CRITICAL SUCCESS FACTORS, GOVERNMENT POLICY COMPLIANCE AND COMPLETION OF CONSTRUCTION PROJECTS IN PUBLIC SECONDARY SCHOOLS IN BUNGOMA COUNTY, KENYA.

BY

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A Thesis Submitted in Partial Fulfilment of the Requirements for the Award of the Degree of Doctor of Philosophy in Project Planning and Management of The University of Nairobi

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DECLARATION

This Thesis is my original work and has not been presented for any academic award in any other university

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DEDICATION

This work is dedicated to my children Brian Wanyama, Abigael and Sammy Ubindi, Gift Wanyama and Zamar Ubindi to whom this work stands as an inspiration.

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ACRONYMS AND ABBREVIATIONS

APM	Association of Project Management
ANOVA	Analysis of Variance
BOM	Board of Management
CCDPW	Clerk County Department of Public Works
CDF	Constituency Development Fund
CDFC	Constituency Development Fund Committee
CPM	Critical Path Method
CSFs	Critical Success Factor
DEO	District Education Officer
GDP	Gross Domestic Product
EAC	East African Community
FDSE	Free Day Secondary Education
ICLEI	International Council for Local Environmental Initiatives
ICT	Information Communication Technology
ISO	International Organization of Standardization
IPMA	Institute of Project Management Association
KEMI	Kenya Education Management Institute
KMO	Kaiser -Meyer-Olkin
LATF	Local Authority Transfer Fund
MIS	Management Information System
MOEST	Ministry of Education, Science and Technology
NACC	National Anti-Corruption Commission
NAFEC	Normal Facilities Engineering Command
PERT	Program Evaluation Review Technique
PM	Project Management
PMP	Project Management Professionals
PMI	Project Management Institute
PMBOK	Project Management Book of Knowledge
PPDA	Public Procurement Disposal Act
PTA	Parents Teachers Association

QASO	Quality Assurance and Standards Officer
SIDP	School Infrastructure Development Plan
SIC	School Infrastructure Committee
SPSS	Statistical Package for Social Sciences
SVM	Soft Value Management
UN	United Nation
UNDP	United Nations Development Program
USA	United States of America
WBG	World Bank group

ABSTRACT

The construction industry in Kenya and the public sector in general has not been efficient and effective in projects delivery. Projects are costly and high risk undertakings that need to be accomplished by certain date, for a certain amount of money and within some expected level of performance. Considerable percentages of projects are falling behind schedule. This informed the purpose of the study which was to examine the influence of project critical success factors, government policy and completion of construction projects in public secondary schools in Bungoma County, Kenya. The objectives of the study were: to assess how project characteristics influence completion of construction projects, determine how attributes of project manager influence completion of construction projects, establish how top management support influences completion of construction projects, examine how availability of resources influences completion of construction projects, examine to what extent socio-economic factors influence completion of construction projects, establish the combined influence of project critical success factors on completion of construction projects and assess the moderating influence of government policy compliance on the relationship between project critical success factors and completion of construction projects. .The study used a mixed method approach which embraced both qualitative and quantitative approaches including hypothesis testing. The study target population of 610 consisted of principals, PTA Chairpersons and Quality Assurance Officer's from which the sample size of 461 was drawn. The study used a questionnaire and an interview schedule as the main instruments of data collection. Quantitative data was analyzed using descriptive and inferential statistics and data presented in frequency tables while qualitative data was presented in narrative form. Hypotheses were tested using linear regression at 0.05 level of significance to determine the degree and direction of relationships among variables. The study attained Cronbach Alpha of coefficient of 0.748 for all the items implying that the instrument was reliable. The results showed that project characteristic (r^2=0.393, $p<0.05$), attributes of a project manager (r^2=0.599, $p<0.05$), top management support (r^2=0.425, $p<0.05$), availability of resources (r^2=0.333, $p<0.05$) and socio-economic factors (r^2=0.423, $p<0.05$) had statistically significant influence on completion of construction projects. In addition, government policy compliance had a statistically significant moderating influence on critical success factors and completion of construction projects in public secondary schools in Bungoma County (procurement r=0.393, $p<0.05$ and usage and audit of school project r=0.623, $p<0.05$). The results showed that 52.8% (r=0.528, $p<0.05$) of completion of the construction projects was attributed to combined critical success factors. The importance of each critical success factor is key to guarantee success of completion of construction projects. The study recommends the ministry of Education Science and Technology to provide policy regarding the use of critical success factors guiding completion of construction projects. This study was conducted in public secondary schools in Bungoma County Kenya. Future studies are encouraged to cover private schools and other sectors to compare with the current findings. This findings form basis for future reference in the field of project planning and management.

CHAPTER ONE

INTRODUCTION

1.1Background of the Study.

The construction industry globally has not been efficient and effective in projects delivery. Studies conducted by researchers globally indicate that most projects fail to achieve their mission within cost and time constraints. United Kingdom (UK) in 2010 statistics showed that 52% of projects had cost overruns in excess of 10% while 45% of projects had time overruns of over 25% Mbathi (1986), as cited in Atkinson (1999). Mbathi (1986) further indicated that similar studies carried out in India showed that 56% of projects had cost overruns in excess of 20% while 49% had time overruns in excess of between 1 and 160 months. However, causes of delays have been identified in various parts of the world recently such as Malaysia, Saudi Arabia, Jordan, Kuwait, Hong Kong and Thailand Njuguna (2008). The results reveal that there are differences and similarities as to the causes of delays.

Projects in developing countries have over years been faced with poor implementation. In Africa, the challenge of timely project delivery can take multiple dimensions depending on the project's environment. In Ghana**,** Frimpong, Oluwoye and Crawford, (2003) identified five factors as the major causes of delays to projects. These include monthly payment difficulties to contractors, poor contract management, material procurement difficulties, poor technical performance and material price escalations. Poor professional management, fluctuation of prices, rising cost of materials and poor site management have also been identified as factors causing a delay in project completion time. In order to forestall the challenge of timely project delivery, Samuel (2008) recommends that project time management be a key priority for the contractors and that the appointment of a registered project manager for each contract should be a mandatory condition of tender. Amponsah (2012) examined the real project failure factors and the effect of culture on project management in Ghana and found there was always an interest in knowing if a project was executed within the specified time and in accordance with the specification set in the action plan by the project

team. The study was based on the assumption that cultural differences played a leading role in the effective implementation and execution of projects. This study left a gap in regard to project characteristics, characteristics of a project manager and government policy.

The president of the Republic of Kenya, His Excellency Uhuru Kenyatta expressed a lot of discontent with the performance and delivery of services in government ministries. He decried poor performance and failure to deliver that continues to cause frustration among the public due to delays in completing of critical programmes and projects (GOK, 2015). Further, studies conducted across the country's 210 constituencies by the CDF Board (2008) and National Anti-Corruption Steering Committee NACC (2008) indicate that, since its inception in 2003, CDF has facilitated the implementation of a number of local level development projects aimed at poverty reduction and socio – economic development of people . However, many flaws have been evident in implementation of the projects. This is confirmed by a Citizen's Constituency Development Fund (CDF) Report Card for Kanduyi Constituency in Bungoma County for the financial year 2007/08 released in 2011(National Tax Payers Association, 2011).

The report found that, out of a total of Kshs. 128,652,185 which had been allocated to the constituency since the onset of the CDF in the year 2003/04.Kshs. 30,588,859 had been misappropriated leading to poorly implemented projects. Subsequently, an audit report for the financial year 2009/10 released in 2012 by the National Taxpayers Association for Bungoma County Council on the performance of the Citizens' Local Authority Transfer Fund (LATF) found that Kshs. 11,466,000 of taxpayers' money had been wasted due to badly implemented projects while Kshs. 1,850,000 of taxpayers' money had been wasted on abandoned project. The Citizens Constituency Development Fund Report Card for Sirisia Constituency (2011) for projects funded and monitored in the financial year 2007/2008 revealed that taxpayers' money had been wasted due to badly implemented projects (National Tax Payers Association, 2011). Most of the studies carried out show the contractor as the sole cause of cost and time overruns in project, managerial mishaps as well as tainting the environment.

Only a few studies in the project management literature concentrate on critical success factors that affect project success or failure (Kuen, Suhaiza and Yudi, 2008). Whereas many of these studies generate lists of critical success factors, each list varies in its scope and purpose. These factors are usually listed as either very general factors or very specific ones affecting only a particular project. Emphasis is given to the grouping of success factors and explaining the interactions between them, rather than the identification of individual factors. The study identified individual factors namely; project characteristics, attributes of project manager, top management support, availability of resource, socio-economic factors and government policy compliance and examined their influence on construction project completion in public secondary schools in Bungoma County. Not much research has been carried out in that area in Bungoma County yet the County has 296 public secondary schools with a lot of construction work going on and experiencing the same setbacks as CDF projects in Bungoma. According to the Citizens Constituency Development Fund Report Card for Sirisia, out of the 163 CDF projects executed in Sirisia Constituency, Bungoma County in the 2007-2008 financial years, 74 were schools construction projects, with 49 primary schools projects and 25 for secondary schools. Most of the projects were incomplete or badly completed. (National Taxpayers Association, 2011).

The study was pegged on the theory of construction management whose proponents are Radosavljevic and Bennet (2012) and the theory of Soft Value Management by Al-Yami (2006).The theory of construction management emphasizes on taking responsibility for the performance of a construction organization, measured by efficiency while SVM is a tool of identifying and developing a building project to minimize negative impacts on the environment, optimize whole life cost of a project and satisfy good indoor environment in the project.

1.1.1 Project Characteristics

Project characteristics such as the size and the value of a project, the uniqueness of project activities (versus standard activities), the density of a project network, project life cycle and the urgency of a project outcome are very critical and determined the success and failure of the projects. Many large size projects, those with more than 100 activities,

exceed their deadlines. It was therefore plausible to surmise that the increase in size of a project implies increased responsibilities of administration, monitoring and technical assistance. Still the overruns seem to decline with project size, (Morris and Hough, 1987). Limitations and costs of improving development processes make project cost and schedule improvement important for project completion, hence the choice of this variable.

1.1.2 Attributes of Project Manager

There is growing recognition that different types of projects require different approaches to their management, requiring management procedures tailored to the needs of the project, (Crawford, Hobbs and Tuner, 2005) and project managers selected with appropriate competencies, (Turner and Mu¨ ller, 2006). Project managers' competence is a critical factor that affects project planning, scheduling and communication. This is in line with Lee-Kelley and Leong, Loong (2003), Prabhakar (2005) and Dolfi and Andrews (2006) all of whom found a significant correlation between project managers' experience and project success**.** The central role the project manager holds in project success guides the choice of this variable to seek to determine how the attributes of the project manager influence completion of construction projects in public secondary schools in Bungoma County.

1.1.3 Top Management Support

Top management support is considered an area that has high impact on project success. However, previous studies have also stated that effective top management support practices may vary across industries. Top management influences the process and progress of a project and lack of executive input can put a project at a severe disadvantage. According to Kerzner (2001), the most important issue is top and senior management support .The lack of top management involvement is the primary challenge project managers feel most deserving of their attention (Simonsen, 2007).Management's support of the project may involve aspects such as allocation of sufficient resources (financial, manpower, time excreta) as well as the project managers' confidence in their support in the event of crises. Many studies in the literature have examined Top

Management Support in the context of large organizations other than schools. This justifies the choice of this variable in schools' context.

1.1.4 Availability of Resources

The importance of resources for efficient completion of a project cannot be over emphasized; in that the availability of the resources in the right quality and quantity will determine to a reasonable extent; the availability, quality and quantity of the resultant output. Important aspects of a project includes "inputs" in the form of men, money, materials, and plans and 'outputs' in the form of activities, products or services (Asfandyar,2012). Amongst the basic conditions for smooth project activity operations without stoppages and unnecessary disruptions is regular and sufficient funding of the project. Regular and on schedule progress of work activities on site require sufficient cash flow in order to facilitate procurement of materials, plants and equipment on time as well as remuneration of labour force. Some of the causes of delays in construction projects and poor performance in Malaysia noted were insufficient capital delay in receiving the advance payment, financial resource management, progress payment behind time and delay in payment of completed works from the owner to the contractor. Contractors do not have strong financial background to keep the work in progress. When the contractors' cash flow is significantly affected this causes delay in procurement of resources. Consequently time and cost performance of projects is affected (Tawil *et al*; 2013; Aftab, Ismael and Ade 2012).

1.1.5 Socio-economic Factors

Socio-economic issues always occur throughout the development process. Such misunderstanding often produces minor negative consequences (such as minor process delays, product errors, and/or problems in relation to other participants), but occasionally their consequences may be more extensive. Communication is a social factor which can lead a project toward success or failure. Inflation is an economic factor which is a rise in general level of prices of goods and services in an economy over a period of time and leads to a reduced purchasing power, thus affecting cost of projects. Aje and Jagboro (2003) as cited by Mwangi (2005) say it is rare for building works not to have variations. This leads to time and cost overruns.

It is becoming more widely accepted that unless people are actively involved in the development projects which are aimed to help them, the projects are doomed to fail. It is therefore important that the beneficiaries participate in every stage of the project. When the project is being planned, the people should be consulted, and their priorities and needs assessed. During the construction phase, the people again should be involved -supplying labour but also helping with field layouts after being trained with simple surveying. Milika (2011) advises that different participatory methods be designed to produce different types of outcomes, which in turn, determine the final outcomes of the stakeholders' engagement exercise**.** The proposed study seeks to assess how socio factors such as misunderstandings among project team, communication issues, inflation and community participation influence projects completion in public schools setup where there may be no clear structures as it is in the private sector.

1.1.6 Project Critical Success Factors

The concept of project success and failure factors were first introduced by Rubin and Seeling (1967). They investigated the impact of a project manager's experience on the project's success or failure. Technical performance was used as a measure of success. It was found that a project manager's previous experience has minimal impact on the project's performance, whereas the size of the previously managed project does affect the manager's performance. Pinto (1986) contends that projects often possess a specialized set of critical success factors which, if addressed, would improve the likelihood of successful implementation. Although several lists of critical failure and success factors have been generated, many of those factors do not, in practice, directly affect project success or failure. Usually, a combination of many factors at different levels of project life, result in project success or failure (Pinto and Slevin, 1988). Mengesha (2004) indicates that research into critical success factors has been undertaken since 1967, and demonstrates the development of information on critical success factors based on empirical and theoretical studies.

Researchers have advanced the view that identifying and managing the project success or failure critical factors is critical to achieving development agenda in the local communities across the world. UNDP (2002) reports growing demand for effective

development to improve people's lives. Success in large projects is a challenging matter and depends on several aspects which may include human related factors, project-management related factors and factors related to the external environment (Chan, 2004). This calls for proper implementation of projects for continuous improvement and quality of performance in organizations. This perspective hinges on the new idea coined by UNDP namely Results Based Management.

There are number of studies on success factors in the Construction industry. Chua, Kog and Loh (1999), Jha and Lyer (2007) adopted the success factors identified by Ashley , Laurie and Jaselkis (1987). Pinto's research (1986) on project implementation and his subsequent findings with Slevin on 10 critical success factors have since become a classic piece of work in this field. Most, if not all, of these lists include factors related to the project manager and to the organization that owns the project but tends to ignore project characteristics, characteristics of team members and factors external to the project. Their model is one of the most widely quoted lists of critical success factors (Muller and Turner, 2005).

1.1.7 Completion of Construction Projects

Delays in project completion and poor performance in the construction industry has been experienced and has led to failure in achieving effective time and cost performance (Aftab, Ismael and Ade, 2012). This delay is a common phenomenon that occurs especially where the government projects are concerned in Malaysia (Tawil *et al*; 2013). In a study conducted to identify significant factors that cause cost overruns in large construction projects in Malaysia, the top three factors were found to be fluctuation of materials, cash flow and financial difficulties faced by contractors and poor site management and supervision (Rahman, Memon and Karim, 2013).

Completion of projects within intended cost and time has always been a challenge. Oyewobi, Ibrahim and Ganiyu, (2012) observed that it is almost impossible to have projects completed within the initial cost and time in Nigeria. This is as a result of many factors the construction industry is plagued with ranging from estimating risk of time and cost overruns. Defects in design, inflation, contractors' competence,

political uncertainty as well as changes in government had the greatest impact on contractors' tender figure which contributes to delay of projects. In Pakistan, the problem of project delays hence poor project performance is a fact that occurs mostly in the construction industry (Haseeb *et al;* 2011). Delays are always measured as expensive to all parties concerned and very often it will result in clash, claims, total desertion and much difficulty for the feasibility and it slows the growth of the construction industry. Natural disasters like flood and earthquake, financial and payment problems, improper planning and poor site organization, insufficient experience and shortage of materials and equipment are further factors that cause delays.

Abdelhak and Mohamed, (2012) make similar observations of problems of delay in the field of construction. Analysis of causes of deadline slippage in construction projects completed in several regions of Morocco were identified as errors made in the initial budget assessment, volatility of the architecture and engineering programme (multiple modification requests) and construction site hazards. Disputes have frequently been claimed to proliferate in the construction industry. These result in drawbacks and disharmonizations in the completion of the projects with considerable costs.

In Kenya the problem of project completion is common. Clement Kitetu, president of Project management Institute-Kenya Chapter said "The country is replete with incomplete or delayed projects that end up being very costly due to the owners and the public." Project failure in Kenya can be largely attributed to organizational and industry failure to embrace and adopt modern programme and project management practices (GOK, 2015).

1.1.8 Management of Construction Projects in Public Secondary Schools in Kenya

In Kenya, according to Treasury's Report on the status of implementation of the projects, out of the 365 Centers of Excellence to be established throughout the country, only 53 had been completed (GOK, 2015). The Ministry of Education had also planned to build 421 Model Primary Schools, two each in the 210 Constituencies. By 2012, only 185 had been completed. Consequently the Ministry requested for an additional Kshs. 2.2

billion to complete stalled projects. Nyika (2012) noted that only 20.8 per cent of the projects were implemented on time and budget, while 79.2 per cent exhibited some form of failure. The major causes of failures were insufficient implementing capacity, poor project management, weak project design and political interference. This indicates there is a problem of management of construction projects in public secondary schools in Kenya.

The Basic Education Act 2013 defines the functions of the parents Association which includes undertaking and overseeing development projects on behalf of the whole parents Association. This is confirmed by the ElimuYetu Coalition (2003), which asserts that Kenyan public secondary school parents have the greater responsibility of putting up physical facilities. In the same vein, schools BOM are charged with the responsibility of taking, purchasing or otherwise acquiring, holding, charging or disposing of movable and immovable school assets. Though School principals, BOM and PTA are charged with the responsibility of implementing school projects, they may not have skills in project management since this is not a requirement for appointment on schools BOM. This could be a factor to the many project management challenges in schools.

1.1.9 Completion of Construction Projects in Public Schools in Bungoma County

Bungoma County has 296 public secondary schools and 12 private schools. The County's literacy level is 60.5% with those attending school (15 yrs-18 years) at 87.4% with secondary school enrolment of 130,907 students. According to a Citizen's Constituency Development Fund (CDF) Report Card for Kanduyi Constituency in Bungoma County for the financial year 2007/08 released in 2011, most of the projects with a funding allocation of a total of Kshs. 128, 652, 18 had been poorly implemented projects. Subsequently, an audit report for the financial year 2009/10 released in 2012 by the National Taxpayers Association for Bungoma County Council on the performance of the Citizens' Local Authority Transfer Fund (LATF) found that Kshs. 11,466,000 of taxpayers' money had been wasted due to poorly completed projects while Kshs. 1,850,000 of taxpayers' money had been wasted on abandoned project (National Tax Payers Association, 2011).

LATF funds many public school projects as much as CDF does. The Citizens Constituency Development Fund Report Card for Sirisia Constituency (2011) for projects funded and monitored in the financial year 2007/2008 revealed that taxpayers' money had been wasted due to badly implemented projects. Most of the studies carried out show the contractor as the sole cause of cost and time overruns in project, managerial mishaps as well as tainting the environment. About 60% of CDF construction projects in Bungoma County constitute school projects. Out of 163 projects in Sirisia Constituency in Bungoma County in 2007/2008 financial year, 74 were school projects, with 25 being secondary school projects. Deduced from these, this is the scenario regarding project completion in public secondary schools in Bungoma County.

