and teachers in charge of the project will be involved. Therefore, the total population for the study was 84 respondents. From the 84 members of the targeted population, the study used a proportionate sampling method to select 30 participants as a sample size. Using Proportionate sampling, there were 21 Head teachers, 21 BOM chairpersons, 21 Accountants and 21 teachers in charge of specific projects. This constituted 35.7% of the target population. The study used self-administered questionnaires and observation schedules. This study utilized both primary and secondary data.

Multiple regression models were used to find out the relationship between the independent variables and the dependent variable. Multiple regression was also used to determine the strength of association between the predictors (independent) and successful completion among its dimensions. The test for significance of coefficient of correlation was determined by the use of f-test. The following multiple linear regressions were to be used:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e_0$$

Where:

$\beta_0$  = Y-intercept (constant) whose influence on the model is insignificant

$X_1$  = Project Communication                       $X_2$  = Project Funding

$X_3$  = Project Technical Expertise               $X_4$  = Monitoring and Evaluation

$\beta_1, \beta_2, \beta_3, \beta_4$  = Model coefficients which are significantly significant to have a significant influence on the model. Is the error term.

#### 6. RESULTS AND DISCUSSION

##### 6.1 Project communication

On the aspects that enhance project communication for school construction projects, respondents were asked to tick the element that mostly would strengthen project completion among the dimensions given; the results are presented in. From the results, 56.3% of the respondents indicated that project completion is achieved when all communication was known to all project team and management. An equal number, 18.8% of the respondents indicated that freedom of communication and managing project gossip enhanced project completion. 7% said a good structure of communication enhances project completion. From these finding it is clear that knowledge of by all project team and management about what is going on that is communicating effectively and getting all involved to know about the project progress, greatly enhances project success.

Results shows that Dysfunctional project communication does not influence project completion in secondary schools, where 43.8% of the respondents disagreed, with further 15.6% strongly disagreeing, only about 12.5% of the respondents agreed with about a quarter (25.0%) being undecided, on simplification of communication process, an equal number 34.4% either agreed or were undecided, about 18.8% disagreed, with about 9.4% strongly disagreeing. Respondents were of the opinion that consistency of project communication helped the project to succeed, where 46.9% agreed with a further 15.6% strongly agreeing to that aspect. About 9.4% disagreed and 25.0% were undecided. Finally, the type of communication used does not plays a vital role to ensure completion of the project since majority 43.8% of the respondents disagreed with further 31.3% strongly disagreed only 6.3% agreed while 18.8% were uncertain

## **6.2 Project Funding**

Respondents were also asked to give their reactions towards funding aspects and how they would influence project completion using a scale of 5= strongly agree 4= Agree 3= Not sure 2=Disagree 1=strongly disagree. A mean of 4 was obtained on out of 5 indicating that funding indeed influences the completion rate in their schools. For these reasons, attention to project finance is an essential aspect of project management. [3] Also states that finance is also a concern to the other organizations involved in a project such as the general contractor and material suppliers. Correlation between funding and completion rate of construction projects was determined using the Bivariate Pearson correlation analysis shown below. The results indicate a statistically significant and positive relationship between funding and completion rate of construction projects with ( $r=0.67$ ,  $P< 0.05$ ).

## **6.3 Project Technical expertise**

According to the study findings, project management skills could influence the completion rate of construction projects through various fronts. For example, the majority of the respondents at 58.2% strongly agreed that good leadership of the project team enhanced proper and quick project completion, meaning poor leadership skills among the project managers could slow down the project completion. This was also confirmed by a majority of the respondents at 61.1% who strongly agreed that inadequate knowledge of project management could cripple project completion. Further, Dainty et al. (2002) in Cooke-Davis (2001) declared that project management competence is one of many criteria upon which project performance is contingent. Furthermore, Kerzner, (2008) assert that incomplete drawings, late issuance of instructions and inadequate supervision critically impacted by delays in construction projects in public learning institution.

Based on supervision of the project, the majority of the respondents (63.9%) strongly agreed that supervision during construction is critical to ensure quality products and timely delivery of the project. Therefore, any lapse in supervision could cause delay and unsuccessful completion of construction projects. Further, the effectiveness of construction management will affect the speed of construction, and the majority of the respondents strongly agreed on this statement at 69.4%. The results indicate a statistically significant and positive relationship between project management and leadership skills and a completion rate of construction projects with ( $r=0.68$ ,  $P< 0.05$ ).

