

DETERMINANTS OF COMPLETION OF CONSTRUCTION PROJECTS IN PUBLIC SECONDARY SCHOOL IN MERU COUNTY, KENYA

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ABSTRACT

Upholding a steady completion of construction projects in public secondary schools have been a substance of stern distress both to the education stakeholders and contractors. There have been abundant cases of delays and non-completion of projects which have backed to the severe cost to education stakeholders and the community as whole. The study aims at analysing the factors that influence the completion of construction projects in public secondary schools in Meru county guided by the following specific objectives; to find out how the availability of funds influences the completion of projects, to determine how the stakeholders' involvement influences the completion of construction projects, to examine the effects of managerial skills of the personnel on completion of construction projects and to find out how project planning influences the successful completion of building projects in public secondary schools. The study was carried out in Meru County which has 192 registered public secondary schools. Samples of 28 public secondary schools in Meru County were selected randomly. This sample present 10% of the target population. From the selected public schools, one BOM member and one PTA members were selected randomly. The selected sample of the study was 84 respondents. The data was collected using questionnaires. This study adopted descriptive research design and both primary and secondary data were collected. The validity and reliability of the instrument was enhanced through pilot testing on a small group of respondents (two head teachers)

who were from schools not included in the final study. Quantitative data collected were coded, organized and analysed descriptively with the aid of Statistical Package for Social Sciences (SPSS) V.20. Qualitative data was organized into themes and the findings were analysed in line with the research questions. The analysed data was presented using frequency tables, pie-charts and bar-graphs. It was notable that there exists strong positive relationship between the independent variables and dependent variable as shown by R value (0.912). The coefficient of determination (R^2) explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable and the four independent variables that were studied explain 84.6% of the completion of construction projects in public secondary schools as represented by the R^2 . This therefore means that other factors not studied in this research contributed 15.4% of the completion of construction projects in public secondary schools. This implies that these variables are very significant therefore need to be considered in any effort to boost completion of construction projects in public secondary schools in Meru County. The study recommended that adequate funding and resources should be availed to enable standards and quality assurance officers to reach as many schools as possible in the country. The government should design policies that govern the construction of projects in the learning institutions that allows for proper engagement of the major stakeholders, procurement process, sourcing

of finance and engagement of the constructors in the construction of projects in public learning institutions to ensure successful completion of the projects among others.

Key Words: *construction projects, public secondary school, Meru County, Kenya*

INTRODUCTION

According to Danny (2014) a project is a unique set of coordinated activities, with definite starting and finishing points, undertaken by an individual or an organization to meet specific objectives within defined schedule, cost and performance parameters. Project management provides an organization with powerful tools that improve its ability to plan, implement, and control its activities as well as the way in which it utilizes its people and resources (Meredith, Mantel & Shafer, 2017).

The completion of projects in a timely manner is often a critical factor and measure of project success. In recent years, there has been an increasing interest in the use of projects as building blocks in the strategic management of organizations (Gaturu & Muturi, 2014). The success of any project is highly dependent on its completion time from start to delivery of results. The completion of school projects requires the execution of planned activities which converts financial, human and physical resources into a product or service of value to the students, schools and all stakeholders involved (Eskerod, Huemann & Savage, 2015).

This causes strain in the construction projects due to concerns such as accumulated rate of interests by commercial banks, cost overrun, price rises, clients' pressure and the possibility of disagreements and claims leading to lawsuits or settlements (Osazuwad, 2010). Delays in project completion are conjoint problem in the construction industry not only with immense costs to society but also with unbearable effects on the contracting parties. The notion of delays in the extensive completion of construction projects is a worldwide phenomenon. Many projects fail due to mismanagement and lack of coordination among various stakeholders, specifically in secondary schools.

In Kenya education projects like laboratories construction, the Kenya school equipment scheme, classroom construction, information communication technology, dining halls construction, water supply, among other projects have either been executed amid difficulties or worse never went beyond paperwork step. Success in project completion thus will depend mainly on good management and organization and close alignment between projects particular requirements and facilities provided at the local level (Ndagi, 2013).