1.2 Statement of the Problem

Successful project completion is hinged on the factors that affect the project and how they are managed. If they are allowed to influence the project, they would frustrate wonderful ideas while stalling other projects that already kicked off or were almost complete. The construction industry in Kenya and the public sector in general has not been efficient and effective in projects delivery. This is realized due to the high number of stalled construction projects scattered all over the country. There is high rate of non-completion of projects, cost overruns and extensions of contract periods as well as final products that do not meet the clients' expectations. Public secondary schools in Kenya are not an exception. According to Treasury's Report on the status of implementation of projects in high schools, out of the 365 Centers of Excellence to be established throughout the country, only 53 had been completed (GOK, 2012). The Ministry of Education had also planned to build 421 Model Primary Schools, two each in the 210 Constituencies. By 2012, only 185 had been completed. Consequently the Ministry requested for an additional Kshs. 2.2 Billion to complete stalled projects.

This scenario is replicated in public schools in Bungoma County which is characterized with delays, poor implementation and incompleteness despite the schools ever growing enrolments with need for construction of more school facilities. Delays in completion of projects are evident in the many incomplete and stalled projects in public secondary schools in the County. This results into students learning under trees or in makeshift

structures. According to Bungoma County Citizens Constituency Development Fund Report Card for Sirisia Constituency (2011), Out of 163 projects implemented in the year 2011, only 39 were categorized as well built. Out of the 163 projects, 74 were school construction projects, with 49 for primary schools and 25 secondary schools. The report's recommendations for Sirisia CDFC were to complete all incomplete projects and reduce by 80% poorly completed CDF projects (National Tax Payers Association, 2011). Further, a Citizen's Constituency Development Fund (CDF) Report Card for Kanduyi Constituency in Bungoma County for the financial year 2007/08 released in 2011 found out that out of a total of Kshs. 128,652,185 which had been allocated to the constituency since the onset of the CDF in the year 2003/04.Kshs. 30,588,859 had been misappropriated due to poorly implemented projects and Kshs. 22,079,051 remains unaccounted for (National Tax Payers Association, 2011).

Construction projects implementation in high schools in Bungoma County is in line with what Kerote (2007) revealed that committees entrusted to manage projects had fallen short of the proper monitoring and evaluation and thus failure becomes evidence due to poor management. Non completion, poor implementation and misappropriation of project funds affects curriculum implementation in public secondary schools in Bungoma County and the end result is poor academic performance. From these reports in Bungoma County, it is evident that problems of project completion may be emanating from factors related to project management, governance, social and economic issues amongst others.

It is evident that problems of project completion are occasioned by critical factors that engulf a project when necessary caution is not taken. It is on the basis of these that this study examined how project characteristics, attributes of project manager, top management support, availability of resources, socio-economic factors and government policy compliance and their influence on completion of construction project in public secondary schools Bungoma County with an intention of making recommendations to enhance project completion. The review of related literature revealed that studies on completion of construction projects have been undertaken in other parts of the world with little evidence of similar studies as far as Bungoma County public secondary schools are concerned yet school construction contributes significantly to learners performance.

More so, many of the studies done on project CSF's and completion of projects focused on large organizations and the general construction industry and not school construction projects. Further from the literature review, most of the studies were explored through descriptive survey with very few testing hypothesis to confirm study findings further. The study was informed by this scenario.

1.3 Purpose of the Study

This study sought to examine the influence of critical success factors, government policy compliance and completion of construction projects in public secondary schools in Bungoma County, Kenya.

1.4 Objectives of the Study

The study sought to achieve the following objectives:

1. To assess how project characteristics influences completion of construction projects in public secondary schools in Bungoma County, Kenya.
2. To determine how attributes of project manager influence completion of construction in public secondary schools in Bungoma County, Kenya.
3. To establish how top management support influences completion of construction projects in public secondary schools in Bungoma County, Kenya
4. To examine how availability of resources influence completion of construction projects in public secondary schools in Bungoma County, Kenya.
5. To examine the extent to which socio-economic factors influence completion of construction projects in public secondary schools in Bungoma County, Kenya.
6. To establish how combined project critical success factors influence completion of construction projects in public secondary schools in Bungoma County, Kenya.
7. To assess the moderating influence of government policy compliance on the relationship between project critical success factors and completion of construction projects in public secondary schools in Bungoma County, Kenya.

1.5 Research Questions

The study sought to answer the following research questions:

1. How do project characteristics influence completion of construction projects in public secondary schools in Bungoma County?
2. How do the attributes of a project manager influence completion of construction projects in public secondary schools in Bungoma County?
3. How does top management support influence completion of construction projects in public secondary schools in Bungoma County?
4. How does availability of resources influence completion of construction projects in public secondary schools in Bungoma County?
5. To what extent do socio-economic factors influence completion of construction projects in public secondary schools in Bungoma County?
6. To what extent doe the combined project critical success factors influence completion of construction projects in public secondary schools in Bungoma County?
7. What is the moderating influence of government policy compliance on the relationship between project critical success factors and completion of construction projects in public secondary schools in Bungoma County?

1.6 Research Hypotheses

The study sought to test the following hypothesis:

1. H1: Project characteristics significantly influence completion of construction projects in public secondary schools in Bungoma County.
2. H1: Attributes of project manager significantly influence completion of construction projects in public secondary schools in Bungoma County.
3. H1: Top management support significantly influence completion of construction projects in public secondary schools in Bungoma County.

4. H1: Availability of resources significantly influences completion of construction projects in public secondary schools in Bungoma County.

5. H1: Socio-economic factors significantly influence completion of construction projects in public secondary schools in Bungoma County.

6. H1: Combined project critical success factors significantly influence completion of construction projects in public secondary schools in Bungoma County.

7. H1: Government policy compliance significantly influences the relationship between project success factors and completion of construction projects in public secondary schools in Bungoma County.

1.7 Significance of the Study

It is hoped that the findings of the study would have a positive impact on the construction industry and the economic development when the projects are carried out successfully. Project managers would also benefit a lot because they would be in a position to identify their shortcomings and how they can improve them in order to increase the chances of success for each project. The results from this study if utilized hopefully may benefit future researchers, academicians, policy makers and practitioners especially school project implementers in considering and analyzing project critical success factors and how they influence project completion. Projects are likely to be run in more cost effective ways within set timelines thereby saving stakeholders the effects of project delays and subsequent failure. Other expected outcomes would be completion of projects that would have significant positive impact on learners' academic performance. Organizations hopefully would be guided on the aspects of project critical success factors that need to be put into focus. This would hopefully help organizations to know the different critical factor they need to deal with and thus lay down the right strategies for the success of their different projects. Better understanding of project critical success factors and their influence on completion of projects hopefully would result into assistance of formulation of policy in the key areas of planning and execution of plans related to a project. Finally, the study would contribute to scientific knowledge to be used in the academic field while

analyzing and studying issues regarding the planning process, implementation at the local and international level. This underscores the importance of undertaking this study.

1.8 Basic Assumptions of the Study

One of the basic assumptions of this study was that project critical success factors and government policy compliance influence completion of construction projects in public secondary schools in Bungoma County. The study was also based on the assumption that all the study participants would cooperate with the researcher during the data collection process. The cooperation was based on participants voluntarily giving accurate information. It is also assumed that all respondents were honest in their responses as well as objective and that they found appropriate time to fill questionnaires and answer interview questions. That responses from respondents who participated in the study reflected a true and honest replication of facts on the ground elsewhere in the country to enable the universal application of principles developed.

1.9 Limitations of the Study

The major limitations of this study were: the high cost implications of the study area. Bungoma County measures 2,206.9 square Km, therefore schools are many kilometers away from each other, and hence this caused challenges to the researcher who visited them. This was overcome by using motor cycles as means of transport to access schools located in the interior of the county. This helped to reduce cost. The researcher anticipated experiencing financial constraints due to wide area the County covers and the spread of schools. This was mitigated by securing funds in good time from a Sacco to avoid delaying the study due to lack of funds. The funds were used to facilitate travel, subsistence and materials required for the research. Laxity by respondents to willingly and freely share information with the researcher for not knowing what the information was to be used for was guarded by the researcher stating the purpose of the study and introductory letters were crucial in order to assure the respondents of their safety and the confidentiality of the information. Respondents who participated in the study were given an assurance that the information sought was regarded as confidential and that the findings of the study analysis were for academic purposes only. PTA Chairpersons are not school employees and so may not be readily found in schools when required to fill

questionnaires. The researcher made appointments with them through the school principals. The researcher facilitated their travel to school to be able to fill questionnaires and even carried out telephone interviews where necessary for practical reasons. Given the busy schedule of school Principals, the researcher made appointments with them to allow the use of some of their time out of their busy schedule in filling the questionnaires. This hastened their response to filling the research questionnaire.

1.10 Delimitation of the Study

The study delimited to Bungoma County due to the numerous number of public secondary schools the county has compared to other counties in the region and confined itself to investigating the influence of project critical success factors on completion of construction projects. The proximity of the researcher to schools within Bungoma County also contributed to research study being confined within the county. The study focused on public secondary schools since project completion was more wanting in the public secondary school sector as compared to the private sector. Although reviewed literature on project critical factors was highly debated on, there is need to draw closer to the realities of what really caused project delay. The factors were grouped into different clusters such as project issues, procurement issues, project-management issues, project participant and external related factors. The study confined itself to factors related to project characteristics, attributes of the project manager, top management support, availability of resources and socio-economic factors as independent variables, government policy compliance as moderating variable and completion of construction projects as the dependent variable.

1.11 Definition of Significant Terms used in the Study

Project critical success factors: These are factors considered as a measure of success or failure (completion) of a project. For this study, project critical success factors refer to project characteristics attributes of project manager, top management support, availability of resources and socio-economic factors.

Completion of construction projects: This is the ability to achieve the project's deliverables on schedule, within budget, in regard to quality, within specification and to the satisfaction of the user.

Project Characteristics: Project characteristics in this study refer to duration of project cost of project and urgency of project work.

Attributes of project manager: Attributes of project manager are the project managers' Technical competencies, commitment and communication skills.

Top management support: Top management support is defined as the kind and extent of support top management of a project offers to a certain project. In this study, top management support refers to top management support of project processes, support for allocation of sufficient resources and funds and availability of top management.

Availability of resources: This is human resource, raw materials, financial resource and facilities that are required for project work and can be accessed.

Socio-economic factors: This refers to interpersonal skills of project team, inflation, corruption and involvement of community in the project,

Government Policy Compliance: This is the ability to adhere to guidelines the Government of Kenya provides to guide construction processes in schools in regard to procurement, usage and audit of school infrastructure funds.

1.12 Organization of the Study

This thesis is organized into five chapters whereby chapter one of the study has the introduction, background of the study, introduction of study variables namely: project characteristics, attributes of project manager, top management support, availability of resources, socio-economic factors, project critical success factors, completion of construction projects, management of construction projects in public secondary schools in Kenya and completion of construction projects in public schools in Bungoma County. These was followed by statement of the problem, purpose of the study, research objectives, research questions, research hypotheses, significance of the study. The chapter also include basic assumptions of the study, limitations the study, the delimitation of the study as well definition of significant terms used in the study and finally organization of the study. Chapter two has literature review which discusses the key variables in the study beginning with the introduction, completion of construction projects, project critical success factors, concept of project critical success factors and completion of construction projects, project characteristics and completion of construction project,

attributes of project manager and completion of construction projects, top management support and completion of construction projects, availability of resources and completion of construction projects, socio-economic factors and completion of construction projects, government policy compliance, project critical success factors and completion of construction projects. This is followed by theoretical framework, conceptual framework and gap in knowledge. Chapter three comprises of a brief introduction of the chapter, which is then followed by research paradigm, research design and target population. The chapter also contains sample size and sampling procedures, research instruments: questionnaires, key informants interview schedule, pilot testing of the instruments, validity of the instruments, reliability of the instruments, data collection procedures, data analysis techniques, ethical considerations and operationalization of variables. Chapter four consists of data analysis, presentation, interpretation and discussion. Chapter five contains a summary of the findings, conclusions, recommendations, suggestions for further studies and contribution to the body of knowledge.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter brings into perspective past studies related to project critical success factors and completion of construction projects . Literature is reviewed according to study variables that is: Completion of construction projects, project critical success factors, the concept of project critical success factors and completion of project, projects characteristics and completion of construction projects, attributes of project manager and completion of construction projects, top management support and completion of construction projects, availability of resources and completion of construction projects socio-economic factors and completion of construction projects and, government policy compliance and completion of construction projects, These are followed by the theoretical framework, the conceptual framework and gap in knowledge**.**

2.2 Completion of Construction Projects.

Clement Kitetu, president of Project management Institute-Kenya Chapter said "The country is replete with incomplete or delayed projects that end up being very costly due to the owners and the public." Project failure in Kenya can be largely attributed to organizational and industry failure to embrace and adopt modern programme and project management practices (GOK, 2015). According to a Citizen's Constituency Development Fund (CDF) Report Card for Kanduyi Constituency in Bungoma County for the financial year 2007/08 released in 2011, most of the projects with a funding allocation of a total of Kshs. 128, 652, 18 had been poorly implemented projects. Subsequently, an audit report for the financial year 2009/10 released in 2012 by the National Taxpayers Association for Bungoma County Council on the performance of the Citizens' Local Authority Transfer Fund (LATF) found that Kshs. 11,466,000 of taxpayers' money had been wasted due to poorly completed projects while Kshs. 1,850,000 of taxpayers' money had been wasted on abandoned project (National Tax Payers Association, 2011).

According to Tawil *et al*; (2013),project delay is a common phenomenon that occurs especially where the government projects are concerned in Malaysia. In a country like Nigeria, there is need to know that projects mostly lag behind the set time. They also exceed the cost that was set when the project started. The delays are occasioned by the critical factors that engulf a project when necessary care is not taken. The delays could occur due to inflation and changes that could be made in the process of implementing the initial plan (Oyewobi, Ibrahim and Ganiyu, 2012). Similar problems of delay in the implementation of the project plans are also evident in Pakistan (Haseeb *et al*; 2011).

2.3 Project Critical Success Factors

Researchers have advanced that identifying and managing the project success / failure critical factors is crucial if the development agenda of the local people is to be realized. UNDP (2002) reports indicate that there is a need to achieve the goals that will support the community through effective development that would ultimately improve their lives. A project manager should learn how to juggle with the different reasons why projects fail or succeed in order to ensure the situations are enhanced before they worsen. The critical factors include human related factors, project-management related factors and factors related to the external environment (Chan, 2004). This calls for proper implementation of projects for professional improvements to be made in order to enhance the quality of work to be done in an organization. This kind of mindset is based on the idea that was coined from the UNDP report on Results Based Management.

Research has indicated that few studies have focused on project management and they have narrowed down to critical success factors which influence the failure or success of a business (Kuen, Suhaiza and Yudi, 2008). The critical factors that are presented by each of the studies vary from one study to another. Therefore, scholars have decided to group the factors for the purposes of ensuring they come up with an easier classification of the studies. This will make the study of the factors to be easier and even much better to understand. This study identified individual factors namely; project characteristics, attributes a of project manager, Top Management Support, availability of resources and socio-economic factors and examined their influence on Completion of construction projects in public secondary schools in Bungoma County, Kenya.

2.4 The Concept of Project Critical Success Factors and Completion of Construction Projects

Successful projects are achieved once the different critical factors that influence success or failure are addressed (Pinto, 1986). Project managers are thus required to have a clear understanding on the reasons why projects fail or succeed in order for them to fast track them and avoid their influence in the process of implementing an idea However, it is important to note that the success of a project will depend heavily on a number of critical factors and not just a single critical factor (Pinto and Slevin, 1988**)**. On the other hand, Mengesha (2004), explains that research continues to be of great necessity in the field of critical success factors whose interest dates back in 1967. Kuen, Suhaiza and Yudi, (2008) in a research study suggested that despite the critical value of the critical success factors, only few studies have been carried out on them. The different critical factor are organized in terms of the issue of project management. As such, grouping has been emphasized on due to the need to show how the factors interact with each other and thus identify their influence. Chan (2004) worked hard to review the existing studies and developed a concept that could easily explain how the critical success factors (CSFs) worked to create the force behind failure or success of a project. In the end, a five-group model was developed with more focus on major groups of independent variables identified as crucial to success of construction projects. Toor and Ogunlana (2007), explains in a study that comprehension of what should be done, commitment to the ideals of a project, competency and communication to the stakeholders of a project will heavily influence its success.

In India, a research on the IT industry has revealed that scope is top in the list of success determinants (Agarwal, 2006). Similarly, Westerveld (2003), agrees with this assertion by showing a close relationship between the scope of a project and its success and thus identified it as a critical factor. The scholar goes ahead to explain the different categories of the success determinants including project results, the satisfaction of the clients, experience of the personnel, the clients and nature of the stakeholders. The success factors were also categorized for the purposes of easier understanding in terms of leadership and the team, policy and the strategy and stakeholder management. Other categories included the resources, and contracting of different specialists.

Chua, Kog and Loh (1999), and Jha and Lyer (2007) embraced the types of success factors identified by Ashley, Laurice and Jaselkis (1987). Critical success factors are crucial as they have a huge influence on the success of a project. The study by Pintos (1986) on how to carry out project implementation and the subsequent findings by Slevin and Pinto (1986) on the top 10 critical success factors that influence the outcome of a project have remained to be classic examples. The lists contains the different reasons why project fail or succeed, which focuses on the manager in charge and the kind of project to be carried out. The scholars have employed a model that emphasizes on the need to tackle critical success factors (Muller and Turner, 2005).

Project completion has in many instances been perceived in regard to quality and customer satisfaction. Barrett (2000) argues that in the field of managing construction projects, there is need to carry out continuous improvement in order to ensure the quality of the output is amazing. Nedelcu and Dumitrascu, (2010), on the other hand argues in the way by emphasizing that every project should work towards ensuring the value of every client is delivered. In the field of construction, when customers are satisfied, they can be said to have enjoyed the work once their expectations have been met (Barrett, 2000). The Customer in this case will be the person who will be served or the one who is receiving the value being offered in the project. According to Kamara and Anumba, (2000) 'customer' could also be described as the group of people who include the interest groups or prospective users. In many cases, customer satisfaction is heavily influenced by the goals, decisions and processes that support the project (Brockmann, 2002). Al-Momani (2000) researched on service quality in the field of construction and concluded that projects relied heavily on the manager for success to be realized.

2.5 Project Characteristics and Completion of Construction Projects

Projects are characterized of the size, value, nature of the project, the network, lifecycle and the urgency. The features will ultimately determine the success of failure of a project. Scholars have also identified that many projects that are composed of activities exceeding 100 in most cases go beyond the set timelines. The increase in the size of the project would definitely have an impact on the scope of the responsibilities in terms of the

administration and technicalities surrounding it. On the other hand, when the overruns are experienced there is probability that the project size would decline (Morris and Hough, 1987).

Literature on project is emphatic on the fact that a project has a set timeframe within which it must be completed. Different resources are utilized up to the project termination phase which involves certain close-out activities such as confirming that all deliverables will be given out at the right time and approved by the client (Jack and James, 2009). According to Theodore (2009), project schedule includes the timelines within which a certain set of activities must be achieved. It is a tool used in managing projects. The tool can be used as a way of enhancing the processes and the decisions that would be made within an organization. The schedule would also be a great way to ensure that the operations would be supplied with the necessary materials for it to be successful. The schedule is thus a great way of ensuring the project is carried out in a systematic manner (Miklo's, 1997).

In view of the importance attached to project critical success factors in project delivery, Chua, Kog and Loh, (1999**)** identified critical success factors that would influence the success or failure of a project. Success-related factors were thus been grouped into four categories which include; project characteristics as well as contractual arrangements, which is then followed by project participants, and finally an interactive process. A set of questions were used to collect data from participants who were highly experienced. Finding of the study indicate that there are different success factors which will influence the success or failure of a project. The achievement of the project objectives can also be understood in a deeper manner in order to know the real issues that influence the success of a project. A sound management system also need to be introduced in order to ensure the project is well assessed in terms of what it has been able to achieve and where it has failed to meet the set objectives. Similarly, WBG (1998), claims that effective monitoring and evaluation systems meant to review how projects performed was considered as a critical tool that was mandatory in the project management.

