

FACTORS INFLUENCING SUCCESSFUL COMPLETION OF CONSTRUCTION PROJECTS IN PUBLIC PRIMARY SCHOOLS: A CASE OF DAGORETI SOUTH SUB-COUNTY, KENYA

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Abstract: Construction 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 normal running of the school without interfering with the day to day running. In most cases the school heads have a great role in the management of the school projects. Ensuring that projects in the schools are completed, has been a major 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 done. 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 25 schools was collected. 4 out of the 25 schools were considered special schools having special needs thus did not meet part of the sample size from Dagoretti South Sub-County. Given all the tasks were achieved. Data was collected from the head teachers and teacher in charge then a follow up interview was conducted with the BOM at the school management level. From the study, it was found that the factors investigated had 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 have an effect on 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 successfully completing projects.

Keywords: Successful completion, Consultant, External Factors, Project Delay, Contractor.

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 with 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. [10] delays and non-completion of projects from initial cost plan has been prevalent on construction sites. The total value of new private and public buildings completed went up by 9.6 per cent from KSh 46.4 billion in 2011 to KSh 50.8 billion in 2012.

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, that 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. 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

[3] found that the major factors that inhibited completion of road construction projects in Zambia were delayed payments, financial deficiencies on the part of the client or the contractor, contract modifications, economic problems, material procurement problems, changes in design drawings, staffing problems, unavailability of equipment, poor supervision, construction mistakes, poor coordination on site, changes in specifications, labour disputes and strikes. A study [1] found that delayed payments, slow delivery of payments, coordination problems, and poor communication hindered completion of construction projects in Egypt.

[7] 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 major factor. In Kenya, [5], studied the effect of project management, contractors, consultants and finance in project success for housing projects in Nairobi County while [8] studied the effect of management support, design specifications and contractor capacity on the completion of road projects. According to [6] some sponsors meddling in schools destabilize the instructive activities in the system. The sponsor blames the school heads concerning management issues and the school heads blame the sponsor for interference in school management. Most schools are single handedly run by the principal.

[9] problems such as schedule delays, budget overruns, low quality work, as well as a large number of claims and litigation result largely from not selecting the best contractor to construct the facility. Quality of management during construction concerns the steps taken to ensure that products are in accordance with the quality standards and measure the effectiveness / competency of consultants and contractors. [1] did a research on the Barriers to implementation of EMS in construction industry in Ghana and Rwanda and argued that, factor like financial resources, organizational structures, organizational culture, stakeholders and many more have an influence and greatly determine plus giving the direction of the success of the M&E process.

For a project to be said to be complete, it should satisfy three success criteria i.e. completed on time, within budget and meet client’s specification [8]. Project completion time refers to the planned date for the delivery of the project specified in the contract [6] and it is usually indicated in the contract document. Completion of a project beyond the scheduled date constitutes delay or time overrun which has an effect on the quality and costs of the project.

3. CONCEPTUAL FRAMEWORK

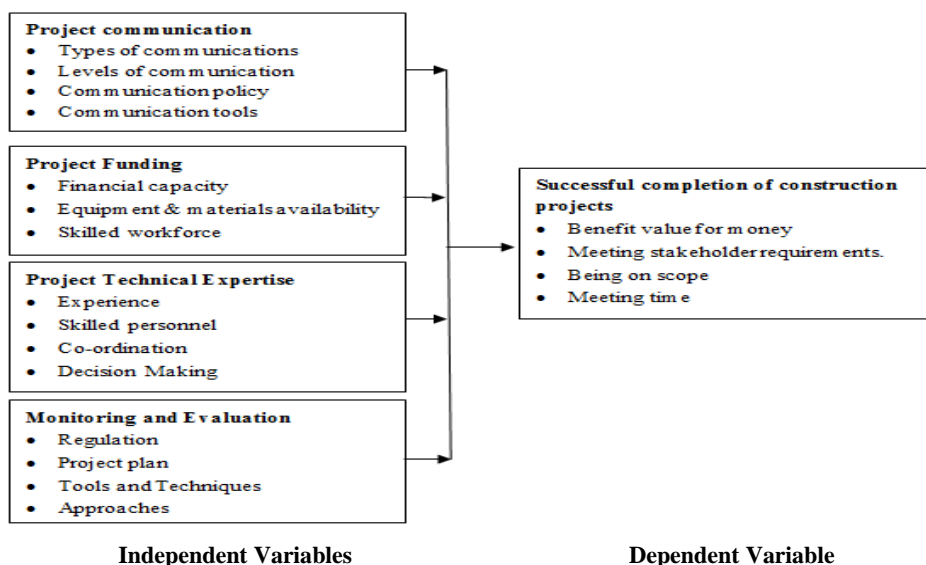


Figure 2.1: Conceptual Framework

4. SUMMARY AND CRITIQUE OF EXISTING LITERATURE

Project completion time, cost and quality objectives are an important parameter for measuring project completion. The major causes of unsuccessful completion of construction projects around the world were delayed payments, financial deficiencies on the part of the client or the contractor, contract modifications, economic problems, material procurement problems, changes in design drawings, staffing problems, unavailability of equipment, poor supervision, construction mistakes, poor coordination on site, changes in specifications, labor disputes and strikes, coordination problems, poor communication, site accidents [1].