STATEMENT OF THE PROBLEM

Upholding a steady completion of construction projects in public secondary schools have been a substance of stern distress both to the education stakeholders and contractors. Failure of projects can be multi-dimensional, having far reaching effects on individuals, communities and organizations (Lock, 2007). Time and cost overrun are shared features of let-down of projects resulting in deferral in service delivery. Kappelman, McKeeman, & Zhang (2006) say that the high rate of incomplete projects or abandoned projects impacts government /organizations performance, costing taxpayers billions of money in losses. Failure to complete projects contributes to irreparable loss to the society and to the economy as a whole. Construction delays from initial cost plan have been prevalent on construction sites but no effort has been made to curtail the phenomena. According to Igunnu (2005), examples of faulty project managements and executions are everywhere; uncompleted government buildings due to lack of funds, schools without classrooms among others. Failure to complete building projects in some of the public schools have led to inadequate learning facilities hence poor performance in such schools, which are mostly public schools. A study carried out by Mingaine (2005) on financing public secondary schools' projects in Meru North district (in Meru County) makes it clear that there is more to improve in completion of construction project in schools. It is however noted that still out of this 30 construction projects 18 projects were incomplete, stalled or were never executed or implemented at all (Meru county development profile, 2016). Hence this shows there is little emphasis that have been laid on the extent to which completion of construction projects despite government putting a lot of effort. This research therefore seeks to fill in the gap that exists in the completion of construction projects in public secondary schools in Meru County, Kenya.

RESEARCH OBJECTIVES

1. To establish the influence of availability of funds on the completion of construction projects in public secondary schools in Meru County.
2. To determine the influence of stakeholders' involvement on the completion of construction in public secondary schools in Meru County.
3. To examine the influence of managerial skills on completion of construction projects in public secondary schools in Meru County.
4. To examine the influence of planning on the completion of construction projects in public secondary schools in Meru County.

THEORETICAL REVIEW

Functionalism Theory

The most notable proponents of this theory are Merton Persons, Durkheim, Blau and Radcliffe (1970). According to this theory, formal organizations consist of many groupings of different individuals, all who work together harmoniously towards a planned goal. They argue that most organizations are large and complex units consisting of many interacting sub units which are sometimes in harmony but more often than not they are in diametric opposition to each other. Functionalism theory is concerned with order, formal work in an organizations and how order seems to prevail in both systems and society irrespective how of the changes in the personnel that constantly takes place. The theory thus explains some conflicts between the principals and governing bodies in the management of public secondary schools in Kenya hence causing delays and untimely completion of construction projects in schools. The school as a social system had within it a series of sub-systems which interacted with each other and the environment. Such school sub systems included sponsors, teachers, BOM, PTA, students, support staff and the government.

System Theory Approach

Systems theory was proposed in the 1940's by the biologist Ludwig von Bertalanffy and furthered by Ross Ashby (1964). The view of organizations as open social systems that must interact with their environments in order to survive is known as the systems theory approach. Organizations depend on their environments for several essential resources: customers who purchase the product or service, suppliers who provide materials, employees who provide labor or management, shareholders who invest, and governments that regulate. A system is a set of connected things or parts forming a complex whole. In a school set up, the board of management, the stakeholders, and the principal form parts of the school management system. The school set up therefore is an open system since the stakeholders have a say in the management of the schools. The focus reflects on organizations' ability to adapt to changes in environmental conditions (with or without the need for information processing). Managers have to plan structural adjustments to guarantee the survival of the whole system, constantly formulating new interpretations of the business scenarios in order to find an adequate positioning, implementing (when necessary) periods of adjustment, transformation and redefinition the organizational structure. This adaptive and proactive behavior should be based upon systems theory conceptual pillars in order to promote sustainable and long-lasting performance. The principal of the school as the overall manager has to coordinate the B.O.M, the P.T.A, the contractors and the stakeholders to work in harmony to produce the best results.