The process of cutting short the timeframe within which the project would be completed is a critical factor in the process of carrying out a project. Lee, Ford and Jodlekar (2004) carried out a study on the effects of resource allocation policies on project duration. The study established that resource allocation was critical in the process of carrying out projects as can even affect the timeframe for different activities. Theodore (2009), agrees with the statement that project scheduling is highly important and should be given priority. He also indicated that it was hard to redesign a project if the timelines are interfered with due to the need to reallocate the necessary resource for each project. Resources that are deployed would need to be estimated in order for them to be in the right quantity. The schedule performance would also increase phenomenally when the schedule is utilized professionally. According to Chitkara (2009), the master control estimate plus the control tools will be employed as a way of enhancing the implementation process. The top management can have the ultimate direction on what should be done in order for the resources to be allocated perfectly well. If the resources are not allocated there would be failure of accomplishing the set goals (Stermans 2000). Structural control system researchers have indicated that any kind of delay will point towards a structural behavior (Mahmoud and Al-Mithairi, 1994, Udwadia *et al*; 2003).

Delays have been experienced in different projects despite the critical need for timeliness. In most construction and other types of development projects meeting deadline schedules is usually the most important concern for managers (Lyneis, Cooper and Els (2001). Project duration is very important aspect of project as confirmed by Kogi (2013) who examined influence of effectiveness of implementation of economic stimulus programme in Nairobi County. The study indicates that implementing a project should be based on the frameworks that are real and can be achieved without any delay or wastage of time. The schedule should not be devoid of the machines to be involved, the personnel and materials to be purchased. The study used survey as the methodology while self-administered questionnaire as well as simple random sampling technique. The study's suggestion is in line with (Tawil *et al*; 2013; Aftab, Ismael and Ade, 2012) who think that timely availability of resources affects time and cost performance of projects. Samuel

(2008) recommends that sticking to the set timelines would contribute to the success of a project.

Focusing on the subject of project duration, Al-momani (2000) examined the cause and extent of delays in different projects such as construction of homes, commercial buildings and other structures in institutions such as schools and hospitals and indicated that delays in the process of carrying out the work included increase in workload, weather, poor design, changes in the course of the implementation, harsh economic condition and poor management. The sample population was established by selecting 130 finished public projects in different regions of Jordan that were carried out from 1990 to 1997. The study focused on the delays experienced during construction and thus the data was driven from records about how the projects were carried out. The study found significant causes of project delay were poor design, change orders, weather, site conditions, late delivery, economic conditions and increase in quantities. The findings of this study match Salleh (2009) whose research was important to the field of knowledge as it was used to indicate how lack of proper communication channels were identified as critical delay factors in the Construction projects. In Brunei Darussalam projects have failed due to slow decision making, inadequate resources and poor experience by the contractor.

Cost is one of the core considerations throughout the lifecycle of managing a project and so is one of the most important parameters and the driving force of completing a project. Despite this, project overrun is a frequent phenomenon common with nearly all projects in the construction industry (Azhar and Ahmed, 2008).The problem of cost overruns is critical both in developing and developed countries and needs to be studied more to alleviate this issue in future (Angelo and Reina, 2002).The trend is more severe in developing countries with the overruns sometimes exceeding 100% of the expected cost of the project.

The process of estimating the cost of a project remains to be a crucial part of task. During the cost estimation processes, there is need to make landmark decisions. The cost is characterized of the items to be purchased, their quantity, the scope of the project and the

resources required as well as the type of project. In the process of setting the cost, there is need to have skills of predicting exactly even how the prices might change in the future. The cost helps in getting the value analysis and thus is used to make decisions on how to run the project. According to ISO (2010), the cost of a project must be well formulated using knowledge on what has happened in the past and forecasting what would happen in the future. A project also requires a management aspect referred to as sustainability. Through sustainable actions, it becomes easy for the project to run for a long time without any financial hitches. There is also need to ensure the planning and budgeting covers the different aspects that ensured the set goals were achieved. This is followed by a series of actions such as considering full lifecycle costs in order to make informed investment decisions. The costing also considers how affordable an investment is in terms of the long term, short term and how sustainable it will be. A good example is of how a technology can be costly at first but in the long run it would create good returns in terms of the impact (ICLEI, 1990).

Project cost control remains to be a core objective of the management. It helps in controlling the budget and ensuring the cost projected will adapt to the changes in the lineup of activities and the delays are also well covered in the budget (Chitkara, 2009). A control plan is hatched with an intention of developing a mechanism of how to cater for the extra cost in budget. This is because it will be used as a tool for the development process that ensures the budget does not go overboard neither is the quality compromised by the cost of a service or product. The project cost control team works closely with the different stakeholders in order to track down their use of cash and even how some portion of the money has already been used. In the initial stages, the working budget is prepared but it should be reviewed in the course of the implementation process. This makes the project to kick off but it is reviewed in the process of implementation in order to make sure the changes are responsive to the cost available to fund the project (Joseph, 2010). Smaller components of the project are also to be checked closely in order to ensure they do not get left out.

The project planning stage is inclusive of a plan on how to control the cost of the project. The control measures can be injected in terms of the contingencies, direct or indirect cost. Escalation is also an allowance allowed to ensure the project is professionally handled and the cost is controlled. When the project is in the implementation stage, the control is regarded as the master control and in case there are revisions to be made, a current control estimate is also used (Chitkara, 2009). In a project, the budget stands for the financial plan on how the different activities will be funded and coordinated until the projected results are achieved. In order to ensure the plan is effective, there is need to implement it while adhering to the set budget. This is because unnecessary deviations from the budget would provide a stalemate that would escalate the budget or lead to loss of money. Kogi (2013), argues that clients or developers should be careful to ensure they always have an updated list of the financial operations in order to give the confidence that the project is being handled professionally and sustainably. The budget should also clearly indicate the sources of income and ensure that there are mechanisms in place to address the issue of delay of cash disbursement in order to avoid any inconveniences.

There are many factors that affect the cost of construction projects as has been shown by various studies conducted to address these factors. Low quality materials cause higher construction costs than expected because of the loss of materials during construction. Inability to prevent cost overruns causes many Thai construction companies to fail (Sriprasert, 2000). Jahren and Ashe (1990) carried out a research aimed at identifying the predictors of time overrun rates on Noval Facilities Engineering Command (NAVFEC) construction projects. The study sample size was 576 projects. The researcher considered the cost overruns to the percentage increase of the cost of construction in relation to the construction award cost. The size of the project and the difference between the low bid and the government estimate were the predictors considered for this analysis. The size of the projects was divided into four categories. Descriptive statistics was used to determine the cost overruns on the four categories of projects. The results showed that cost overrun rate was more likely to occur on large projects more and less on smaller projects. The results were directly opposite the findings of Randolph and Rajendra (1987), who found

that smaller projects had a higher percentage change in project cost. This is in line with the principle of economy of scales.

Considering the aspect of magnitude of construction cost and schedule overruns in public works projects, Prameu (2013) analyzed 363 projects of Clark County Department of public works (CCDPW) to determine cost of construction and schedule overruns in varied types of projects. Projects that were sampled were constructed from 1991-2008, with a total construction cost of $ 1.85 billion, equivalent to 2012 cost. A one factor ANOVA test was conducted to determine whether construction cost and schedule overruns significantly varied based on types and sizes of projects. The study established that large projects, projects of long duration had significantly high cost and schedule overruns compared to smaller projects of short duration.

Aftab, Ismael and Ade, (2010) examined significant factors affecting construction costs in Mara large construction projects in Malaysia. The study presented results of a questionnaire survey conducted among Project Management Consultant Personnel. Data was analyzed with statistical tool to establish the ranking of factors affecting construction cost. Analysis of Spearman's correlation showed that incorrect planning and scheduling by contractors had strong positive relationship with contractors poor site management and supervision, changes in scope of project had strong positive relationship with frequent design changes and vice versa. This is in line with the findings of Koushki, Rashid and Kartam (2005) who found the three main causes of construction projects cost overruns were: contractor related, material related problems and owners financial constraint.

Unexpected urgent projects can arise because of a new business opportunity or for protection against a sudden threat or to restore an asset that is severely damaged (Wearner, 2006). The problem of urgency is not how to work on the "fast track" (ECI 2002).The problem is to agree what to spend to do compared with the least cost speed of delivery, with the managerial risk that is stated only qualitatively and therefore prone to different understandings. Previous studies on emergency projects have shown that initial

agreement that a project is “urgent” may decline with time, as the cost of uneconomic use of resources becomes apparent (Wearner, 2006).Managers of projects and other team members who manage resources allocated for a project that was from onset defined as urgent may be blamed for using project resources uneconomically for work that does not justify it anymore. The difference between urgent projects and other projects in the industry is that urgent project demand for concentration and dedication to project work by the leadership and entire project team and stakeholders. It is important to involve all stakeholders in decision making and relay on oral commitment, make use of all usable resources optimally and accept uncertain costs immediately (Eastham, 2002).

Urgency of project work could have a bearing on completion of project. Bearing in mind that projects depend on an array of factors for it to be complete, there is need to remain agile but remember the deadline is approaching. As such, the deadlines should be used to enhance the project and not to diminish its quality. In the case of urgency, the results would be required sooner than it was anticipated. Therefore, the team implementing the project would have to rush to fix the urgent issues (Kernion, 1999). On the other hand, there is need to ensure even in the urgent times, the good results are produced. Bearing in mind that urgency comes during crisis, successful project implementation should have an attitude of urgency even when the crisis is absent. This helps do the work within the required time (Turner and Müller, 2003). The manager should be quick and sharp to measure the level of urgency in different situations. This helps know where to start and which resources to deploy at what time. According to Eppler and Sukowski, (2000), there is need to separate between pressure and urgency in order to avoid distorting the required value of the project.

Weaner (2006) summarized critical decision and lessons learnt from the management of six different unexpected and urgent projects. The cases show how unexpected urgent work can demand the sustained involvement of top management, immediate stakeholders’ interests’ attention, trust in oral commitments coupled with instant acceptance of cost risks. In all the six cases what was noted was twined or double-headed leadership with an executive sponsor taking charge of management of relationships involving stakeholders, external authorities and the media while the project manager

focuses on managing the executives of the project. A dedicated but temporary team was formed for each project in line with what was observed by Engwall and Svensson (2003) in a study of ad-hoc teams used in a crisis to resolve unanticipated problems within projects. None of the six cases followed the normal or "best" practices of progressively developing proposal, evaluation of benefits, costs and risks analysis as in normal for projects. All available resources were used within the practical limits of space and technically possible speeds of work. Plans and budgets were developed during the work as the needs became apparent. Authority for employment and payment of contractors and suppliers was required prior to the scope of work and its possible costs could be defined. Contractors and suppliers were employed as partners to allow all parties concentrate on needs of the project and together anticipate risks rather than despite the consequences of risks (Bower, 2003; Zhang and Flynn, 2003).

The conclusion of a previous study on unexpected events viewed as problematic was that organizations need fluid decision-making and quick accurate feedback to confront unexpected problems that are a threat to their business plans (Weick and Sutcliffe, 2001).The common element with unexpected projects is surprise. The common need is face-to-face communication.

2.6 Attributes of Project Manager and Completion of Construction Projects.

The performance of managers has improved over the years due to the increase in managerial competencies. Unlike in the past when managers were just using a traditional approach, today, they are radical and thus their work is classic Shehu and Akintoye (2009). In the construction sector, a huge emphasis was laid on the skills of planning, monitoring and execution. However, today, the focus has been on planning, execution and control. Beyond ensuring the project has been completed, a manager will also be required to ensure the right mechanisms are laid down for the future in order to prevent failure (Abraham, 2003). Therefore, management practices are highly embraced in any organization that desires to come up with the best strategies with which the finest mechanisms are applied.

Project managers' traits such as their competencies and commitment, technical background and communication skills may affect project completion. Many studies in the literature underscore the central role a project manager holds in the implementation of a project. When carrying a project, managers must appreciate that there are hindrances that emerged and thus there was need to prepare how to block them (Pinto and Slevins, 1988). In this case, when carrying out different projects, varied approaches were applied in order to tailor each approach to the problems and challenges that may arise (Crawford, Hobbs and Turner, 2005). The project manager should thus bore specific qualities that fitted to address the challenges that arise **(**Mu¨ ller and Turner, 2007). The competency helped organize and implement the project in terms of planning, scheduling and communication.

The competency of a leader has been the emphasis of how effective project managers should be like. Competency according to Kalinova (2007), is a set of skills that helps a person to carry out a certain task. On the other hand, Boyatzis (2008), explains that competency is the ability of a person to express superior performance. The competency of a manager was of great importance in the process of carrying out a project Crawford (2001). This is because the skills are required to manage different aspects such as cost or other implications that will require the project to be managed professionally until it is complete and successful. When leaders are required to be competent, it is because they also expressed the same to their juniors and show them how to carry out certain tasks. He or she also set a good example on what should be done (Aketch and Karanja, 2013). Competency can either be learned or acquired through experience. A person who has been working for a long time would have a certain level of competency while another one would be from school and get a skill or competency, either intellectual or cultural (Dulewicz and Higgs, 2003).

Muller and Tunner (2007), carried out a study to show the influence of managers on the projects they manage. Therefore, managers should have a certain set of skills and competencies that will have an influence on the success that is achieved in a project. The study was carried out using a survey method, which was based on the web. ANOVA was used as a way of identifying the different traits the project managers were required to have. The findings of the study suggested that project managers were in the habit of team

building but the people who were new to the field did not regard team building as a special trait. This is because the older ones were more focused on learning through other people. In the process, they were able to improve the customer relations, the customer satisfaction and improvements on business requirements. The findings are similar to those of Lee-Kelley and Leong, Loong (2003), Prabhakar (2005) and Dolfi and Andrews (2006). All the four researchers found there was a huge relationship between the experience of a project manager and the kind of results they could deliver.

Construction projects were also found to be of high quality when the certification was involved. When a manager is certified, there is an assurance that the work to be done will be perfect. In terms of the quality of the project and the kind of satisfaction it could render to the client, there was need to understand that the quality of the project was high. In this regard, the project would be perfect due to the competency of the person in charge. It is thus important to identify the right project manager who delivers the needed quality. On the other hand, if wrong choice is made, there will be poor results due to the incompetency of the manager. Therefore, depending with the kind of work that should be done, there is need to find a project manager who matched the skills of the task at hand as stated by Turner and Muller (2006). Projects also failed or succeeded depending on if the manager had been competent and had acquired the right experience Maclnnis (2003).

The topic on how competent managers are in their work has been examined by Kariungi (2014), who researched on how the skill of managers would directly impact the time they would take to complete a project. The study was based on the Kenya Power and Lighting Company in Thika. In the study, the researcher focused on the project engineers and other technicians who were closely involved in projects. In their response, the participants indicated that managerial skills would in no way affect their work and when they would complete it. While the engineer was responsible for leadership of the team it was important for the rest to follow suit. However, in the process of carrying the project implementation activities, the engineers would accept that they had been challenged by issues due to lack of competency. With a certain level of competency, the respondents agreed that they were able to carry on their duties effectively. Similarly, Kibebe and Mwirigi (2014), found that there was a big relationship between the experience in project

management and the quality of work that was done by the CDF officers. The duo used descriptive and exploratory research design. The target population for the study was engineers and other technicians who were involved in the process of handling projects.

Communication remains a major pillar in the process of managing a project. The different stakeholders will need to communicate. A good example is the project manager who as the leader of the team will be required to work perfectly in communicating on the how and why the project should be implemented. On the other hand, the juniors needed to write reports to express what has happened and the changes that can be implemented. In case there is communication breakdown the wrong objectives may end up being implemented. It is also crucial to point out that receiving and sending information required a medium. According to Kerzner (2001), the communication will require a standard medium through which the stakeholders in the project can communicate. Without proper communication the juniors would not understand what should be done and they would also fail to express themselves to the manager on whether they have understood what should be done (Project Management Institute Standards Committee, 1996).

Various studies have been reviewed on how construction projects have been carried out previously and the kind of success they have received. In this case, Chan (2004), reviewed journals on management in order to develop a clear and solid conceptual framework for the specific critical success factors. The independent variables identified include procurement related, participant related, project related, external related and management related. Toor and Stephen Ogunlana (2007), carried out a study and their findings would support the assertion that different challenges are experienced in the process of project management. Therefore, in order to ensure the project is implemented successfully, there is need to develop a set of competencies, communication essentials and commitment. On the other hand, Kerzner, (2001), explains that cooperation and communication were critical determinants of the success of a project. Therefore, it is easy to conclude that communication is essential in the process of project management.

Salleh (2009), identified that there were delay factors that would be detrimental to the success of the project. The study was conducted using the Delphi methodology for the Brunei Construction Project. In this case, the study investigated how the delay factors would have an impact on the success of a project. The various factors that were identified included bureaucratic system of decision making, poor communication, poor planning and lack of experience. The factors were also found to resemble the problems other projects in developing countries experience. The findings were confirmed by Kuen and Yudi, (2008) and Maslej (2006). Benita (2014), identified that when the project management process had effective communication skills, it was easy for the project to run smoothly. On the other hand, it was easy to ensure the whole team was motivated, informed and team building was enhancing the work being done. Emmitt (2010), also finds that communication is a core element in project management.

2.7 Top Management Support and Completion of Construction Projects

The success of a project is hinged on the need to have the support of the management. If the top management does not support a certain idea or project, chances of failing would be high. This is because it was crucial in terms of releasing the funding and offering a set of administrative support that was crucial for the development of the project. On the other hand, it was important to know that if the management supports the project, there was an easy way to ensure to be confident that the implementation took place successfully. This was because issues like delays would not be experienced if the project is being supported by the top management (Adan *et al*; 1995).

Kerzner (2001), demonstrates that there is need to have the support of the management. This was because the quality of the work that needs to be done needed to be reviewed on time and plans that need to be changed required the approval of the management. In this case, there was need to ensure the project is getting on without delays due to lack of support. Simonsen (2007), and Young and Jordan (2008), have also argued that there is need to ensure the project is carried out in the right way while it is being supported by the top management. The project manager would have a hard time trying to review the decisions or make authorizations because it was hard for the manager to get the attention of the managers. The project also needed to be at the heart of the top management in

terms of making it a priority and thus the execution of the project became easy (Doll, 1985).

On the other hand, Alijaz (2011), carried out a study on the project organization and the correlations in terms of culture and performance. The study was closely linked to the top management attitude towards the support of a certain project. In this case, the kind of top management support would directly influence the attitude of the manager while making decision about a project. If the top management had shown full support towards the project, there was a high spirit linked to the kind of decisions the manager would make. If the manager knew the top management was not in support of the idea, the decisions made would have a huge difference with the kind of decisions that would be made if the manager knew the top management was fully in support of the project. Kuen and Yudi, (2008), explains that the success of the project was hinged on the mission of the project and the top management decision to support the idea. In a research that involved respondents from the Penang, which is a manufacturing plant in Malaysia, the participants clearly indicated that top management was crucial in the process of undertaking any project. The respondents who supported the claim that the top management support was critical was 36.7%. On the other hand, Kerzner (2001), argues that the top management was highly required to show commitment to a project in order to even inspire the employees that they were being supported. According to Young (2000); Andersen, Grude and Hang (2004); White, (2006). Although there are different causes of failure of a project, still top management support was in the lead. Other factors include poor communication, poor coordination, unclear roles and lack of resources.

Zwikael and Globerson, (2006), have also pointed that apart from supporting the specific programs and projects, there is need to ensure that other activities related to the project implementation. One of such activities that require the support of the top management is the training programs that was used to enhance the skills of the experts were involved in the implementation process. Zwikael, (2008), indicted that the support of the top management was also critical in the software development process. This is because projects such as software development would impact how an organization would carry out transactions and even change how the top management would relate with the client

and the junior employees. As such, their support was important because they need to give an assurance to the team developing the software that they are on their back. On the hand, they required to be available for consultations if changes needed to be made. In this case, there was need to argue that the support the management offered helped in successful completion **(**Project Management Institute – PMI, 2003).

Besner and Hobbs (2008) also emphasizes that the top management was highly required to offer maximum support to ensure projects were going on smoothly. The study involved different sets of 17 processes that would ultimately require the support of the management. In this case, the project success was measured after 213 project managers were interviewed together with their supervisors. The research was being carried out in Japan, Israel and New Zealand. The study involved a comparison of the critical and non-critical issues that did not have an impact on the success of a project. The study revealed that it was crucial for the management to support the projects because they were required to show unity in different ways. Again, their support was a way of ensuring that the employee felt encouraged to continue with the project because they could definitely know they would be appreciated by the management in the end. However, presently, top management in different organizations are not aware of the impact the have on projects and the kind of support they are required to offer (Zwikael, 2008).