5. RESEARCH METHODOLOGY

The study will employ descriptive research survey design. The study will target all public primary schools in Dagoretti South Sub- county from which, Head teachers, BOM chairpersons and teachers in charge of the project were involved. The Sub-county has a population of approximately 178,691 people and there is a total of 21 schools not requiring special needs programs. Therefore, the total population for the study was 64 respondents. From the 63 members of the targeted population, the study used proportionate sampling method to select 30 participants as a sample size. Using Proportionate sampling there are 21 Head teachers, 21 BOM chairpersons and 21 teachers in charge of specific projects. The unit of analysis being the school and the unit of analysis being the 3 groups. This constituted 47.6% of the target population. The questionnaire and an interview guide were used for data collection. The questionnaire was close ended and it was anchored on a 5 Likert scales with items measuring each variable as they are easy to construct, are reliable and objective than any other opinion scales (Kothari, 2009). In this research, the primary data was collected through self-administered questionnaires. The questionnaire items were clearly simplified and structured in a manner of void of any ambiguity. 10 questionnaires were used for the pre-test for this study in Dagoretti south sub-county. 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 is determined by the use of f-test. The following multiple linear regressions was used:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \epsilon$$

Where:

β_0 = The 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 large to have significant influence on the model. ϵ is the error term.

6. RESULTS AND DISCUSSION

The descriptive statistics was used to describe and summarize the data in form of frequency distribution tables. The inferential statistics was used to make inferences and draw conclusions. The statistical package for social sciences (SSPS) version 24 was used to analyze the data.

Project Communication

On the aspects that enhance project communication for school construction projects, respondents were asked to tick the aspect that mostly would enhance project completion among the aspects given; the results are presented in Table From the results, 56.3% of the respondents indicated that a project completion is achieved when all communication was known by 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 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 play an important role to ensure completion of project since majority 43.8% of the respondents disagreed with further 31.3% strongly disagreed only 6.3% agreed while 18.8% were uncertain.

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. These findings are similar to observation made by [2] who also found that a project cannot proceed without adequate financing, and the cost of providing adequate financing can be quite large. For these reasons, attention to project finance is an important aspect of project management. [5] 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 ($r=0.67$, $P< 0.05$). The study found that funding system and its availability had a great influence on the completion rate of the construction projects in public secondary schools in this region. For instance, majority of the respondents 55.6% strongly agreed that misappropriations of project funds lead to incompleteness of projects. Over half of the respondents (52.8%) also strongly agreed that also found that budgeting for construction project elements would affect completion of construction project as budgeting for a project is governed by the amount of finance available.

Project Technical expertise

According to the study findings, project management skills could influence the completion rate of construction projects through various fronts. For example, 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 majority of the respondents at 61.1% who strongly agreed that poor knowledge of project management could cripple project completion. The study also found that failure at the conceptual planning and design stages as a result of the limited knowledge, experience and expertise among the project managers or owners of the project may lead to significant problems in successive stages of the project. This was confirmed by most of the respondents at 63.9% who responded positively to the statement.

Further, [2] declared that project management competence is one of many criteria upon which project performance is contingent. Furthermore, [5] assert that incomplete drawings, late issuance of instructions and inadequate supervision critically impacted on delays in construction projects in public learning institution. Based on supervision of the project, majority of the respondents (63.9%) strongly agreed that supervision during construction is critical to ensure quality products and timely delivery of project. Therefore, any lapse in supervision could cause delay and unsuccessful completion of construction projects.

Project Monitoring and evaluation

Monitoring, is a practice that is useful and relevant for the actors in the development world. However, in Kenya many mainstream Monitoring practices tend to be isolated and disconnected from management and decision-making. Many programs and projects are driven by pre-set targets and actions, such that is an additional burden on application teams, and their monitoring practice is limited to the fulfilment of reporting requirements of governments. Monitoring practices in government owned entities play critical roles in the national development efforts. First, government-owned entities are important in promoting or accelerating economic growth and development. They are essential to building capability and technical capacity of states in facilitating and/or promoting national development. Third, they are necessary instruments in improving the delivery of public services, including meeting the basic needs of citizens.

Regression Analysis

The study undertook a regression analysis to establish the association between the independent variables with the dependent one. Table 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 indicate that a unit change in the independent variable leads to a positive change in 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 successful completion of projects.

Table 1: Regression Coefficients-Successful completion of construction projects in public primary schools Dagoretti south Sub-County

Response	B	Std error	T	Sig.
(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 p-value of 0.285 this shows that it was 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 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 have an effect on project implementation and completion. Though the most significant factor that was statistically shown as very crucial to projects completion was availability of funds with p- value of 0.000 and t value of 6.247, other factors with an exception of 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 major cause of suspension of works in construction projects leading to delay in the timely completion of projects.

This study particularly showed that the Primary schools in Dagoretti South Sub County lacks adequate funding, adequate project management skills for school principals and adequate involvement of stakeholders required to successfully complete school construction projects. Government procedures for disbursement of funds are bureaucratic and thus most projects once approved by BOM await a longer period before actual release of funds was undertaken though the current study disputes on availability of financial resources and equipment. Donor funding on the other side are 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 are 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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