Co-evolutionary Theory

The theory was proposed by Paul Ehrlich and Peter Raven in 1964. Coevolution refers to the simultaneous evolution of entities and their environments, whether these entities are organisms or organizations (Baum & Singh, 1994). According to Lewin and Volberda (1999) co-evolutionary theory indicate that as the firms grow up and evolve from smaller to multidivisional organizations the strategy implementation also evolve simultaneously. School enrolment increases with time, thus schools will need to come up with various construction projects to cater for the increasing population.

EMPIRICAL REVIEW

Availability of Funds

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. Finance is also a concern to the other organizations involved in a project such as the general contractor and material suppliers (Oduami & Olusanya, 2010). According to Bathurst and Butler, (2008) cost and designs are closely linked and it is important to ensure that projects are delivered within their approved budgets and that the design represents value for money. Projects should be designed taking account of both capital and operational costs, whole-life costing is an integral part of the design process, and whole-life costs of key components of a facility should be considered during the design process (Majid, 2008).

Stakeholders Involvement

Stakeholders' involvement means empowering development beneficiaries in terms of resources and needs identification, planning on the use of resources and the actual implementation of development initiatives (Winch, 2010). In India, the department of education in 2001 stated that parents and community partnership have been continuously involved in planning and evaluating activities that enhances success in learning. Programs that involve parents, staff and students in the operation and management often have greater success; however, care must be taken to ensure that abuses do not occur (Siemens, 2014). According Thite (2000) the completion of projects in organizations depends on a number of factors that are prevalent in an organization. Projects are initiated on need based assessment or demand driven. The schools have to come up with structures that are up to date and will help the students and the institution to achieve their goals and mission. The success of these projects is crucial to the School and the stakeholders thus the projects should be well managed to make good use of the resources. Management encompasses the management of the competing demands performance and quality with the natural constraints of the project which are; time and the cost of completing the project.

Managerial Skills

Project management skills are the integral of the entire construction project functions which include coordination of subcontractors, scheduling, cost control, labour relation, billing, purchasing, expending, and other functions related to the project (Rahaman, 2011). The education Act, (cap 211) empowers the education cabinet secretary with the management of the education in Kenya, who then delegates the management function to the B.O.M. The cabinet secretary therefore mandates the B.O.M as the ultimate manager of all the resources owned by the school on behalf of the community. The implementation of projects in a school is done by the Board of management of which the principal is the secretary. Thus the success of any project in the school set up depends on the leadership and the management skills of the B.O.M. Kabutu (2013) suggests that integrating leadership concepts allows a project manager to apply logic and analytical skills to project activities and tactics. He further said that the projects managers can integrate concepts by being sensitive to and working with the project team members as individuals with the need and desire related to their work. Essential to the success outcome of the project are the project managers and the project team (Berg & Karlsen, 2007).

Project Planning

Wanjiku (2012) defines strategic planning as a process that is designed to move an educational organization through the steps of understanding changes in the external environment assessing the international strength and weakness of the organization, developing a vision of the desired future of the organization and in some way achieve the specific development plans and the mission of the organization. During project planning sufficient attention for establishing goals and objectives lacks; yet these are vital elements of planning. A good project plan does not necessarily lead to a good project. However, a project plan built on a weak foundation can lead to a good idea resulting into a poor project (Andawei, 2014). Project planning involves collection of baseline data, needs assessment, developing an action plan, implementation and evaluation. Target groups need to be well understood before goals, activities and resources required are formulated. In this study, timely completion of a project involved formal closure and transfer of lessons learnt from the project to other projects.

RESEARCH METHODOLOGY

Research design

This study adopted descriptive research design. Descriptive research governs and reports the way the things are and also helps a researcher to describe an occurrence in terms of attitude, values and characteristics (Mugenda and Mugenda, 2003).