Amponsah (2012), was interested to know why projects would fail in Ghana and how the culture affected the project management. The assumption was that the diverse culture had an effect on the implementation of projects. Participants in the study indicated that they receive support (65%) while another 35% said they did not receive any kind of support. The participants also indicated there was a difference in the kind of support that was being given to the private sector versus the public sector. The study established that projects undertaken in the private sector were given more support by the top management. In this regard, **(**Kerzner, 2011, Andersen, Grude and Hang, 2009, Young and Jordan, 2008; Kearns, 2007; Tinnirello, 2001; Doll, 1985), have indicated that they support the kind of support the management is required to give to the project implementation process. The argument is hinged on the benefits that are realized in the process of offering the needed support to the project implementation process. In the

process of offering the needed support, the contractors will need financial support in order to keep everything running. The managers also needed administrative support in terms of making decisions. When the support is weak or completely withdrawn, there is a risk that delays will be experienced (Tawil *et al*; 2013; Aftab, Ismael and Kartam, 2012).

2.8 Availability of Resources and Completion of Construction Projects

Resources were required for any project to be successful. The resources could be in terms of human capital, the money and infrastructure. For the project to be successful, it has to be implemented with the right quality and quantity of resources. The need to have resources cannot be over emphasized as it can render a project to become a failure or it can become successful (Asfandyar, 2012). Therefore, even before the project could be rolled out, there was need to confirm if the resources had been made available or not. If the project kicks off without an assurance of the kind of resources that were deployed, delays was experienced and the project was likely to be frustrated. When the resources are not sufficient, they led to poor outcome. The financial capital needed to run the project was necessary because it had an effect on the project. On the other hand, if there was no available human capital poor outcome was evident because the people who were deployed to carry out the work were less experienced (Tawil *et al;* 2013; Aftab, Ismael and Kartam, 2012).

Government of Kenya invests in building facilities such as schools and Institutions, hospitals, residential developments for her workers, offices, infrastructures like roads, water, electricity and telecommunication. These facilities consume resources and time. Karigi (2005) looked into time and cost overruns in power projects in Kenya. The study focused a specific case study of Kenya Electricity Generating Company Limited. The study focused on the factors influencing cost and even time overruns and those that hinder successful completion of projects. Analysis is also necessary for the different variables which include; inability of the contractor, the poor preparation procedures, poor resource planning, poor timing, tedious bureaucracy, and risk allocation. Government bureaucracy was top in the list while risk allocation was the least significant. The projects had time overruns ranging from (4.6% to 53.4 %). On the other hand, the

cost overruns varied between (9.4% and 29%).This is in agreement with Nyika (2012), who noted that in Kenya only 20.8 per cent of the projects were implemented on time and budget while 79.2 per cent exhibited some form of failure. Haseeb, (2011) and Abdelhak, (2012) makes similar observations of problems of delay in the field of construction.

A study carried out by Ashley, Laurie and Jaselkis, (1987) offers great revelations on the construction project effectiveness and how. Different sets of interviews with the project managers were conducted with an aim of ensuring that the project managers had a time to reveal what they were going through during their project implementation process. The study indicated that there was a close relationship between the resources available for the project and the kind of output given. The findings of the study were supported by Nguyen, Ogunbana and Lan (2004), who carried out a study on the construction projects in Vietnam. Examining the determinants of timely completion of projects in Kenya: A Case of Kenya Power and Lighting Company, Thika (Kariungi, 2014). The study found that funds would have an impact on the kind of success that would be experienced in a project. The correlation analysis indicated that there was a strong relationship between the financial constraints and procurement delays. The correlation was indicated by 0.738. Most of the projects were engulfed with financial constraints and the issue of poor time management. Timeliness was also not well observed in making the materials available for the project to kick off. Tawil *et al;* (2013), says insufficient funding affects projects while Aftab, Ismael and Ade, (2012) refers to delays in payments for valuations of works done negatively impacts on projects implementation. Descriptive as well as the exploratory research designs were adopted. In this case study, the target population was project engineers as well as supervisors.

Project funding levels has been identified as contributing factors to effectiveness in implementation of projects. Gaturu and Muturi (2014) assessed factors affecting the timeliness of completion of donor-funded projects in Kenya: a case of world Agro forestry centre (ICRAF). The descriptive research design was used in the study. The survey was carried out among 51 respondents. The respondents who were selected using the random selection approach comprised of project leaders, project managers, program

assistants and project administrators. Primary data was collected using structured questionnaires from projects funded between 1st January 2005 and 31st December 2012.The study found that the delays in the release of funds or even delays in the process of transferring funds for specific projects would in the end have an impact on the success of the projects. This is in agreement with Kariungi (2014) who established that availability on funds on time greatly influenced project delivery success.

Lee (2004), carried out a research study on the effects of resource allocation policies on project duration. The study established that resource allocation was one of the primary lubricants of a project. This is because when the resources are allocated, it will be easier to carry on with the activities that were lined as a way of ensuring that the project was completed. The schedule of activities will be easily achieved if the kind of resources that were required will be implemented and allocated without any delay. This calls for appropriate policies to be laid down for the purposes of the different activities. However, when the right policies about allocation of resources have not been laid down, it will be hard to stick to the timelines of the project. In the process, delays will be experienced and the delay can even end up being a total stall of the project Kariungi (2014). In such a case, the project manager feels discouraged due to the lack of support in terms of the allocation of resources.

2.9 Socio-Economic Factors and Completion of Construction Projects

The construction industry is faced by a number of challenges that lead to emergence of drawbacks and disharmonizations in the completion of projects with considerable costs. In Thailand, the following dispute factors have been related to public work projects. The factors include delay in making of payment, failure to adhere to the set regulations, poor planning, poor monitoring and evaluation and poor timelines (Borvorn, 2011).Inflation which involves an increase in the price of goods within a short period of time leads to a reduced purchasing power, thus affecting cost of projects. Mbathi (1986), citing Aje and Jagboro (2003), say it is rare for building works not to have variations. This leads to time and cost overruns. This may lead to better product, or add no value or wasted money. Quantity surveyors do not design, but are the cost and price specialists. They do not cost

control, but cost monitor and report, whose data may be used for cost control. This implies that even designers or quantity surveyors may not have control over inflation and other economic factors that affect project completion (Mbathi, 1986).

In spite of the reported positive effects of CDF in Kimilili constituency in Bungoma County in Kenya, various challenges were cited to be limiting the socio-economic effects of devolved funding particularly the CDF projects. Some of these challenges include: Lack of technical capacity among management committees, Political interference in management and utilization of the devolved funds, Changing fund management committee members frequently, Some fund management committee members being not fully conversant with the policies guiding their specific devolved fund, inadequate funding, delayed funding, poor selection and prioritization of projects, Illiteracy of the locals, Lack of strategic plan, Irregular monitoring and evaluation of projects and high poverty level limiting the locals' ability to secure major CDF projects and strict procurement requirements needed to supply services to CDF projects This was established through a study on how the socio- economic welfare of Kenyans changed since the introduction of CDF: a case of constituency development fund in Kimilili, kenya,(Simiyu , Mwevu and Omete, 2014). A descriptive survey design was used. A total of 98 respondents were selected through the census approach. A pre-tested semi structured questionnaire and an interview schedule were used to collect data. Statistical techniques were employed in data analysis.

A study, which used the descriptive survey research design was carried out in Kimilili Constituency, Bungoma County. The study beneficiaries of the CDF projects and thus targeted 103 households. In the study, Kibebe and Mwirigi (2014) examined different social factors that led to the implementation of the projects. The findings of the study indicated that there was poor prioritization, poor appropriation of funds, poor decision making and illiteracy levels that influenced the completion of CDF initiated projects. Moreover, the findings indicated that the projects were not professionally carried out because there were corrupt deals, unskilled personnel, delays in funding and poor quality of materials. Basheka (2008), emphasizes that budgetary allocations can be stabilized

through a good procurement plan. Simiyu, Mwevu and Omete, (2014), also found that socio problems had a huge impact on the success of the implementation of CDF projects in Kimilili Constituency, Bungoma County. Therefore, stakeholders should desire to play their respective parts of their role in order to make the work easy (World Bank, 2002).

Projects will fail if the stakeholders who are to benefit do not take part. This is because when the concerned stakeholders take part they will have a direct influence on the success of the project. It is unlike when people who will not benefit are actively involved. This is because they do not even know what is a priority, they will just carry out the project without due consideration. However, when the locals who are part of the process will be involved, they will fix the important parts of the project in a customized manner that will make sure they receive the full benefits of the project. When the people are consulted, they will also give ideas on how the project should be carried out and where more emphasis should be put. When the local people are also involved in supplying the materials, they will get the best quality because they know the project will remain to be their heritage for many years. Milika (2011) advises that in the process of involving people, there is need to have a participatory approach running from the start to the finish.

On the other hand, Mwangi (2005) and Ravallion (2005) explain that community projects will prosper when the community itself appreciates and identifies a problem that needs to be fixed. Section 23 (2, 3 and 4) of the CDF Act, 2003 revised 2007 offers the best guidelines on what should be done in order to identify a problem. In examining the influence of community participation in projects, Nyaguthii and Oyugi (2013) established the need to have local projects be comprised of the locals. This is because they could ensure the projects are carried out while involving the community for the purposes of ownership. In cases where the local participation was low, the projects were not successfully embraced by the community. In some case, they were destroyed because the community felt they were not part of the project.

2.10 Government Policy Compliance, Project Critical Success Factors and Completion of Construction Projects.

The government of Kenya has given the right allocations in order to realize the long term goal of boosting the quality of life of Kenyans. Huge resources have been deployed in order to start changing the course of the story and also ensuring the projects of the future are slowly being realized. The Kenya National Bureau of Standards has also come up to give operation guidelines on what should be done and how it should be done. The Ministry of Public Works provides parent ministries with suitable accommodation, implementation of Government annual programs of building and construction works (Seboru, 2006). It creates standards, designs, invites tenders, supervises construction and advices the client ministry on cost of works and disbursements to be made. Minister for Planning and National Development was quoted as saying, "The Government is taking a serious view of delays in projects through which a lot of money is lost due to cost overruns" (GOK, 1990).

Procurement is one of the areas the Kenya government has given policy direction on its operation through legislation. According to PPDA (2005), Public Procurement and Disposal Act require Procuring Entities to plan their procurements. A procurement plan is designed to give maximum value to the Procurement Entities for expenditures. It is also designed to ensure it handles all the issues that could be detrimental to the procurement processes and thereby making it easy for the public to consume the information. Similarly, Juma (2010) reiterates of the importance of public procurement as it is responsible for a good proportion of the GDP. Public procurement is estimated to rise up to 10% for all the items the government buys. In developing countries, the procurement is also with the same range of 9% –13% of the GDP (Thai, 2004). Therefore, public institutions should have a clear plan on how to handle their procurement processes. According to Agaba and Shipman (2007), a procurement planning process is the plan on the purchasing activity within a specified time period. The procurement plan is completed when the budgeting process is ongoing (Burt, Dobler and Starling; 2004).

In agreement with Agaba and Shipman (2007), Bailey (2000) asserts that procurement is a critical financial process that will need to be well planned to avoid loss of cash or

delivery of poor quality goods. The planning will take into consideration the kind of value that need to be achieved when the procurement is done. Other regulations like the prices will also need to be fixed and adjusted depending on the quality of service. The government will also need to give approvals in order for the necessary funding to be approved. The international community is also hinged on the procurement regulations which are prescribed by the UN Procurement Practitioner's Handbook (2006). The regulation is in order to secure the quality of service and goods offered as well as the transparency of the processes. Therefore, it is important to acknowledge the need for proper and prior planning in order to ensure the processes will run smoothly and effectively. Proactive measures will need to be taken in order to ensure the contingencies are solved and aligned with the established regulations.

With the understanding of the central role procurement plays in delivery of public services, Ogubala and Kiarie (2014) examined the factors that affect procurement processes in different County Governments in the republic of Kenya. The study focused on a case study of Nairobi City County. The idea was to focus on recommendations that needed to be made in order to realign the procurement process. The aim of the study was to establish how management support, staff competence, Information Communication Technology (ICT) tools, and budgeting procedure affect procurement planning. The study which employed survey design with questionnaire as a tool for data collection concluded that inadequate competencies of procurement staff as well as the lack of management support, other ICT tools plus the other budgeting procedures affected procurement planning. On the other hand, the procurement procedures should be adopted in line with Public Procurement and Disposal Act 2005 (Thai, 2004). Procurement procedures are bound to affect project completion since a projects source for goods and services and how the sourcing is done counts.

Usage of project funds and controls on usage of such funds through audits is paramount to project execution and eventual completion. APM (1995), explains that there is need for proper planning and monitoring to be carried out in order for the projects to be completed within the specified time frame. In this case, the increasing cost that may complicate the processes will require the performance to be improved for the purposes of guiding the

rational improvement actions (Seddon, 2008). The Kenya Government ministry of Education Science and Technology gives guidelines on school levies. This gives direction on amount of money to be levied on an activity area, its usage and the requirement for audit of the same. Every project has a limited budget and there is a point at which there are no resources remaining to fund the work of the project. If the project manager goes beyond that point, then the work of the project will remain unfinished until new funds are available. This underscores the importance of ensuring good use of project funds. A critical step of beginning a successful project is making certain that the cost estimates for the project are reasonable and acceptable.

Project cost control is a crucial part of the project because it will have an impact on whether the resources allocated will be enough. This is because although the allocations can be made, changes or delays may end up complicating the cost and thus there is need to ensure a special team of financial experts is keeping in check the cost control. Project cost control is focused on controlling changes within budgeted costs (Chitkara, 2009; Joseph, 2010). Kogi (2013) established that project cost controls influence effectiveness of implementation of Construction projects. This was in agreement with Griffin (2010) who noted every project has a limited budget and there is a point beyond which there are no remaining resources to fund the work of the project. The purpose of the study was to identify factors influencing the effectiveness of implementation of the economic stimulus programme (ESP), the case of construction projects in Nairobi County, Kenya. The methodology used was literature review and field study. The study found that effective cost control of project costs requires adherence to the project budget during implementation of the project. Joseph (2010) and Chitkara (2009) recommend the application of Cost control tools namely: variance analysis and earned value analysis. In variance analysis the project manager will adopt the role of comparing the actual results with the planned results in a bid to have a detailed spreadsheet or graph format that will be used to show the extent of the difference between what was planned and what has been achieved.

In examining the determinants of timely completion of projects in Kenya: A Case of Kenya Power and Lighting Company, Thika was used in the study by Kariungi (2014). The focus of the study was the procurement procedures and the kind of impact they had due to timely availability of materials and works in project. A descriptive as well as an exploratory research design was adopted. The study targeted the engineers deployed to carry out the project, the supervisors manning the operations and different types of technical staff working on the projects. A correlation analysis was used to show the influence of procurement procedures on timely availability of materials and works. A correlation of 0.633 was obtained and revealed that late project closure could be attributed to procurement delays. Tawil *et al;* (2013) and Aftab, Ismael and Ade (2012) agree with this in saying that regular and on schedule progress of work activities on site require sufficient cash flow in order to facilitate procurement of materials, plants and equipment on time as well as remuneration of labour force. This underscores the role of procurement.

2.11 Theoretical Framework

Literature underlying the system of ideas to explain the relationship between critical success factors and completion of construction projects are discussed here. The theory of construction management and the soft value management theory guided the study.

2.11.1 Theory of Construction Management

The theory of construction management whose proponents are Radosavljevic and Bennett (2012) focuses on efficiency of construction projects. It involves creating a model of construction management (CM), which utilizes the differentiated methods in order to ensure completion of building and construction projects. They present the Japanese construction industry as the most advanced in terms of their theory (, and that Lean Construction is founded on the Toyota production system and the development of lean production in Japan. The authors aim is to provide a "rigorous theory" based on a "tool kit of concepts and relationships" that will improve the efficiency and quality of "construction products".

Construction management involves taking responsibility for the various activities while measuring their efficiency and ensuring that the set objectives are achieved. This theory

is employed to emphasize the importance of checking project success/failure factors which can influence completion of a project in highest levels of efficiency with regard to quality and customer satisfaction. It is on the emphasis of the theory that this study connects to the theory. If projects have to be completed in the required quality and to customer satisfaction, like the theory of construction management suggests there is need to check project critical success/failure factors. This is the link of the study to the theory of Construction management.

2.11.2 Soft Value Management Theory

The proponents of Soft Value Management Theory are Al-Yami and Price (2006). Soft Value Management (SVM) theory is used when plans are being made on how to reduce the negative impact a project might incur in the process of implementation. When a clear roadmap is developed on the various ways a project can be managed with minimal negative effects, it becomes beneficial to the whole project. This theory applies to the proposed study in regard to the study's purpose to examine the influence of project critical success factors on completion of construction projects with a view of making recommendations for improving project performance within the schools, hence connects with the theory of SVM whose aim is in attempting to minimize negative impacts in a project and enhance project completion.

2.12 Conceptual Framework

Mugenda and Mugenda (2003) explains that conceptual framework is a clear illustration of the relationship between the variables in a clear graphic representation. It is a research tool intended to assist a study to develop awareness and understanding of the situation under scrutiny and to communicate this. This study is based on the premise that projects often possess a specialized set of critical success factors which if addressed and attention given will improve the likelihood of successful completion (Pinto, 1986). A clear understanding of project critical/significant success or failure factors at the outset of a project is likely to influence its completion. This conceptual framework portrays the influence of project critical success factors on completion of construction project. The independent variables (project critical success factors) and their relationship with dependent variable (completion of construction projects) are presented in figure 2.1

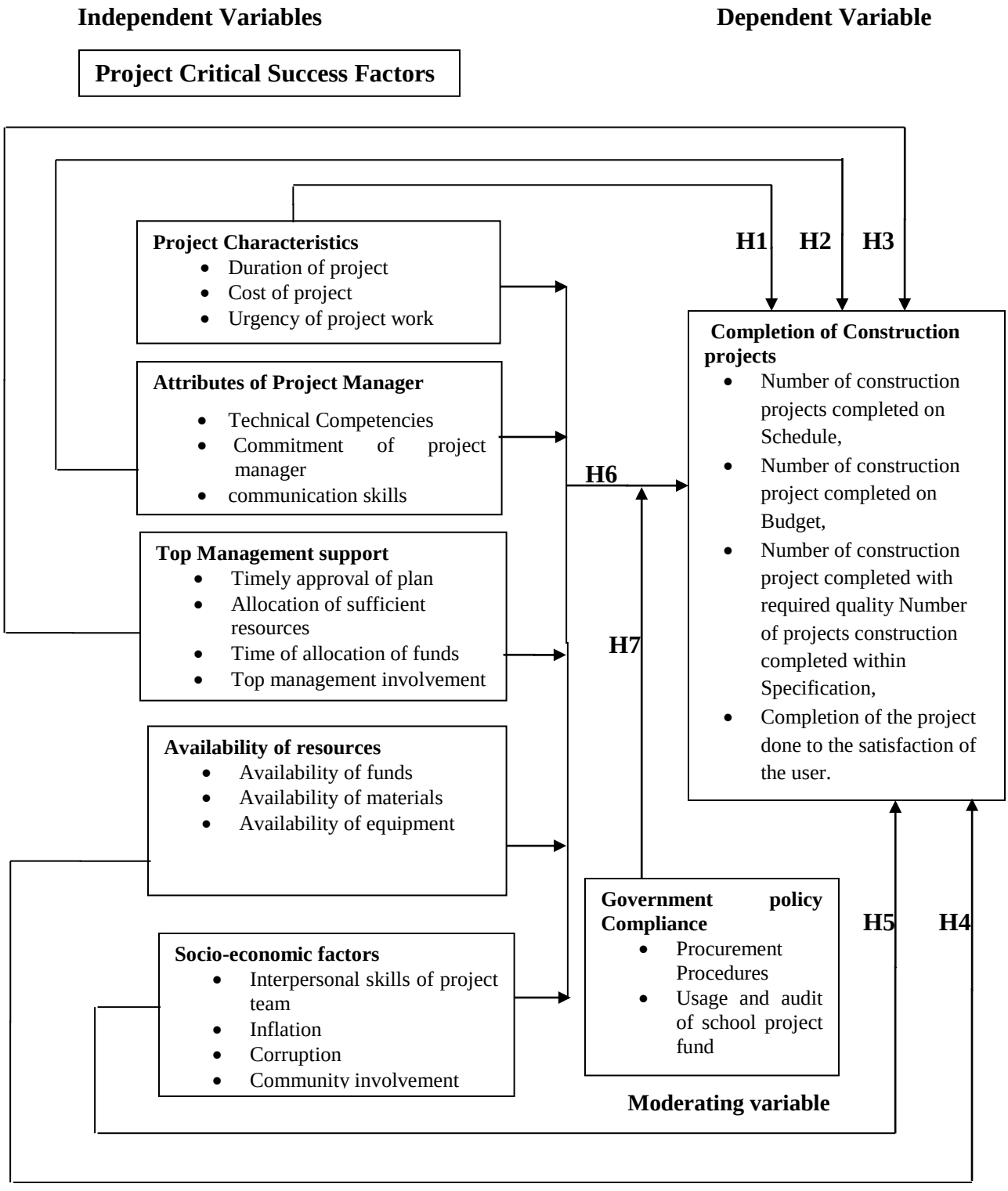

Figure 2.1 Conceptual Framework of Project Critical Success Factors, Government Policy Compliance and Completion of Construction Projects in public secondary schools.