## **6.4 Project Monitoring and evaluation**

Monitoring practices in government-owned entities play critical roles in the national development efforts. First, government-owned entities are essential in promoting or accelerating economic growth and development. They are essential to building capability and technical capacity of states in facilitating and supporting national development. Third, they are necessary instruments in improving the delivery of public services, including meeting the basic needs of citizens. Fourth, they have been variously applied to the creation of real and widespread employment opportunities in various jurisdictions and lastly the state corporations are useful for the targeted and judicious building of international partnerships.

As part of the study objectives, the study sought to investigate the influence of monitoring planning on the performance of the project in Kenyan State Corporations. Based on the findings in the table, monitoring plans are well applicable in organization activities (mean = 4.36, SD = 0.75). Also, employees are well trained on effective monitoring planning practices in organization projects (mean = 3.45, SD = 1.35). The implication is that employees have the requisite skills to systematically arrange project resources in such a way that it leads to the achievement of project objectives. Furthermore, network diagrams and frameworks are used in scheduling organization projects (mean = 4.01, SD = 0.99). With the use of network diagrams and frameworks, project managers and the involved stakeholders can lay out the steps needed to achieve the desired results. There is thus an increased understanding of the project goals as well as the objectives. Besides, the organization conducts stakeholder's analysis surveys on its resources before it plans (mean = 3.73, SD = 0.8).

By carrying out this analysis before the implementation of a policy, project managers can detect and act to prevent misunderstanding or opposition to the implementation of the policy.

### 6.5 Regression Analysis

The study undertook a regression analysis to establish the association between the independent variables with the dependent one. Table 4.8 shows the coefficients on the influence of the individual independent variables on the dependent variable. The Beta coefficients indicated the extent to which Successful Completion changes due to a unit change in the independent variable. The positive Beta coefficients suggest that a unit change in the independent variable leads to a positive change in the successful completion of projects; a negative Beta coefficient indicates an inverse effect between the variables in that a unit change in the independent variable leads to a negative change in the successful completion of projects.

Table 4.8 Regression Coefficients-Successful completion of construction projects in public primary schools. Dagoretti south Sub-County

<b>Response</b>	<b>B</b>	<b>Std error</b>	<b>T</b>	<b>Sig.</b>
(Constants)	0.139	0.221	-0.628	0.532
Project Communication	0.606	0.097	-0.628	0.000
Project Funding	0.072	0.067	1.077	0.285
Project Technical Expertise	0.177	0.073	2.435	0.017
Monitoring and Evaluation	0.272	0.083	3.283	0.002

The p-value of availability of funds, project management skills and stakeholders' involvement are each below 0.05. This means all these variables are significant in influencing the completion of primary school construction projects. Project communication had a p-value of 0.285 this shows that it was an insignificant indicator of project completion. Three variables availability of funds, stakeholders' involvement and project management skills are the most significant variables in explaining completion of secondary school projects in Dagoretti South Sub County; they are positively co-varied.

## 7. CONCLUSION

From the study, it can be concluded that the factors investigated had to influence on successful project completion in Primary schools in Dagoretti South Sub County, these were; availability of funds, project communication processes, project management skills and stakeholder's involvement. In fact, all the factors reviewed in this study affect project implementation and completion. Though the most significant factor that was statistically shown as very crucial to projects completion was the availability of funds with a p-value of 0.000 and t value of 6.247, other factors except project communication were also shown as significant.

The findings showed that there was a significant relationship between three independent variables and successful completion of projects. Amongst all the independent variables, availability of funds statistically was seen to have the most significant relationship with successful completion of projects The findings on financial availability further supported early studies which state that financial difficulties are the primary cause of suspension of works in construction projects leading to delay in the timely completion of projects.

This study notably showed that the Primary schools in Dagoretti South Sub County lack adequate funding, adequate project management skills for school principals and proper involvement of stakeholders required to complete school construction projects. Government procedures for disbursement of funds are bureaucratic, and thus most projects once approved by BOM await a more prolonged period before actual release of funds was undertaken through the current study disputes on the availability of financial resources and equipment. Donor funding on the other side is smoothly disbursed and most cases the contractor receives the money within the scheduled period.

Donor-funded school construction projects once approved are expected to be completed within the set design framework and contractors are expected to sign commitment towards adherence which is closely monitored and supervised, but this is usually not the case as the study found out. In some cases, school construction designs were highly exposed to design changes due to terrain and funding constraints to land ownership issues and government policy complications. These issues usually lead to construction delays.

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