Target Population

Meru County has a total of 192 public secondary schools all the 192 principals were targeted. The principals, B.O.M chairperson and P.T.A chairperson of all these schools comprise the target population and this is because they are the ones who manage the schools' activities.

Sampling Techniques and Sample Size

Mugenda and Mugenda (2008) opine that for any meaningful study, a sample of 10% to 30% of the target population is adequate. However, 15% of the target population was sampled. The study adopted simple random sampling technique to select 28 public schools in Meru County. 84 respondents were sampled.

Data Collection Instrument

This study used questionnaire because of the simplicity in their administration, scoring of items and analysis Mugenda and Mugenda (2003). A self-administered questionnaire was dropped to each respondent and picked later. The questionnaire consisted of closed ended questions.

Data Analysis and Presentation

Qualitative and quantitative data was collected. Analysis of data was conducted with the aid of the Statistical Package for Social Sciences (SPSS). Qualitative statistical techniques were used to describe and summarize the qualitative data. The results were presented and interpreted in the form of descriptive statistics; frequencies and percentages. Measurement for each variable was done by having a simple regression for each variable. This indicates the variance shared by the independent variable and the dependent variable. The multiple linear regression models for the study will be as follows;

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

Where: Y = Successful Completion; β_0 = Constant term; $\beta_1, \beta_2, \beta_3, \beta_4$ = Beta coefficients; X_1 = availability of funds; X_2 = Stakeholders Involvement; X_3 = Managerial Skills; X_4 = Project Planning; ε = the error term

RESEARCH RESULTS

Availability of Funds

The first objective of the study was to find out how the availability of funds influenced the successful completion of building projects in Public Secondary Schools in Meru County. Respondents were therefore probed on source of funds and availability of funds on time. From the

findings it is clear that 33(55.0%) noted that government act as source of funds, 18(30%) parent 5(8.3%) donors and only 4(6.7%). Funds for the construction projects are therefore expected to be an economic investment. The insufficient funds cause delay in construction of the project which may lead to premature termination of the project. The findings coincide with Barasa (2014) findings noted that financing process, such as raising and maintaining adequate funds for project activities, is clearly of critical importance to the progress of a project.

Stakeholders Involvement

The second objective of the study was to determine the influence of stakeholders' involvement on the completion of construction in public secondary schools in Meru County. Likert scale was used to determine respondents' level of agreement on whether stakeholders are involved in schools' projects. The results of the study indicated that 19(31.7%) of the respondents were of the opinion that stakeholders are normally involved in projects buildings with very high extent, 16(26.7%) noted high extent involvement of stakeholders, 13(15.7%) said moderately high extent, 8(13.3%) said low extent and only 5(8.3%) noted very low extent. The high level of involvement to key stakeholders can be attributed to hiccups and various blocks at the initiation of any project but once the project has begun and everything is in place, the level of involvement goes down. The findings supported by Ngacho (2014) the stakeholder with financial need to know the project potential return at the end of project completion and others will support projects if there is sound evidence of their value to improving operations, boosting market share, increasing production, or meeting other company objectives.

Anchoring Effects and Investment Decision

The third objective of the study was to determine the influence of managerial skills of the personnel on completion of building the projects in public secondary schools in Meru County. The findings revealed that 60% of the respondents indicated that they have undertaken course on management in building project, while 40% indicated that they had not undertaken any course on project management. This shows that majority of school administrators have essential skills in undertaking projects in schools since they have undertaken course on how to manage projects. Most project managers in secondary schools have got other skills, this can be explained by the fact that though the skills are important, projects fail to be completed successfully due lack of proper project management skills of school principals. This is in line with study conducted by Ondari and Gekara (2013), to get work done; the manager must possess the leadership skills in order to get the people do the work.