The study proposed that components of project critical success factors namely; project characteristic, attributes of project manager, top management support, availability of resources and socio-economic factors can influence completion of construction projects. Project characteristics refer to duration of project, cost of project and urgency of project work. Technical competencies, commitment and communication skills form the project managers' attributes. Top management processes, allocation of sufficient funds and top management involvement in projects define top management support. Availability of resources refers to accessibility of funds, materials and equipment for the project while socio-economic factors defines interpersonal skills among project team, inflation corruption and community involvement in projects. This perceived picture is shown by the arrows from independent variables pointing to the dependent variable. Government policy compliance is a moderating variable that moderates the relationship between independent variables and the dependent variable (Completion of project) as shown by the arrows.

2.13 Knowledge Gap

Summary of literature reviewed in subsections 2.2 to 2.10 raised knowledge gaps. The summary is as presented in Table 2.1.

Table 2. 1 Gap in Knowledge

Variables	Author (year)	Title of the study	Methodology	Findings	Knowledge Gap
Project characteristics	Chua *et al* (1999).	Project critical success factors in specific industries	.Survey .Judgment of experts in the industry .Questionnaire	Different sets of construction will be regarded as successful factors for unique objectives	Project characteristics and completion of project wasn't covered.
	Lee, Ford and Jodlekar (2004)	Effects of resource allocation policies on project duration	.Survey .Model	Resource allocation can strongly influence duration	Did not focus on school projects
	Al-momani(2000)	Examine the cause and extent of the kind of delays in public projects in Jordan	.Analysis of relative importance index .Data from project records. .sampled 130 completed projects between 1990-1997	Causes of project delay include; poor design, change orders Weather, site conditions, late delivery,	Did not look at projects in schools specifically.
	Jahren and Ashe (1990)	Predictors of time overran rates on Navol Facilities Engineering Command Construction Projects	Survey	Cost overran rate is more likely to occur more on large projects	Did not look at projects in schools specifically
	Brameu (2013)	Magnitude of Construction cost and schedule overran in Public works project	ANOVA	Large projects and Projects of long duration had significantly high costs	Focused on general public work projects other than schools
	Aftab, Ismael and Ade (2010)	Significant factors affecting construction costs in Mara large construction projects in Malaysia	Survey	Found two main causes of construction cost overran were contractor related and schedule related	Focused on construction projects in Malaysia and not public secondary schools in Kenya
	Weaner (2006)	Summary of critical decisions and lessons learnt from the management of six	Case study	None of the six cases followed 'best' practices	None of the case studies was in a school.

		different un expected and urgent projects			
Attributes of project manager	Tunner and Muller (2007)	Importance attached by project managers to project success and the associates rates of success	.Web-based survey .ANOVA	There is correlation between experience and project success. .Best project managers are certificated.	Did not look at project managers' characteristic in school set up.
	Kariungi(2014)	Determinants of timely completion of projects in Kenya: A case of Kenya Power and Lighting, Thika	Descriptive and Exploratory research design Questionnaire, interview schedule	Managerial skills did not pose a big challenge on project completion in the area	Looked at Thika power managerial skills in projects, not Bungoma County. Schools.
	Chan (2004)	Reviewed previous works on empirical studies critical success factors	Review of literature on previous empirical works	Commitment, competence and communication are fundamental essentials for project success	Did not focus on school project managers
	Salleh (2009)	Success factors of project management for Brunei Construction projects.	General survey .A consensus of expert opinion using Delphi methodology .Correlation	Found the project delay factors to be lack of communication, slow decision making, among others.	Success factors for project management without focusing on specific project managers characteristics.
	Benita (2014)	Communication skills impact on sustainable and green project management	Survey .Questionnaire	communication skills are important in managing a sustainable construction industry	Did not look at schools
Top Management support.	Alijaz (2011)	Top and line management's attitude following internal regulations and respecting the manager's formal authority	Survey .Correlations	Level of project manager authority in different organization types has a direct impact on project performance	Did not focus on project manager authority in schools
	Kuen and Yudi (2008)	Factors that influence success project among manufacturing companies in	Exploratory survey Examination of respondent's profile.	Top management support is positively related to indirect project success in	Left out Construction in public secondary schools

		Malaysia	.Questionnaire .Regression analysis for hypothesis. Factor analysis	manufacturing.	
	Zwikael (2008)	Top management involvement in project management; A cross country study of software industry	.Survey .Questionnaires ,Maturity models .Factor analysis	T/M support has a positive influence on project success and executives in the software sector spend much effort in supportive projects in numerous ways.	Examined influence of top management support in project management in software industry but not in Construction industry in school in Bungoma
	Amponsah(2012)	Reasons why projects fail in Ghana and the effect of culture on project management in a multicultural society like Ghana	.Exploratory survey design .Interview	Showed a .link between a project failure and culture. Found Top management support to have influence on project success in Ghana	Found Top management support to have a influence on project success in Ghana but left out other places such as Bungoma.
Availability of Resources	Karigi(2005)	Time and cost overruns in power projects in Kenya: A case of Kenya Electricity Generating Company	Survey .Interviews	Contractors poor resource planning and government bureaucracy among others are significant contributors to overruns	Did not focus on construction projects in schools
	Ashley, Laurie and Jaselkis (1987)	Factors that influence construction projects effectiveness	Literature review of relevant studies .Correlation.	Differences in construction and design planning efforts best explained the delineation between average and outstanding projects.	Did not focus on construction projects in schools in Bungoma County
	Kariungi(2014)	Determinants of timely completion of projects in Kenya: case of KPLC,Thika	Descriptive survey .Interview, Questionnaire, Observation checklist. Simple random sampling	Availability of funds in good time greatly influenced project delivery success	Did not specifically focus on school Construction projects.

	Gaturu and Muturi (2014)	Factors affecting the timeliness of completion of donor funded project: case of (ICRAF)	Descriptive ,Inferential statistics Descriptive survey	Untimely release of funds and inadequate and unpredictable transfer of project funds influences timeliness of completion of projects to a great extent	Did not specifically focus on schools projects
	Lee, Ford and Jodlekar (2004)	Effects of resource allocation policies in projects	Survey .Model-Systems dynamic methodology	Found resource allocation strongly influences duration	Did not specifically focus on school in Bungoma County.
Socio-economic factors	Simiyu, Mwevu and Omete (2014)	Effects of devolved funding on socio-economic welfare of Kenyans; The case of CDF in Kimilili Kenya	.Descriptive Survey .Census approach . Descriptive ,Inferential statistics	.Peoples level of participation in the projects is average	Looked at CDF projects in general and specifically school construction projects School construction project were not looked at.
	Kibebe and Mwirigi(2014)	Selected factors influencing effective implementation of CDF projects in Kimilili constituency Bungoma County Kenya.	Descriptive Survey	There was a significant relationship between managerial factors and social factors and implementation of CDF projects.	Looked at community participation in CDF and not school projects.
	Nyaguthii and Oyugi (2013)	Influence of Community participation on successful implementation of CDF projects in Kenya: A case of Mwea constituency	Descriptive Survey .Descriptive statistics	There is low community participation in identification and evaluation and many of CDF projects and there's need to improve on the same	Left out construction projects in public schools in Bungoma County
Government policy compliance	.Ogubala and Kiarie(2014)	Factors that affect procurement planning in county government in Kenya a case study of Nairobi City Council	Census .Questionnaire .Descriptive and inferential statistics	Inadequate competencies of procurement staff, lack of management support, ICT tools and budgeting procedure affected procurement planning.	Considered factors that affect procurement planning in county government of Nairobi City Council but left out Bungoma County

				schools.
Kariungi (2014)	Determinants of timely completion of projects in Kenya: A case of Kenya Power and Lighting Company	.Exploratory research design .Interview, Questionnaire, Observation checklist. Simple random sampling .Descriptive ,Inferential statistics	Procurement procedures have an influence on timely availability of materials and works and a significant impact on early project delivery	Focused on Kenya Power and Lighting Company, not schools

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology to that was used in conducting the study. These include: the research paradigm, research design, target population, sample size and sampling procedure, research instruments, pilot testing of the instruments, validity of the instruments, reliability of the instruments, data collection procedures, data analysis technique, ethical considerations and operationalization of the variables.

3.2 Research Paradigm

Weaver and Olson (2006) explains that research paradigm is a series of patterns that are used to carry out an inquiry. The research paradigm provides a lens through which an inquiry can be carried out. The paradigms that are common in any kind of research includes; positivist, post positivist, interpretive, and critical social theory. The quantitative methodology shares its philosophical foundation with the positivist paradigm **(**Cole, 2006). The positivist philosophy explains that objective realities can be investigated. Therefore, as a consequence, valid research is demonstrated only by the degree of proof that can be made to correspond to the phenomena that study results stand for (Hope and Waterman, 2003). The qualitative methodology shares its philosophical foundation with the interpretive (Relativist) paradigm which supports the view that there are many truths and multiple realities. Additionally, the interpretive paradigm is associated more with methodological approaches that provide an opportunity for the voice, concerns and practices of research participants to be heard (Cole, 2006).

This study used qualitative (Relativist) and quantitative (pragmatism) research paradigms, leading to a mixed method research. A mixed method study focuses on collecting and analyzing both quantitative and qualitative data in a single study. A researcher may employ a mixed methods design, for example, to expand an understanding from one method to another, to converge or confirm findings from different data sources (Creswell, 2009). The blending of both paradigms provided the researcher with the ability to statistically analyze the data whilst also recognizing the

respondent's opinions, feelings and observations about the study variables. Biases inherent in any single method could neutralize or cancel the biases of other methods .The results from one method can help develop or inform the other method. Alternatively, one method can be nested within another method to provide insight into different levels or units of analysis (Tashakkori and Teddlie,1998).The data collection also involved gathering both numeric information on instruments as well as text information on interviews so that the final database represents both quantitative and qualitative information. The use of Relativist and Realist paradigms allowed the researcher to collect both qualitative and quantitative data at the same time during the study and then integrated the information in the interpretation of the overall results. The mixed method approach allowed the use of closed ended items in the questionnaire and structured interviews that allowed collection of quantitative data.

3.2.1 Research Design

The study used Descriptive survey research design and Correlation research design due to their ability to consider diverse aspects of the research problem. Mugenda and Mugenda (2003) define survey research as an attempt to collect data from members of a population in order to determine the current status of the population with respect to one or more variables. The survey strategy involves research in which sample surveys are selected to represent a known population. The sampling survey allows the researcher to generalize a study's results to a known population. Data was collected directly from the respondents using a systematic technique (questionnaire or interviews).The basic reasons for choosing survey strategies include the fact that a sample is chosen in such a way as to allow generalization to a defined population, results are accurate because of a large sample size and generally low sampling error. Data collection takes place in a natural setting and data is obtained directly from respondents.

The survey was cross-sectional, with the data collected at one point in time. A survey design provides a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population. A survey was the preferred type of data collection procedure, considering the type of data collected and the rapid turnaround in data collection given the sample size. A survey has the advantage of

selecting sample in such a way as to allow generalization to a defined population (Stone, 1978).This research design was suitable for interpreting and establishing the relationship between the variables and their significance due to its exploratory nature. Survey research design therefore was the most appropriate route to this study given its suitability to the purpose of the study. Correlation research design was used in testing research hypothesis in order to measure the relationship between variables.

3.3 Target Population

The unit of analysis of this study was public secondary schools in Bungoma County. Bungoma County is located in the former western part of Kenya and runs along the Kenya Uganda border with a population of 1,375,063 based on 2009 census. The population composition is 48% male and 52% female with a population distribution of 435.5 per km^2 with a population growth rate of 43%. This represents 36% of the national population. It borders Busia, Kakamega and Trans Nzoia Counties. The County has nine sub-Counties, six municipalities and seven constituencies. The area coverage for the County is 2,206.9 km^2 (852.1 sq miles).The climate of the County favors Agriculture as temperatures range between a minimum of 15 degrees and 30 degrees centigrade with an average rainfall of 1500 mm. The County has 296 public secondary schools. The literacy level is 60.5% with those attending school (15 yrs-18 yrs.) at 87.4% with secondary school enrolment of 130,907 students. The target population from which the study sample was drawn was 296 Principals and 296 PTA Chairpersons of public secondary schools and 9 Quality Assurance and Standards Officers giving a total of 601,as the target population.

3.4 Sample Size and Sampling Procedures

This section describes sample size and sampling procedures used in the study.

3.4.1 Sample Size

A sample is a section of a large populace which is used for research study or investigation. The sample size is a representative of the large population (Bryman, 2012). The sample size for this study was 461 drawn from a target population of 601 using Yamane (1967) theory of sampling.

3.4.2 Sampling Procedure

Sampling is the process of selecting a sample size from the population for investigation purposes. A sampling frame is a list, directory or index of cases, that enables realization of a representative sample (Donald and Delno, 2006; Mugenda and Mugenda, 2003). Purposive sampling was adopted in choice of study respondents who were subjected to Stratified sampling to ensure homogeneity of the selected sample in ensuring that samples are drawn from each region encompassed in the target population, then followed by simple random sampling technique from each region. Proportionate sampling was used to determine the sample size from each region (sub-County). The study used Yamane (1967) formula to determine the sample size for each sub-County as indicated below:

$$n = \frac{N}{1 + N(e)^2}$$

Where n - required responses (sample size)

N – Total population

e - error limit(5%)

For instance, number of schools sampled from Cheptais Sub-County was:

$$N = \frac{13}{1+13\ (0.05)^2}$$

$$n = 12$$

The number of schools in each Sub-County equals the sample size of school Principals in the respective secondary schools. PTA Chairpersons of each school from which a principal was drawn was part of the study sample. Nine Quality Assurance and Standard Officers from each of the nine Sub-Counties sampled by census. The sample size for secondary school principals and PTA Chairpersons in each Sub-County using Yamane (1967) formula was calculated and in Table 3.1:

Table 3. 1 Target Population and Sample Size

Sub-County	(No. of Principals per Sub-county)	Sample size of principals per Sub-county	No. of PTA chairpersons Per Sub-county	Sample size of PTA chairpersons	No. of DQASO per Sub-county	Sample Size of DQASO
Cheptais	13	12	13	12	1	1
Kimilili-Bungoma	30	24	30	24	1	1
Bungoma Central	32	25	32	25	1	1
Bungoma East	60	40	60	40	1	1
Bungoma South	45	33	45	33	1	1
Bumula	39	30	39	30	1	1
Bungoma North	38	29	38	29	1	1
Bungoma West	28	23	28	23	1	1
Mt.Elgon	11	10	11	10	1	1
TOTAL	**296**	**226**	**296**	**226**	**9**	**9**

Total sample size=461

The summary of the target population was as shown in table 3.2.

Table 3.2 Summary of the Sampled Target Population

Target group	Total Number of Sample
PTA chairpersons or representative	226
Principals	226
DQASO	9
Total	**461**

3.5 Research Instruments

The Study used a questionnaire for secondary School principals and PTA Chairpersons and an interview schedule for Districts Quality Assurance and Standards Officers' as key informants. The selection of these tools was guided by the nature of data collected. These instruments are further explained as follows:

3.5.1 Research Questionnaire

Questionnaires were used since the study is concerned with variables that cannot be directly observed such as views, opinions, perceptions and feelings of respondents. The sample size is also quite large, given time constraint; questionnaire is the ideal tool for collecting data. The target population being largely literate was unlikely to have difficulties responding to questionnaire items. The questionnaire was used to mainly collect quantitative data.

One questionnaire was administered to secondary school Principals and PTA Chairpersons in public schools in Bungoma County from the sampling frame. The questionnaire contained mainly closed - ended (structured) questions. Section A of the questionnaire contained questions on the general information of the respondents in regard to their gender, age, Sub-County of school in which they are serving, length of service in the school, their level of education, line of profession, County of origin and location of their school of service. Section B contained questions on project characteristics with regard to project duration, cost and urgency on project completion. Section C carried questions on attributes of the project manager to interrogate the project manager's technical competencies and commitment and project managers' communication skills influence on project completion. Section D on top Management support examined top management support processes and top management allocation of sufficient resources influence on project completion, while section E on availability of resources assessed the influence of availability of funds, materials and equipment on completion of projects. Section F on socio-economic factors will evaluate the influence of interpersonal skills of project team, inflation, corruption and community participation on project completion. H assessed the influence of the moderating variable (government policy compliance) on the relationship between project critical success factors and completion of construction

projects. Section I assessed the dependent variable; completion of projects. Structured questions were measured on a five point Likert scale from which respondents selected the suitable answer that describes their situation by simply ticking (Mugenda and Mugenda, 2003). The researcher with the help of the University of Nairobi Supervisors constructed the questionnaire.

3.5.2 Key Informants Interview Schedule

These are interviews which are directed to informants considered to be knowledgeable about a particular issue, hence accessible and willing to provide information. These are Sub-County Quality Assurance and Standards Officers of the Ministry of Education Science and Technology. They are perceived to have adequate information on schools Projects implementation and so enabled the researcher have reliable information as regards the subject under study.

An interview schedule was used to interview 9 QASO's, one from each of the 9 Sub-Counties in Bungoma County. Interview schedules are a written list of questions that need to be covered by the interview. Interview schedules basically consist of asking questions, listening to individuals and recording their responses. This study used only open ended items in the interview schedule so as to capture majorly qualitative data. The interview schedule that was used to interview QASO's contained straightforward questions on influence of project characteristic, attributes of project manager, top management support, availability of resources and socio-economic factors on completion of construction projects in public secondary schools in Bungoma County. The researcher administered the interview schedule in person so as to allow respondents time and scope to discuss their perception and knowledge on the key concepts of the study.

3.5.3 Pilot Testing of the Instruments.

Pilot testing is a small-scale trial, which is intended to assess the adequacy of the research design and of instruments to be used for data collection which is a small-scale version or trial run of the major study.The purpose is to ensure that everyone in your sample not only understands the questions but also understands them in the same way (Mugenda, 2008). Piloting tests the level of the language used and highlights probable typographic

errors. For the study to be effective, the pilot sample must be representative of the variety of individuals that the main study was intended to cover. Pilot testing verified the effectiveness of the questionnaire and gave feedback that helped the researcher to also measure the exact time required to complete all questions or identify any other problematic issues with the questionnaire format.

Hill (1998) proposes 10 to 30 respondents to pilot study in survey research. Six public secondary schools in Trans Nzoia County were randomly selected for pilot testing. In view of this, 10 principals and 10 PTA chairpersons were requested to carefully fill the questionnaires under the guidance of the researcher through direct contact at agreed dates. After pilot testing of the instrument on the proposed number of people, the researcher looked at the pattern in the feedback and used the data to revise the instrument. A test retests method on sample of at least ten respondents is adequate **(**Mulusa, 1988).The test retest method helps to point out deficiencies in the instruments and identifies questions that are vague. This enhances the reliability of the instruments. In this study, 10 respondents representing the two categories of respondents from Trans Nzoia County were requested to respond to questionnaires a second time after two weeks and the correlation between the two set of scores were computed by comparing the two scores with Cronbach Alpha Reliability coefficient.

3.5.4 Validity of the Instruments

In this study, validity referred to content validity and construct validity. Content validity of the instruments was established in three stages: The researcher critically considered each item to see if it contains a real representation of the desired content and see if it measured what it was supposed to measure after considering the constructs (concepts) to be measured. Content validity was determined to establish representation of the items with respect to components of project critical success factors selected for this study and their influence on completion of construction projects (Wiersma, 1991). In order to ensure validity of the instruments, the developed instruments were presented to my supervisors at the University of Nairobi to evaluate their applicability and appropriateness of the content, clarity and adequacy in relation to the research objectives and research questions. Construct validity was ensured by using short, simple and precise

questions capturing only necessary information, minimizing biases and avoiding sensitive issues. This was validated by my supervisors from The University of Nairobi.

3.5.5 Reliability of the Instruments

Reliability is the level to which a research instrument can be relied upon to produce consistent results every time it is used. In this case, a questionnaire was used. Therefore, to ensure it was reliable, the reliability method was used to test the level of consistency and reliability (Sekaran, 2003).Therefore, Cronbach's Alpha coefficient (α) was used to measure the internal consistency of the instrument. Alpha's coefficient range in value from 0 to 1. It was used to describe the reliability of the instrument for multi-point formatted scales (i.e., 1 = very dissatisfied to 5 = very satisfied). The higher the value, the more reliable the instrument was. Firstly, the consistency of respondents' answers to all items was assessed. The reliability of coefficient of 0.6 and above was accepted as a good measure of reliability. The internal consistency for each variable was then assessed and the results summarized. The reliability test was carried out and the results were as shown in 3.3.

Table 3.3 Reliability Analysis

Variable	Cronbach's Alpha coefficient
Project Characteristics	0.828
Attributes of project manager	0.931
Top management support	0.949
Availability of Resources	0.927
Social economic Factors	0.831
Government Policy Compliance	0.839
Completion of construction projects	0.795

The reliability test shows Cronbach's alpha coefficient for each variable was as follows; project characteristics 0.828, attributes of project manager 0.931, top management support 0.931, availability of resources 0.927, social economic factors 0.831, Government policy compliance 0.839 and completion of construction projects 0. 795.

This implied that the questionnaire was reliable given that all items had a coefficient of at least 0.7 that is accepted as the minimum in social sciences.

The study sought to establish if the variables under study were normally distributed or not. In order to measure sampling normalcy and adequacy of data, the study used Kaiser-Meyer-Olkin (KMO) and Bartlett's test whose value normally ranges between 0 and 1. High values ranging between 0.5 and 1 indicated that data was normally distributed. Values below 0.5 implied that data was not normally distributed (Kaiser, 1974). Good data ought to be normally distributed.

3.6 Data Collection Procedures

Before proceeding to collect data, an introductory letter from the University of Nairobi was obtained to enable the researcher get a permit from the Ministry of Education Science and Technology representative in the County. Permit for research was obtained from National Commission for Science and Innovation The researcher made phone calls to sampled schools principals to establish rapport and make appointments with the principals and PTA Chairpersons through their Principals. Two research assistants were trained on ethical procedures on data collection to help them in collecting data. Respondents were assured that information they gave was kept confidential and used only for the purpose of the study. Together, the two parties issued out questionnaires to the respondents on agreed dates in their schools. Follow up was done through mobile phone calls to remind respondents on agreed upon dates of collection of the instrument. The QASO's were interviewed on appointment at agreed venues and dates.

The researcher collected the questionnaires from the respondents on the agreed dates through direct contact. This was done by the researcher with the support of research assistants. This increases the return rate and reduces any chances of delay. Upon collection, the completed questionnaires were checked to find out whether they were appropriately and fully responded to. In case of non-response, available responses were used to analyze data (Deobold, 1979).

3.7 Data Analysis Techniques

In this research, the study questionnaire was adequately checked for credibility and verification. Coding of the data was done at this point. Data was analysed both descriptively and inferentially.Quantitative data collected was analyzed with the aid of Statistical Package for Social Sciences (SPSS version 21) while qualitative data collected from the field was analyzed using content analysis. The findings were presented/ distributed in summary using percentages, ratios and frequency distribution tables for quantitative data. Qualitative data was derived from interviews with key informants and was analyzed and presented in prose, whereas repetitive answers were grouped into themes and used to complement the quantitative response. Inferences from the analyzed data were made to help answer the research questions and also compared with previous research findings.

The study tested hypotheses using ANOVA (Analysis of Variance), simple and multiple regression.This was because quantitative data was of parametric nature. Analysis of variance was used to measure the degree of variation between the independent, moderating and dependent variables by examining the significance of F-test values. Simple regression was used to give a measure of the relationship of each single independent variable against the dependent variable. Multiple regression analysis method was of great help to show the level of relationship between two or more variables. Multi variance analysis was used to establish if there were any relationship or there existed a cause effect relationship between the variables. On the other hand, multiple regression analysis was used when testing one dependent variable which is assumed to be a function of two or more independent variables .

The model for data analysis used for hypothesis testing is as presented in Table 3.4.

Table 3. 4 Karl Pearson's correlation test statistics

Outcome		
Accept H1 if $\beta_1 \neq O$, $P \leq 0.05$ Accept H1 if $\beta_2 \neq O$, $P \leq 0.05$ Accept H1 if $\beta_3 \neq O$, $P \leq 0.05$ Accept H1 if $\beta_4 \neq O$, $P \leq 0.05$ Accept H1 if $\beta_5 \neq O$, $P \leq 0.05$ Accept if $\mathbf{r_{xy.z1} \neq r_{xyz2} \neq r_{xy.z3} \neq r_{xyz4} \neq r_{xyn}}$, $P \leq 0.05$		
Karl Pearson's correlation test statistics		
Objective	**Hypothesis**	**Model for test**
To assess how project characteristics has influenced completion of construction projects in public secondary school in Bungoma County	H1: Project characteristics significantly influence completion of construction projects.	Simple regression $Y_{Cp} = \alpha + \beta_1 PC + e$ Where $Y_{cp}$is completion of construction projects, α is the y-intercept term, PC is the project characteristics, β_1 is the beta value and e is the standard error term
To determine how project managers' attributes has influenced completion of construction projects in public secondary school in Bungoma County	H1: Characteristics of project manager significantly influence completion of construction projects.	Simple regression $Y_{Cp} = \alpha + \beta_2 APM + e$ Where Y_{cp} is completion of construction projects, α is the y-intercept term, APM is the attributes of project manager attributes, β_2 is the coefficient of project manager attributes and e is the standard error term
To establish how top management support has influenced completion of construction projects in public secondary school in Bungoma County	H1: Top management support significantly influence completion of construction projects.	Simple regression $Y_{Cp} = \alpha + \beta_3 TM + e$ Where Y_{cp} is completion of construction projects, α is the y-intercept term, Top management support, β_3 is the coefficient Top management support and e is the standard error term
To examine how availability of resources has influenced completion of construction project in public secondary school in Bungoma County	H1: Availability of resources significantly influence completion of construction projects.	Simple regression $Y_{Cp} = \alpha + \beta_4 AR + e$ Where Y_{cp} is completion of construction projects, α is the y-intercept term, AR is availability of resources β_4 is the coefficient of availability of resources and e is the standard error term
To examine how socio-economic factors have influenced completion of construction of public secondary school in Bungoma County	H1: Socio-economic factors significantly influence completion of construction projects.	Simple regression $Y_{Cp} = \alpha + \beta_5 SE + e$ Where Y_{cp} is completion of construction projects, α is the y-intercept term, SE is socio-economic factors, β_5 is the coefficient of socio economic and e is the standard error term
To establish the combined influence of critical success factors on completion of construction projects in public secondary schools in Bungoma County.	H1: Combined critical success factors significantly influence completion of construction projects	Multiple regression $Y_{Cp} = \alpha + \beta_1 PC + \beta_2 APM + \beta_3 TM + \beta_4 AR + \beta_5 SE + e$ Where Y_{cp} is completion of construction projects, α is the y-intercept term,β_1, β_2, β_3, β_4, and β_5 is the coefficient of project critical success factors and e is the standard error term
To assess the moderating influence of government policy compliance on the relationship between project critical success factors and completion of construction projects in public secondary schools in Bungoma County	H1:Government policy compliance significantly influence relationship between project critical success factors and completion of construction projects	Multiple regression $Y_{Cp} = \alpha + \beta_6 A + \beta_7 GP + e$ Where Y_{cp} is completion of construction projects, α is the y-intercept term, A is a combination of critical success factors and GP is government policy compliance.

3.8 Ethical Considerations.

The researcher sought permission from the following authorities before undertaking the study: letters of consent from the ministry of Education Science and Technology and school principals of schools under study. Research permit from National Commission for Science, Technology and Innovation, Respondents' consent was sought before involving them in the study. The purpose of the study and its implications were explained before getting formal consent to collect the data. The research ensured protection of the subject's identity and privacy by using codes and not names on the questionnaires. The questionnaires was also be sensitive to the subjects' feelings and values so as not to embarrass or intimidate them. With their consent the researcher carried out the study while ensuring to keep the promises and commitments made in handling the data obtained. The researcher did not falsify, or invent findings to meet a researcher's or an audience's needs**.** In the interpretation of data, researcher provided an accurate account of the information.

3.9 Operationalization of the variables

The variables used in this study as guided by the conceptual framework Fig 2.1, have been operationalized. The summary is presented in Table 3.5.

Table 3. 5 Showing Operationalization of variables

Objectives	Variable of Study	Indicators	Measurement	Scale of measurement	Research Paradigm	Research approach	Type of statistics	Tool of analysis
Assess how project characteristics influence completion of construction projects in public secondary schools in Bungoma county.	Independent V. Project characteristics Dependent V. . Completion of construction projects.	.project duration .Cost of project .Urgency of project work .Schedule .Budget .Quality ,Specification .Customer satisfaction	.Number of months .Amount of money .Time when project was required to be completed. .Time of completion .Quality on completion .meeting specification .Acceptance by customers	Nominal Interval	Mixed method	.Quantitative .Quantitative	Parametric	Linear regression
To determine how attributes of project manager influence completion of construction projects in public secondary schools in Bungoma County.	Independent V. Characteristics of project manager. Dependent V. Completion construction projects	Technical competence & commitment .Communication skills .Schedule .Budget .Quality ,Specification .Customer satisfaction	.P/M qualifications and experience .Timeliness and consistence .Level of commitment .Timely and appropriate communication .Time of completion Quality on completion .meeting specification .Acceptance by customers	Nominal Interval	Mixed method	.Quantitative .Quantitative	Parametric	Linear regression
To establish how top management	Independent V. Top management support	.Time of approval of project plan	.Time of approval of project plan .Amount of funds	.Nominal .Ordinal .Interval	Mixed method	.Quantitative .Quantitative	Parametric	Linear regression.

support influences completion of construction projects in public secondary schools in Bungoma county.		.Allocation of sufficient resources .Time of allocation of project funds Top Management involvement in project	allocated by T/M .Time of allocation of project funds .Top Management level of involvement in project					
	Dependent V. Completion of construction projects.	.Schedule .Budget .Quality ,Specification .Customer satisfaction	.Time of completion Quality on completion .meeting specification .Acceptance by customers					
Examine how availability of Resources influences completion of construction projects in public secondary schools in Bungoma County.	Independent V. .Government policy Dependent V. Completion of construction projects	.Amount of funds available .Amount of materials available .Amount of equipment available .Amount of human resource available	.Time of completion Quality on completion .meeting specification .Acceptance by customers	Nominal Interval	Mixed method	Quantitative .Quantitative		Linear regression
Examine how socio-economic factors influence completion of construction projects in public secondary schools in Bungoma County	Independent V Socio-economic factors Dependent V. Completion of construction projects	.Misunderstandings amongst project team . Levels of corruption and misappropriation of funds . levels of inflation Levels of involvement of Community	.Time of completion . Quality on completion .Meeting specification .Acceptance by customers		Mixed method	Quantitative .Quantitative	Parametric	Linear regression

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DICUSSSIONS

4.1 Introduction

This chapter presents the study findings which have been organized and discussed using thematic and sub thematic areas formulated from the objectives. These include: Questionnaires return rate, Demographic characteristics of the respondents, project characteristics and completion of construction projects, attributes of project manager and completion of construction projects, top management support and completion of construction projects, availability of resources and completion of construction projects, socio-economic factors and completion of construction projects, combined project critical success factors and completion of construction projects, Government policy compliance, project critical success factors and completion of construction projects.

4.2 Questionnaires Return Rate

The study used one questionnaire for the sampled groups which was made up of principals of secondary schools and chairpersons of Parents Teachers Associations (PTA). Table 4.1 shows the Questionnaire Return Rate for the two sampled groups that participated and returned. A total of 452 questionnaires were issued to the respondents out of which 320 questionnaires were correctly filled and returned. This constituted 70.8% of which was considered adequate and in line with Kothari (2004) who recommended that a return rate of more than 50% was acceptable in social science research. The results are presented in table 4.1.

Table 4.1 Questionnaire Return Rate

No	Sampled group	Total issued	Total returned	Percent Returned
1.	Principals	226	170	73.9
2.	PTA Chairpersons	226	150	65.2
	Totals	**452**	**320**	**70.8**

The variation in response rate received from Principals than PTA chairpersons can possibly be attributed to the fact that principals were in the schools at the time of carrying out the research compared to PTA chairpersons who were away and could only be found through appropriate appointments. Secondly, not all the principals and PTA chairpersons filled and returned the questionnaires. This might have been caused by their day to day busy schedules that may have denied them time to respond to questionnaires. The researcher issued two questionnaires in each school which was to be filled by the principals and their PTA chairpersons. Given the nature of the study on critical success factors on completion of the construction projects, respondents might have felt the study was relevant and would shade more light on implementation of school long term projects.

4.3 Demographic Characteristics of Respondents

Demographic characteristics of respondents refer to their background information. Several questions were asked in order to establish their background information. The questions comprised information on the Sub County they belonged to, age, experience, gender, education qualification and previous training in management of construction projects. These are discussed in the following sub-sections.

4.3.1 Distribution of Respondents by Sub-County

The study area was subdivided into 9 sub counties namely Cheptais, Kimilili, Bungoma Central, Bungoma East, Bungoma South, Bumula, Bungoma North, Bungoma West and Mt. Elgon. Respondents were asked to indicate the sub county they belonged to and the results were as summarized in table 4.2.

Table 4.2 Distribution of Respondents by Sub-County

Sub-County	Frequency	Percent	Cumulative Percent
Cheptais	16	5.0	5.0
Kimilili	36	11.3	16.3
Bungoma central	28	8.8	25.0
Bungoma East	58	18.1	43.1
Bungoma South	48	15.0	58.1
Bumula	42	13.1	71.3
Bungoma North	50	15.6	86.9
Bungoma west	32	10.0	96.9
Mt Elgon	10	3.1	100.0
Total	**320**	**100.0**	

According to the results in Table 4.2, 16 (5%) of the respondents came from Cheptais sub county, 36(11.3%) from Kimilili sub county, 28(8.8%) were from Bungoma central sub county, 58 (18.1%) from Bungoma East sub county, 48(15%) from Bungoma South sub county, 42 (13.1%) from Bumula sub county, 50 (15.6%) were from Bungoma North sub county, 32 (10%) from Bungoma West sub county while the remaining 10 (3.1%) were from Mt Elgon sub county. From the results, each sub county was adequately represented with respect to the total number of schools in each. This was important in bringing into perspective the status of completion of construction projects in each region in the county.

4.3.2 Distribution of Respondents by Age.

Respondents were asked to state their age in relation to completion of the construction projects. This was important to establish whether age played any key role in completion of the construction projects. The respondents were to indicate the age bracket that best described their age. The results were as shown in table 4.3.

Table 4.3: Distribution of Respondents by Age.

Age bracket	Frequency	Percent	Cumulative Percent
25-34 years	18	5.6	5.6
35-44 years	39	12.2	17.8
45-54 years	191	59.7	77.5
55-64 years	35	10.9	88.4
65 years and above	37	11.6	100.0
Total	**320**	**100.0**	

From the results in table 4.3, 18 (5.6%) of the respondents were aged between 25-34 years, 39 (12.2%) were aged between 35- 44 years, 191 (59.7%) were aged between 45-54 years, 35 (10.9%) were aged between 55 – 64 years while the remaining 37(11.6%) were 65 years and above. Majority of the respondents, 248 (77.5%) were in the age bracket of between 25 to 54 years. The age of the majority of respondents is important because it is an active age that is quite productive in determining the success of any given task (Sin, 2010).

4.3.3 Distribution of Respondents by Experience

The respondents were asked to state the number of years they had worked on school construction projects. The results are as shown in Table 4.4.

Table 4.4 Distribution of Respondents by Years of Experience

Years of experience	Frequency(f)	Percent (%)
1 - 10 years	27	8.4
11- 20 years	178	55.6
21- 30 years	94	29.4
31 - 40 years	21	6.6
Total	**320**	**100.0**

The results show that out of 320 respondents who participated in the study, 27 (8.4%) respondents have 1 to 10 years of experience, 178 (55.6%) had 11 to 20 years of experience, 94 (29.4%) have 21 to 30 years of experience while the remaining 21 (6.6%)

have 31 to 40 years of experience. Majority of the respondents had over 10 years of experience in construction projects. Experience is an important factor in completion of construction projects. From the results, projects are expected to be completed on time if project implementers have long experience. If a project delays, then, something else is influencing the delay rather than experience.

4.3.4 Distribution of Respondents by Gender

Gender of the respondents was identified to establish whether gender had any influence on completion of construction projects. The response on distribution of respondents by gender was as shown in Table 4.5.

Table 4.5 Distribution of Respondents by Gender

Gender	Frequency	Percent	Cumulative Percent
Male	246	76.9	76.9
Female	74	23.1	100.0
Total	**320**	**100.0**	

The results in Table 4.5 shows that out of 320 respondents who participated in the study 246 (76.9%) were male while 74 (23.1) were female. This finding goes against gender parity as articulated in constitution of Kenyan, (2010). This could be attributed by the fact that construction projects is still assumed to be males work based on cultural perceptions.

4.3.5 Distribution of Respondents by Education Qualifications

Education qualification was key to determine the level of education of respondents in relation to completion of construction projects. This is important to ascertain education background of respondents since education imparts knowledge, values and skills that could influence construction work. The results were as shown in Table 4.6.

Table 4.6 Distribution of Respondents by Education Qualifications

Category	Frequency	Percent	Cumulative Percent
Tertiary	55	17.2	17.2
University	265	82.8	100.0
Total	**320**	**100.0**	

The results in table 4.6 shows that out of 320 respondents who participated in the study 55 (17.2%) had tertiary education, while 265 (82.8%) had university education. This shows that the level of education of the people involved in the management of projects is adequate for completion of construction projects. Consequently, if completion of construction projects is low, then there is something else influencing it negatively other than education qualification.

4.3.6 Training in Management of Construction Projects

Training in management of construction projects was important in establishing whether the respondents had any prior training to involvement in construction projects. The respondents were therefore asked to state whether they had acquired any training in management of construction projects. This would measure the influence of training in management and completion of construction projects. The results are shown in table 4.7.

Table 4.7: Training in Management of Construction Projects.

Response	Frequency	Percent	Cumulative Percent
Yes	248	77.5	77.5
No	72	22.5	100.0
Total	**320**	**100.0**	

The results in table 4.7 shows that out of 320 respondents who participated in the study, 248 (77.5%) had acquired training in management of projects while 72 (22.5%) had no formal training in the same. Overally, the majority had formal training and therefore

management and completion of construction projects is expected to be well done under their management.

4.4 Test of Statistical Assumption Analysis of Likert –Type Data.

There were two major diagnostic tests that were carried out namely normality tests and multi-collinearity test. They were as discussed in the following sub-sections.

4.4.1 Normality Test

The tests are of importance before analysis of the linear regression model. The coefficient alpha is an appropriate measure of variance attributable to subjects and variance attributable to the interaction between subjects and items (Keya and Rahmatullah, 2016). Factor analysis is an exploratory tool used to help the researcher make decisions on whether the independent variables under study explain the dependent variable (Field, 2005). Before then, the study established if the variables under study are normally distributed or not. The normality test compares the shape of the study sample distribution to the shape of a normal curve. The study used Kaiser-Meyer-Olkin (KMO) to measure sampling normalcy and adequacy. The results were as shown in table 4.8.