Project Planning

The objective four was to establish the projects planning aspects which could lead to school projects to be successfully completed from a list provided by the study. The respondents were asked to indicate whether your school have strategic plan. Findings indicated that majority 54(90.0%) noted that school have strategic plan while only 6(10.0%) have no strategic plan. This indicates that schools in Meru County have fully implemented the strategies plans and hence fully project management is achieved. The planning is essential determinants of project implementation in the school. This is done through setting school objectives and goals which enhance decision making and any judgment. The findings were supported by Bruford, (2000) findings stated that strategic planning should be perceived as a set of fundamentals decisions and actions that are carefully conceived on broad scale with a view to guide an organizations day to day operations with a focus on the future.

INFERENTIAL STATISTICS

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.912	0.846	0.788	0.6253

According to the model summary Table 1, R is the correlation coefficient which shows the relationship between the independent variables and dependent variable. It is notable that there exists strong positive relationship between the independent variables and dependent variable as shown by R value (0.912). The coefficient of determination (R^2) explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable and the four independent variables that were studied explain 84.6% of the completion of construction projects in public secondary schools as represented by the R^2 . This therefore means that other factors not studied in this research contribute 15.4% of the completion of construction projects in public secondary schools in Meru County.

Table 2: ANOVA of the Regression

Model	Sum Squares	Df	Mean Square	F	Sig.	
1	Regression	2.534	50	1.267	9.307	.000a
	Residual	9.357	200	2.327		
	Total	11.891	250			

Further, the study revealed that the significance value is 0.00 which is less than 0.05 thus the model is statistically significant in predicting availability of funds, stakeholders' involvement, project management skills and project planning influence the completion of construction projects in public secondary school in Meru County. Based on the study results of the ANOVA Test or F-test in Table 2, obtained F-count (calculated) value was 9.307. This is greater than the F-critical (table)

value (8.132) with significance of 0.000. Since the significance level of $0.000 < 0.05$ we conclude that the set of independent variables affect the completion of construction projects in public secondary school in Meru County and this shows that the overall model was significant.

The study undertook a regression analysis to establish the association between the independent variables with the dependent one. Table 3 shows the coefficients on the influence of the individual independent variables on the dependent variable.

Table 3: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.022	.413		9.711	.000
	Availability fund	.677	.097	.520	0.035	.001
	Stakeholder involvement	.504	.089	.613	1.613	.000
	Project management skills	.412	.067	.507	0.349	.001
	Project planning	.336	.087	.519	0.449	.002

Dependent variable: completion of construction project

From the table above $Y = 1.022, B_1 = 0.677, B_2 = 0.504, B_3 = 0.412,$ and $B_4 = 0.336$

The simplified regression equation becomes:

$$Y = 1.022 + 0.504X_1 + 0.677 X_2 + 0.412 X_3 + 0.336 X_4$$

The table 3 shows that availability of fund, schools’ stakeholders, project management skills and project planning are positive significant since the P-value is less than 0.05. This is also justified by the findings of Aibinu, and Jagboro, (2012) who also found that project management practices require that managers have knowledge and experience in management and leadership, and the relationship to project success.

CONCLUSIONS

The availability of funds affects completion of construction projects; adequate funding allocation enhances completion of construction. In Meru schools, funds are not available in school at right time hence resulting to execution of premature building project. Involvement of stakeholders such as the NGO, PTA, BOM, students, and the ministry in construction projects has an influence on its completion, through their level of involvement and way on involvement. In addition, there is a relationship between involvement of the major stakeholders and completion of the construction projects. Good managerial skills of the project team enhance proper building of the project. Poor project management at the conceptual planning and design stages may lead to significant problems in successive stages of the project. Project planning plays a vital role in project execution. Project planning should be perceived as a set of fundamentals decisions and actions that are carefully

conceived on broad scale with a view to guide an organizations day to day operations with a focus on the future.

RECOMMENDATIONS

The government should design policies that govern the construction of projects in the learning institutions that allows for proper engagement of the major stakeholders, procurement process, sourcing of finance and engagement of the constructors in the construction of projects in public learning institutions to ensure successful completion of the projects.

The government through the Ministry of education should enhance school administrators training on project management skills and financial accounting and auditing skills to be improved and given more attention in order to achieve project financial controls.

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