Table 4.8 Normality and Adequacy Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.717
Bartlett's Test of Sphericity	Approx. Chi-Square	10843.456
	Df	1540
	Sig.	0.000

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is an index used to examine the appropriateness of factor analysis. High values (between 0.5 and 1.0) indicate factor analysis is appropriate and thus indicate data came from a normally distributed population. Values below 0.5 imply that factor analysis may not be appropriate and may not have come from a normally distributed data (Kaiser, 1974). The KMO and Bartlett's Test normally ranges between 0 and 1. Kaiser (1974) recommends 0.5 as minimum (barely accepted), values between 0.7 - 0.8 acceptable and values above

0.9 are superb. The results of the normality test were as shown in table 4.8. From the results, Kaiser-Meyer-Olkin Measure of Sampling Adequacy was 0.717 which was acceptable and significant since p=0.000, thus indicating the results of the sample size were adequate and that data was normally distributed.

4.4.2 Multi-Collinearity Test of Independent Variables

According to Alin (2010), multi-collinearity exist when at least two independent variables in a statistical model are linearly related such that the correlation coefficient R is either greater or less than zero. The variance inflation values needed to range between 1- 10. However if the Variance inflation Factor (VIF) were less than 1 or greater than 10, then there was multicollinearity. Table 4.9 shows the results

Table 4.9 Multi-Collinearity Test

	Coefficients of Collinearity Statistics	
		VIF
	Project characteristics	2.261
	Attributes of project manager	3.235
1	Top management support	3.655
	Availability of resources	5.529
	Social Economic Factors	4.223

a. Dependent Variable: Completion of Construction Projects

VIF= Variance inflation factor

From the results, project characteristics had a VIF of 2.261, attributes of project manager had 3.235, top management support had 3.655, availability of resources had 5.529 and social economic factors had 4.223. From the results, variance inflation values were ranging between 1- 10, hence the data was not suffering from multi-collinearity.

4.5 Descriptive and Inferential Statistics

This section discusses both descriptive and inferential statistics based on the following sub-thematic areas: project characteristics and completion of construction projects, attributes of project manager and completion of construction projects, top management

support and completion of construction projects, availability of resources and completion of construction projects, social economic factors and completion of construction projects, Government policy compliance, combined critical success factors and completion of construction projects.

4.5.1 Project Characteristics and Completion of Construction Projects

The first objective the study sought to achieve was to assess how project characteristics influence completion of construction projects. To achieve this, the respondents were asked to give their opinion showing the level of their agreement or disagreement with the statement provided in a Likert scale of 1- 5 where: Strongly agree (SA)=5, Agree(A)= 4, Neutral or not sure (N)= 3, Disagree (D)= 2 and Strongly disagree (SD) = 1. The nine statements on project characteristics results are presented in table 4.10.

Table 4.10 Project Characteristics and Completion of Construction Projects

No	Statements	SA f (%)	A f (%)	NS f (%)	D f (%)	SD f (%)	Mean	Std Deviation
1.	School construction projects that take a long duration do not adhere to the schedule	236(73.8)	66(20.6)	16(5.0)	2(0.6)	0(0)	4.6750	0.59833
2.	Duration of school construction project's affects project budget	220(68.8)	92(28.8)	8(2.5)	0(0)	0(0)	4.6650	0.52388
3.	The duration of a school construction project affects its quality	244(76.3)	64(20)	8(2.5)	4(1.3)	0(0)	4.7125	0.57522
4.	Many school construction projects go beyond their estimated cost.	260(81.3)	58(18.1)	2(0.6)	0(0)	0(0)	4.8063	0.41139
5.	The cost of school construction project materials keep changing	248(77.5)	60(18.8)	12(3.7)	0(0)	0(0)	4.7375	0.51907
6.	An urgent school construction project is difficult to meet the desired quality	224(70)	62(19.4)	22(6.9)	10(3.1)	2(0.6)	4.5500	0.80593
7.	An urgent school construction project is likely not to satisfy its customers	210(65.6)	82(25.6)	20(6.3)	4(1.3)	4(1.3)	4.5313	0.77518
8.	An urgent school construction project is likely to go above its budget	222(69.4)	92(28.8)	6(1.9)	0(0)	0(0)	4.6750	0.50762
9.	School construction projects required for immediate use may not be of good quality	218(68.1)	88(27.5)	14(4.4)	0(0)	0(0)	4.6375	0.56533
	Composite Mean and Standard Deviation						**4.6656**	**0.5869**

Statement one; School construction projects that take a long duration do not adhere to the schedule. Out of 320 who responded, 236 (73.8%) strongly agreed, 66(20.6%) agreed, 16(5%) were not sure, 2(0.6%) disagreed, while 0(0%) strongly disagreed. This meant majority of the respondents 302 (94.4%) agreed that school construction projects that take a long duration do not adhere to the schedule. The statement mean of 4.6750 was above the composite mean of 4.6656 meaning the duration of a school construction project has influence on its completion. Statement two; duration of school construction project affects project budget. Out of 320 respondents, 220(68.8%) strongly agreed, 92(28.8%) agreed, 8(2.5%) were not sure while (0%) disagreed and strongly disagreed respectively. Majority of the respondents 312(97.6%) agreed duration of school construction project affects its budget. The statement mean 4.665 was below the composite mean 4.6656 meant project duration does not support completion of construction.

Statements number three; the duration of a school construction project affects its quality. Out of 320 respondents 244 (76.3%) strongly agreed, 64(20%) agreed, 8(2.5%) were not sure, 4(1.3%) disagreed while 0(0%) strongly disagreed. Majority of the respondents 308(96.3%) agreed that the duration of a school construction project affects its quality whereas 4 (1.3%) disagreed. The statement mean 4.7125 was above the composite mean 4.6656.This means that the respondents agree that project duration has influence on completion of construction projects. Statement number four; many school construction projects go beyond their estimated cost. Out of 320 respondents, 260 (81.3%) strongly agreed, 58(18.1%) agreed, 2 (0.6%) were not sure while 0(0%) disagreed and strongly disagreed respectively. Majority of the respondents 318 (99.4%) agreed many school construction projects go beyond their estimated cost. The statement mean score 4.8063 was above the composite mean 4.6656 which meant the cost of project has influence on completion of construction projects.

Statement number five; the cost of school construction project materials keep changing. Out of 320 respondents, 248 (77.5%) strongly agreed, 60(18.8%) agreed, 12 (3.7%) were not sure while 0(0%) disagreed and strongly disagreed respectively. Majority of the respondents 308 (96.3%) agreed the cost of school construction project materials keep

changing. The statement mean 4.7375 was above the composite mean 4.6656. This meant changes in cost of construction materials has influence on completion of construction projects. Statements number six; an urgent school construction project is difficult to meet the desired quality. Out of 320 respondents, 224 (70%) strongly agreed, 62(19.4%) agreed, 22(6.9%) were not sure, 10(3.1%) disagreed while the remaining 2(0.6%) strongly disagreed. Majority of the respondents 286 (89.4%) agreed an urgent school construction project is difficult to meet the desired quality. The statement mean score of 4.55 was below the composite mean of 4.6656 thus indicating urgency of school construction project does not influence its completion.

Statement number seven; an urgent school construction project is likely not to satisfy its customers. Out of 320 who responded, 210 (65.6%) strongly agreed, 82(25.6%) agreed, 20(6.3%) were not sure, 4(1.3%) disagreed while the remaining 4 (1.3%) strongly disagreed. Majority of the respondents 292 (91.2%) agreed an urgent school construction project is likely not to satisfy its customers. The statement mean 4.5313 was below the composite mean 4.6656 implying it does not support completion of construction projects.

Statements number eight; an urgent school construction project is likely to go above its budget. Out of 320 who responded, 222(69.4%) strongly agreed, 92(28.8%) agreed, 6(1.9%) were not sure while 0(0%) disagreed and strongly disagreed respectively. Majority of the respondents 314(98.2%) agreed an urgent school construction project is likely to go above its budget. The statement mean 4.6750 was above the composite mean 4.6656, implying an urgent school construction project is likely to go above its budget on completion. Statements number nine; school construction projects required for immediate use may not be of good quality. Out of 320 who responded, 218(68.1%) strongly agreed, 88 (27.5%) agreed, 14(4.4%) were not sure, 0(0%) disagreed and strongly disagreed respectively. Majority of the respondents 306(93.6%) agreed school construction projects required for immediate use may not be of good quality. The statement mean of 4.6375 which was below the composite mean 4.6656 implying school construction projects required for immediate use may not be of good quality on completion.

Hypothesis 1

H1: Project characteristics significantly influence completion of construction projects in public secondary schools in Bungoma County.

The test criteria was set such that the study accepts the hypothesis if the value of beta, $\beta_1 \neq$ O. Simple regression $Y_{Cp} = \alpha + \beta_1$ PC + e was used where $Y_{cp}$is completion of construction projects, α is the y-intercept term, PC is the project characteristics, β_1 is the beta value and e is the standard error term. The mean of project characteristics (PC) was regressed with mean of completion of construction projects (Y_{cp}) in public secondary schools in Bungoma County. This was carried out using significance of R square and Regression coefficient at 95.0% confidence level. Results were presented in table 4.11.

Table 4.11: Regression of Project Characteristics and Completion of Construction Projects.

Model's Goodness of Fit Statistics						
R	R Square	Adjusted Square	Df	F	Sig.	ET
0.627	0.393	0.391	1	206.025	.000[b]	3.98
Regression Coefficients						
	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
Model	B	Std. Error	Beta			
(Constant)	21.547	1.047		20.576	.000	
Project characteristics	.852	.059	.627	14.354	.000	

a. Dependent Variable: Completion of construction projects

From table 4.11, the correlation coefficient (R) or the beta value β_1 of 0.627≠0 at p=0.00 indicates there exist statistically significant linear relationship between project characteristics and completion of construction projects. The coefficients of determination, R-square (r^2) of 0.393 implies 39.3% of the variance in completion of construction

projects is attributed to project characteristics. The significance value is 0.000 which is less than 0.05 means the model is statistically significant in predicting how project characteristics influence completion of construction projects. Further, an F-significance value of p = 0.000 was established showing that there is a probability of 0.00% from the regression model to reject the hypothesis.

The unstandardized regression coefficient (β_1) value of project characteristics was 21.547 with a t-test of 14.345 and significance level of $p \leq 0.001$. This indicated that a unit change in project characteristics would result to a change in completion of construction project by 14.354. At 5% level of significance and 95% level of confidence, project characteristics are significant in predicating completion of construction project. Hence, completing the equation;

Completion of construction projects = 21.547+ 0.627*project characteristics+ 3.98255.

Given this results, the hypothesis was confirmed and accepted.

The findings on project characteristics on completion of construction projects in this study are in agreement with those of Lee, Ford and Jodlekar*;* (2004), who carried out a study on the effects of resource allocation policies on project duration. Their study established that resource allocation was critical in the process of carrying out projects as can even affect the timeframe for different activities. Theodore (2009), agrees with the statement that project scheduling is highly important and should be given a priority. He also indicated that it was hard to redesign a project if the timelines are interfered with due to the need to reallocate the necessary resource for each project. The same voice on project characteristics was echoed by Kogi (2013) who points out the importance of implementing a project based on frameworks that are real and that can be achieved without any delay or wastage of time.

The findings of this current study on the influence of project characteristics on completion of construction projects are in agreement with those of Prameu (2013), who established that large projects and projects of long duration had significantly high cost and schedule overruns compared to smaller projects of short duration. This affects project completion. Further, the same was voiced by Aftab, Ismael and Ade (2010), who examined significant factors affecting construction costs in Mara large construction

projects in Malaysia. Their results showed that incorrect planning and scheduling by contractors had strong positive relationship with contractors poor site management and supervision, changes in scope of project had strong positive relationship with frequent design changes and vice versa.

In addition, the findings of the current study on the influence of project characteristics on completion of construction projects are in agreement with Kernion (1999) who noted that as much as the team implementing the project would have to rush to fix the urgent issues, on the other hand, there is need to ensure even in the urgent times, good results are produced. Bearing in mind that urgency comes during crisis, successful project implementation should have an attitude of urgency even when the crisis is absent. This helps to do the work within the required time (Turner and Müller, 2003). The manager should be quick and sharp to measure the level of urgency in different situations.

The interview generated qualitative data from quality assurance and standards officers depicting the following scenario;

> *"A project taking too long may not be completed well. The project will degenerate and hence attract more expenses. If schedule is adhered to, the right quality will likely be attained. A good project should be done within the given time frame to avoid watering down on quality. Cheap is expensive. Long duration of projects can hamper continuous funding of a project. If the project delays, it may be affected by fluctuation in prices.*
>
> *A costly project can be of low quality depending on the expertise. If the cost of the project is too high, work may be compromised in the event of trying to lower the cost hence affecting the quality of the entire project. Urgent construction projects may not have time to cure and eventually develop cracks hence affecting the entire cost of the project since it will require frequent repairs. An urgent project is very expensive to undertake. Inadequate allocation of funds for a project by top management will yield low quality project. Proper and timely allocation of resources is necessary for good quality projects. Change of management may interfere with the project".*

4.5.2 Attributes of the Project Manager and Completion of Construction Projects

The second objective the study sought to achieve was to assess how attributes of the project manager influence completion of construction projects. To achieve this objective, the respondents were asked to give their opinion showing the level of their agreement or disagreement with the statements provided in a Likert scale of 1- 5 where: Strongly agree (SA)=5, Agree(A)= 4, Neutral or not sure (N)= 3, Disagree (D)= 2 and Strongly disagree (SD) = 1. The seven statements on attributes of project manager results are presented in table 4.12.

Table 4.12 Attributes of the Project Manager and Completion of Construction Projects

No	Statements	SA f (%)	A f (%)	NS f (%)	D f (%)	SD f (%)	Mean	Std Deviation
1.	A school construction project managers' experience matters.	227(70.9)	92(20.6)	1(0.3)	0(0)	0(0)	4.7063	0.46301
2.	The technical background of school construction project manager is important	245(76.6)	66(20.6)	9(2.8)	0(0)	0(0)	4.7375	0.50063
3.	School construction Project manager's competencies are crucial for the project	258(80.6)	62(18.4)	0(0)	0(0)	0(0)	4.8063	0.39585
4.	School construction project manager's ability to work on time matters a lot.	232(72.5)	88(27.5)	0(0)	0(0)	0(0)	4.7250	0.44721
5.	The school construction project manager's consistence on project work is important	242(75.6)	62(19.4)	16(5)	0(0)	0(0)	4.7063	0.55536
6.	Project manager's level of communication to project teams is valuable	240(75)	80(25)	0(0)	0(0)	0(0)	4.7500	0.43369
7.	Project manager's timely communication is good for the project	230(71.9)	77(24.1)	13(4.1)	0(0)	0(0)	4.6500	0.54814
	Composite mean and Standard Deviation						**4.7259**	**0.4777**

Statement one; A school construction project managers' experience matters. Out of 320 respondents, 227(70.9%) strongly agreed, 92(20.6%) agreed, 1(0.3%) was not sure while 0(0%) disagreed and strongly disagreed respectively. Majority of the respondents 319(91.5%) agreed a school construction project manager's experience matters. The item mean was 4.7063 below the composite mean 4.7259 which implied a school construction project manager's experience does matter to a moderate extent for project completion. Statements two; the technical background of school construction project manager is important. Out of 320 who responded, 245 (76.6%) strongly agreed, 66(20.6%) agreed, 9(2.8%) were not sure, 0(0%) disagreed and strongly disagreed respectively. Majority of the respondents 311(97.2%) agreed the technical background of project manager is important. The items mean 4.7375 which was above the composite mean of 4.47259 implied the technical background of the project manager matters for completion of construction projects.

Statement three; School construction project manager's competencies are crucial for the project. Out of 320 who responded, 258(80.6%) strongly agreed, 62(18.4%) agreed 0(0%) none was not sure, disagreed and strongly disagreed respectively. All the respondents agreed school project manager's competencies are crucial for the project. The statement mean 4.8063 was above the composite mean 4.7259 implied a project manager's competencies supports completion of construction projects in public secondary schools. Statement four; School construction project manager's ability to work on time matters a lot. From 320 respondents, 232 (72.5%) strongly agreed, 88(27.5%) agreed, 0(0%) were not sure, disagreed and disagreed respectively. All the respondents agreed school construction project manager's ability to work on time matters a lot. The statement mean 4.725 was below composite mean 4.7259 implies the project manager's ability to work on time does matter to some extent to support completion of construction projects.

Statement five; the school construction project manager's consistence on project work is important. Out of 320 respondents, 242 (75.6%) strongly agreed, 62 (19.4%), agreed 16(5%) were not sure while 0(0%) disagreed and strongly agreed respectively. Majority of the respondents 304 (95%) agreed school construction project manager's consistence

on project work is important. The statement mean 4.7063 was below the composite mean 4.7259 implying the project manager's consistence on project work does not influence completion of construction projects. Statement six; project manager's level of communication to project teams is valuable. Out of 320 who responded, 240 (75%) strongly agreed, 80 (25%) agreed while none were not sure, disagreed or strongly disagreed. The item had a mean score of 4.75 was above the composite mean 4.7259 implying the project manager's level of communication has influence on completion of construction projects. Statement seven; project manager's timely communication is good for the project. Out of 320 who respondent, 230 (71.9%) strongly agreed, 77 (24.1%) agreed, 13 (4.1%) were not sure while 0(0%) disagreed and strongly disagreed respectively. Majority of the respondents 310(95.9%) agreed project timely communication is good for the project. The statement mean score of 4.650 was below the composite mean 4.7259 implying project manager's timely communication does not support completion of construction projects.

Hypothesis 2

H1: Attributes of project manager significantly influence completion of construction projects in public secondary schools in Bungoma County.

The mean of attributes of project manager (APM) was regressed with the mean of completion of construction project (Y_{cp}). This was tested using significance of R square and Regression coefficient at 95.0% confidence level. The results are presented in Table 4.13.

Table 4.13: Regression of Attributes of the Project Manager and Completion of Construction Projects

Model's Goodness of Fit Statistics						
R	R Square	Adjusted R Square	Df	F	Sig.	
0.774	0.599	0.598	1	475.202	.000[b]	
Regression Coefficients						
	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
Model	B	Std. Error	Beta			
(Constant)	10.795	.849		12.713	.000	
APM	1.049	.048	.774	21.799	.000	

a. Dependent Variable: Completion of construction projects

Table 4.13 shows that the relationship between the attributes of project manager (APM) and completion of construction projects had a statistically significant positive correlation given coefficient (R) of 0.774 at P=0.00. The coefficient of determination, R-square of 0.599 implies that 59.9% of the variance in completion of construction project is explained by attributes of project manager. The significance value is 0.000 which is less than 0.05 thus the model is statistically significant in predicting how attributes of project manager influence completion of construction project. An F-significance value of p = 0.000 was established showing that there is a probability of 0.00% from the regression model to reject the hypothesis. Since the value of beta is 0.774 and is not equal to zero, the hypothesis was confirmed and accepted. The regression equation to estimate the completion of construction project was hence stated as:

Completion of construction project = 10.795+0.774*Attributes of project manager+3.229.

The findings on whether the experience of a project manager matters for project completion differ with those of Lee-Kelley and Leong(2003), Prabhakar (2005) and Dolfi and Andrews (2006), who found out that there was a huge relationship between the experience of a project manager and the kind of results they could deliver.

The findings of the current study are supported by a study carried out by Mu¨ ller and Turner (2007), who noted that the project manager should bear specific qualities that fit to address the challenges that arise. They noted that managers should have a certain set of skills and competencies that will have an influence on the success that was achieved in a project. The competency helps organize and implement the project in terms of planning, scheduling and communication. Kariungi (2014) found that with certain level of competency, project managers are able to carry out their duties effectively. Similarly, Kibebe and Mwirigi (2014), found that there was a significant relationship between the experience in project management and the quality of work that was done by the CDF officers.

On communication skills, the findings of the current study are in agreement with Salleh (2009), who identified that there were delay factors that would be detrimental to the success of the project. The various factors that were identified included bureaucratic system of decision making, poor communication, poor planning and lack of experience. Further, Benita (2014), identified that when the project management process had effective communication skills, it was easy for the project to run smoothly.

Qualitative data generated through interview from the QASOs had the following to say;

> "*Experience of a project manager matters a lot since he/she will be in a position to draw from their first failures and success stories. Lack of technical competencies limits the ability of the team leader to supervise and monitor the project work. The project manager must be consistent and should have the capacity to work for long hours to deliver a timely and quality project. Timely and proper communication is essential. Late communication will touch on quality and the cost of the entire project."*

4.5.3 Top Management Support and Completion of Construction Projects

The third objective of the study aimed to establish how top management support influence completion of construction projects. In order to achieve this objective, the respondents who participated in the study were asked to give their opinion on the extent they agree or disagree with the statements provided on a Likert scale of 1-5 where:

Strongly agree (SA)=5, Agree(A)= 4, Neutral or not sure (N)= 3, Disagree (D)= 2 and strongly disagree (SD) = 1.

The six statements on top management support results are presented in table 4.14.

Table 4.14 Top Management Support and Completion of Construction Projects

No	Statements	SA f (%)	A f (%)	NS f (%)	D f (%)	SD f (%)	Mean	Std Deviation
1.	Top management's timely approval of school construction projects is important	232(72.5)	78(24.4)	10(3.1)	0(0)	0(0)	4.6938	0.52519
2.	It necessary for top management to review school construction projects	211(65.9)	109(34.1)	0(0)	0(0)	0(0)	4.6594	0.47466
3.	Top management's efficiency in allocation and approval of sufficient funds for projects is vital	247(77.2)	73(22.8)	0(0)	0(0)	0(0)	4.7719	0.42028
4.	Top management's level of involvement in school construction projects matters	245(76.6)	75(23.4)	0(0)	0(0)	0(0)	4.7656	0.42427
5.	Top management's level of commitment to school construction project counts	257(80.3)	63(19.7)	0(0)	0(0)	0(0)	4.8031	0.39826
6.	Lack of executive input puts a school construction project at a severe disadvantage	249(77.8)	71(22.2)	0(0)	0(0)	0(0)	4.7781	0.41616
	Composite mean and Standard Deviation						**4.7453**	**0.4431**

Statement number one; top management's timely approval of school construction projects is important. Out of 320 who responded, 232 (72.5%) strongly agreed, 78(24.4%) agreed, 10 (3.1%) were not sure while none disagreed and strongly disagreed respectively. Majority of the respondents 310(96.9%) agreed with the statement. The statement mean

4.6938 was below the composite mean 4.7453 which meant, top management's timely approval of school construction projects is not important for completion of construction projects though it has some influence. Statement two; It is necessary for top management to review school construction projects. Out of 320 who responded, 211 (65.9%) strongly agreed, 109(34.1%) agreed while 0(0%) disagreed and strongly disagreed respectively. The statement mean 4.6594 was below the composite mean 4.7453 implying top management reviewing of school construction projects does not support completion of construction projects.

Third statement; top management's efficiency in allocation and approval of sufficient funds for projects is vital. Out of 320 respondents, 247 (77.2%) strongly agreed, 73 (22.8%) agreed while 0(0%) disagreed and strongly disagreed respectively. The statement mean 4.7719 was above the composite mean 4.7453 implying top management's efficiency in allocation and approval of sufficient funds for projects is vital for completion of construction projects. Statement four; top management's level of involvement in school construction projects matters. Out of 320 who participated in the study, 245 (76.6%) strongly agreed while the remaining 75 (23.4%) agreed. None of the respondents was not sure, disagreed or strongly disagreed respectively. The statement mean 4.7656 was above the composite mean 4.7453 which implies top management's level of involvement in school construction projects matters for completion of construction projects.

Statement number five, top management's level of commitment to school construction project counts. Out of 320 who responded, 257 (80.3%) strongly agreed, 63 (19.7%) agreed while 0(0%) were not sure, disagreed and strongly disagreed respectively. The statement mean score of 4.8031 was above the composite mean 4.7453 implies top management's level of commitment to school construction project supports completion of construction projects. Statement six; lack of executive input puts a school construction project at a severe disadvantage. Out of 320 who responded, 249 (77.8%) strongly agreed, 71(22.2%) agreed while none was not sure, disagreed and strongly disagreed respectively. The statement mean 4.7781 was above the composite mean 4.7453 implying

lack of executive input puts a school construction project at a severe disadvantage and has influence on completion of construction projects.

Hypothesis 3

H1: Top management support significantly influence completion of construction projects in public secondary schools in Bungoma County.

The mean of top management support (TM) and the mean of completion of construction project (Y_{cp}) were regressed. The purpose of this analysis was to find the relationship between composite index of top management support and completion of construction project in Bungoma County. This was tested using significance of R square and regression coefficient (Beta) at 95.0% confidence level. The results are presented in Table 4.15.

Table 4.15: Regression Top Management Support and Completion of Construction Projects

Model's Goodness of Fit Statistics					
R	R Square	Adjusted R Square	Df	F	Sig.
0.652	0.425	0.425	(318,319)	234.984	0.000[b]
Regression Coefficients					
	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model	B	Std. Error	Beta		
(Constant)	10.686	.989		10.807	.000
TM	.859	.056	.652	15.329	.000

a. Dependent Variable: Completion of construction project

The test criteria was set such that the study accepts the hypothesis if the value of beta, $\beta_3 \neq O$. Simple regression $Y_{Cp} = \alpha + \beta_3 TM + e$ was used where $Y_{cp}$is completion of construction projects, α is the y-intercept term, TM was top management support, $\beta_3$is the beta value and e is the standard error term. The mean of top management support (TM)

was regressed with mean of completion of construction projects (Y_{cp}) in public secondary schools in Bungoma County. This was done using significance of R square and Regression coefficient at 95.0% confidence level. The results reveal that the value of beta was 0.652 ≠0. The significance value is 0.000 which is less than 0.05 means the model is statistically significant in predicting how top management influence completion of construction projects. Further, an F-significance value of p = 0.000 was established showing that there is a probability of 0.00% from the regression model to reject the hypothesis. The hypothesis was therefore accepted and thus there is statistically significant relationship between top management support and completion of construction projects in public secondary schools in Bungoma County. Hence the equation;

Completion of construction projects = 10.686+0.652* top management support +3.76.

The hypothesis was confirmed and accepted.

The findings of the current study on the influence of top management support on completion of construction projects are in line with those of Alijaz (2011), who carried out a study on the project organization and the correlations in terms of culture and performance. The study found out that the kind of top management support would directly influence the attitude of the manager while making decision about a project. If the top management had shown full support towards the project, there was a high spirit linked to the kind of decisions the manager would make. If the manager knew the top management was not in support of the idea, the decisions made would have a huge difference with the kind of decisions that would be made if the manager knew the top management was fully in support of the project.

Similar findings were noted in a study by Kuen and Yudi, (2008) who explains that the success of the project was hinged on the mission of the project and the top management decision to support the idea. In the same vein, Kerzner (1998), argues that the top management was highly required to show commitment to a project in order to even inspire the employees that they were being supported. In addition, Besner and Hobbs (2008) also emphasize that the top management was highly required to offer maximum support to ensure projects were going on smoothly. The study revealed that it was crucial

for the management to support the projects because they were required to show unity in different ways. Again, their support was a way of ensuring that the employee felt encouraged to continue with the project because they could definitely know they would be appreciated by the management in the end. In addition, the current study findings are in line with the findings of Amponsah (2012), who was interested in knowing why projects would fail in Ghana and how the culture affected project management. The study established that projects undertaken in the private sector were given more support by the top management.

Qualitative data generated through interviews of QASOs had the following opinions;

> *"When top management does not approve sufficient funds, the quality of the project will be sacrificed. Funds that are not allocated on time will delay the entire project and hence its quality. Time to allocate funds for the project should be within the work plan Top management must be fully involved in project for ownership and accountability. Top management should be involved entirely to have quality projects. They can help in resource mobilization, monitoring and evaluation".*

4.5.4 Availability of Resources and Completion of Construction Projects

The fourth objective the study aimed to achieve was to examine how availability of resources influences completion of construction projects. To achieve this objective respondents were asked to give their opinions to the extent they agree or disagree with the statements provided in a Likert scale 1 – 5 where; Strongly agree (SA)=5, Agree(A)= 4, Neutral or not sure (N)= 3, Disagree (D)= 2 and strongly disagree (SD) = 1.

The six statements on availability of resources are presented on Table 4.16.

Table 4.16 Availability of Resources and Completion of Construction Projects

No	Statements	SA f (%)	A f (%)	NS f (%)	D f (%)	SD f (%)	Mean	Std Deviation
1.	Availability of funds for school construction projects is necessary for their completion.	225(70.3)	95(29.7)	0(0)	0(0)	0(0)	4.7031	0.45760
2.	Delay of school construction project funds interferes with projects	255(79.7)	65(20.3)	0(0)	0(0)	0(0)	4.7969	0.40295
3.	Availability of materials for school construction projects hastens project work	237(74.1)	83(25.9)	0(0)	0(0)	0(0)	4.7406	0.43898
4.	Unavailability of equipment for school construction projects hinders project progress	250(78.1)	70(21.9)	0(0)	0(0)	0(0)	4.7813	0.41405
5.	Shortage of equipment for school construction projects interferes with project quality	254(79.4)	66(20.6)	0(0)	0(0)	0(0)	4.7938	0.40525
6.	Availability of workers for school construction projects hastens project work	234(73.1)	78(24.4)	8(2.5)	0(0)	0(0)	4.6313	0.50820
	Composite mean and Standard Deviation						**4.7412**	**0.4378**

Statement number one; availability of funds for school construction projects is necessary for their completion. Out of 320 who responded, 225(70.3%) strongly agreed, 95(29.7%) agreed while 0(0%) was not sure, disagreed and strongly disagreed respectively. The statement mean 4.7031 was below the composite mean of 4.7412 which implied availability of funds for school construction projects it does not support completion of construction projects. Statement two; delay of school construction project funds interferes with projects. Out of 320 who participated in the study, 255 (79.7%) strongly agreed while the rest 65 (20.3%) agreed. None was not sure, disagreed or strongly disagreed. The statement mean 4.7969 was above the composite mean 4.7412 implying delay of school construction project funds interferes with completion of construction projects.

Statement three; availability of materials for school construction projects hastens project work. Out of 320 who participated in the study, 237 (74.1%) strongly agreed while the remaining 83 (25.9%) agreed. None of the responded was not sure, disagreed or strongly disagreed. The statement mean 4.7406 was below the composite mean 4.7412 which implies it does not support completion of construction projects. Statement four; unavailability of equipment for school construction projects hinders project progress. Out of 320 respondents who participated in the study, 250 (78.1%) strongly agreed while 70 (21.9%) agreed. None of the respondents was not sure, disagreed or strongly disagreed. The statement mean was 4.7813 which was above the composite mean 4.7412 implying unavailability of equipment for school construction projects hinders project progress and has an influence on completion of construction projects.

Statement five; shortage of equipment for school construction projects interferes with project quality. Out of 320 respondents, 254 (79.4%) strongly agreed while the remaining 66 (20.6%) agreed. None was not sure, disagreed or strongly disagreed. The statement mean 4.7938 was above the composite mean 4.7412 implying shortage of equipment for school construction projects has influence on completion of construction projects. Statement six; availability of workers for school construction projects hastens project work. Out of 320 respondents who participated in the study, 234 (73.1%) strongly agreed, 78 (24.4%) agreed while the remaining 8(2.5%) were not sure. None of the respondents disagreed or strongly disagreed respectively. The statement mean score of 4.6313 which was below the composite mean of 4.7412 implied, availability of workers for school construction projects supports completion of construction projects.

Hypothesis 4

H1: Availability of resources significantly influence completion of construction projects in public secondary schools in Bungoma County

The mean of availability of resources and completion of construction project (Y_{cp}) was regressed. This was tested using significance of R square, regression coefficient (B) and correlation coefficient (Beta) at 95.0% confidence level. The results are presented in Table 4.17

Table 4.17 Availability of Resources and Completion of Construction Projects

Model's Goodness of Fit Statistics					
R	R Square	Adjusted R Square	Df	F	Sig.
0.577	0.333	0.331	1	158.779	0.000[b]

Regression Coefficients					
	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model	B	Std. Error	Beta		
(Constant)	11.741	1.039		11.305	.000
AR	.742	.059	.577	12.601	.000

a. Dependent Variable: Completion of construction project

The test criteria was set such that the study accepts the hypothesis is the value of beta, $\beta_3 \neq O$. Simple regression $Y_{Cp} = \alpha + \beta_4 AR + e$ was used where Y_{cp} is completion of construction projects, α is the y-intercept term, AR is availability of resources, $\beta_3$is the beta value and e is the standard error term. The mean of availability of resources (AR) was regressed with mean of completion of construction projects (Y_{cp}) in public secondary schools in Bungoma County. The results were as shown in table 4.14. This was carried out using significance of R square and Regression coefficient at 95.0% confidence level. The results reveal that the value of beta was $0.577 \neq 0$. The hypothesis was therefore confirmed and accepted and thus there is statistically significant relationship between availability of resources and completion of construction projects in public secondary schools in Bungoma County. Hence the equation;

Completion of construction projects = 11.741+0.577* availability of resources +3.95

From the ANOVA results the F test gave a value of F (318,319) =158.779, p <0 .01, which was large enough to support the goodness of fit of the model in explaining the variation in the dependent variables.

The findings of this study are consistent with the study by Kariungi (2014) who found that funds would have an impact on the kind of success that would be experienced in a project. Separately, Gaturu and Muturi (2014) found that the delays in the release of funds or even delays in the process of transferring funds for specific projects would in the end have an impact on the success of the projects. This is in agreement with Kariungi (2014) who established that availability on funds on time greatly influenced project delivery success. In another study, Lee (2004) found out that resource allocation was one of the primary lubricants of a project. Ismael and Ade (2012), in their study refer to delays in payments for valuation of works done negatively impacting on projects completion. This is echoed by Tawil *et al;* (2013), who say insufficient funding affects projects.

Qualitative data generated through interviews of QASOs had the following opinions;

> *"When project resources like funds, materials and even equipment are provided in required amounts and in good time, the project will be completed as required and in good time unless other factors interfere. In some instances project resources are availed but the project is not completed as desired because of poor management of resources".*

4.5.5 Social Economic Factors and Completion of Construction Projects

The fifth objective the study sought to achieve was to examine the extent to which social economic factors influence completion of construction projects. To achieve this objective, respondents who participated in the study were asked to state their level of agreement or disagreement in a Likert scale of 1 – 5 where; Strongly agree (SA)=5, Agree(A)= 4, Neutral or not sure (N)= 3, Disagree (D)= 2 and strongly disagree (SD) = 1. The ten statements on social economic factors are presented on Table 4.18.

Table 4.18 Social Economic Factors and Completion of Construction Projects

No	Statements	SA f (%)	A f (%)	NS f (%)	D f (%)	SD f (%)	Mean	Std Deviation
1.	Good understanding among school construction project team is crucial	276(86.3)	44(13.8)	0(0)	0(0)	0(0)	4.8625	0.34491
2.	Poor communication among school construction project team disrupts project work	308(96.3)	12(3.8)	0(0)	0(0)	0(0)	4.9625	0.19028
3.	Disputes among school construction project team can hinder project completion	74(23.1)	51(15.9)	195(60.9)	0(0)	0(0)	3.6219	0.83656
4.	Inflation can affect school construction projects	152(47.5)	114(35.6)	54(16.9)	0(0)	0(0)	4.3375	0.74275
5.	Corruption can be an obstacle to school construction projects	225(70.3)	91(28.4)	4(1.3)	0(0)	0(0)	4.7281	0.48930
6.	Misappropriation of school construction project funds can interfere with projects	242(75.6)	78(24.4)	0(0)	0(0)	0(0)	4.7563	0.43002
7	Involving the community more in school construction projects is of value to the project	244(76.3)	61(19.1)	11(3.4)	4(1.3)	0(0)	4.7031	0.59464
8	Involving Community members in a project leads to customer satisfaction	241(75.3)	66(20.6)	13(4.1)	0(0)	0(0)	4.7125	0.53572
9	Soliciting for support from the community for school construction projects is necessary	230(71.9)	56(17.5)	34(10.6)	0(0)	0(0)	4.6125	0.67175
10	Sourcing for labour from the community is good for school construction projects	257(80.3)	63(19.7)	0(0)	0(0)	0(0)	4.8031	0.39826
	Composite mean and Standard Deviation						**4.6100**	**0.5234**

Statement one; Good understanding among school construction project team is crucial. Out of 320 who respondent, 276(86.3%) strongly agreed, 44(13.8%) agreed while none of the respondents was not sure, disagreed or strongly disagreed. The statement mean 4.8625 was above composite mean 4.61 implying good understanding among school construction project team supports completion of construction projects. Statement two; Poor communication among school construction project team disrupts project work. Out of 320 respondents, 308(96.3%) strongly agreed, 12(3.8%) agreed while none was not sure, disagreed or strongly disagreed. The statement mean 4.9625 was above composite mean 4.61 implying poor communication among school construction project team disrupts project work and has influence on completion of construction projects.

Statement three; Disputes among school construction project team can hinder project completion. Out of 320 respondents, 74(23.1%) strongly agreed, 51(15.9%) agreed, 195(60.9%) were not sure while none of the respondents disagreed or strongly disagreed. Majority of the respondents were not sure whether disputes among school construction team can hinder project completion. The statement mean 3.6219 was below the composite mean 4.61 implying disputes among school construction project team have no influence on completion of construction projects. Statement four; Inflation can affect school construction projects. Out of 320 respondents, 152 (47.5%) strongly agreed, 114(35.6%) agreed, 54(16.9%) were not sure while 0(0%) disagreed or strongly disagreed. Majority of respondents 268(82.1%) agreed inflation can affect school construction projects. The statement mean 4.3375 was below the composite mean 4.61 implying inflation does not influence completion of construction projects.

Statement five: Corruption can be an obstacle to school construction projects. Out of 320 who responded, 225(70.3%) strongly agreed, 91 (28.4%) agreed, 4(1.3%) were not sure. None of the respondents disagreed and strongly disagreed respectively. Majority of the respondents 316 (98.7%) agreed corruption can be an obstacle to school construction projects. The mean statement 4.7281 was above composite mean 4.61 implying corruption is an obstacle to completion of construction projects. Statement six; Misappropriation of school construction project funds can interfere with projects. Out of 320 who responded, 242(75.6%) strongly agreed, 78(24.4%) agreed while none was not

sure, disagreed or strongly disagreed. The statement mean 4.7563 was above composite mean 4.61 implying misappropriation of school construction project funds has influence on completion of construction projects.

Statement seven; involving the community more in school construction projects is of value to the project. Out of 320 respondents, 244(76.3%) strongly agreed, 61 (19.1%) agreed, 11 (3.4%) were not sure, 4 (1.3%) disagreed while 0(0%) strongly disagreed. Majority of the respondents 305(95.4%) agreed involving the community more in school construction projects is of value to the project. Statement mean 4.7031 was above composite mean 4.61 which implies involving the community more in school construction projects supports completion of construction projects. Statement eight; Involving Community members in a project leads to customer satisfaction. Out of 320 who participated in the study, 241(75.3%) strongly agreed, 66(20.6%) agreed, 13(4.1%) were not sure while none disagreed or strongly disagreed. Majority of the respondents 307(95.9%) agreed involving community members in a project leads to consumer satisfaction. The statement mean 4.7125 was above composite mean 4.61 implying involving community members in a project leads to consumer satisfaction and supports completion of construction projects.

Statement nine; Soliciting for support from the community for school construction projects is necessary. Out of 320 who participated in the study, 230 (71.9%) strongly agreed, 56 (17.5%) agreed, 34 (10.6%) were not sure while none disagreed or strongly disagreed. Majority of the respondents 286 (89.4%) agreed soliciting for support from the community for school construction projects is necessary. Statement mean 4.6125 was above the composite mean 4.61 implying soliciting for support from the community for school construction projects is necessary for completion of construction projects. Statement ten; Soliciting for labour from the community is good for school construction projects. Out of 320 who responded, 257 (80.3%) strongly agreed, 63(19.7%) agreed, while none was not sure, disagreed or strongly disagreed. The statement mean 4.8031 was above the composite mean 4.61 implying sourcing for labour from the community is good for school construction projects and influences completion.

Hypothesis 5

H1: Social economic factors significantly influence completion of construction projects in public secondary schools in Bungoma County.

The mean of socio-economic factors (SE) and completion of construction project (Y_{cp}) was regressed. The purpose of this analysis was to establish the relationship between social economic factors and completion of construction project in Bungoma County. This was tested using significance of R square, regression coefficient (B) and correlation coefficient (Beta) at 95.0% confidence level. The results are presented in Table 4.19.

Table 4.19: Regression of Social-economic Factors and Completion of Construction Projects

Model's Goodness of Fit Statistics					
R	R Square	Adjusted R Square	Df	F	Sig.
0.651	0.423	0.422	1	233.477	0.000[b]

Regression Coefficients					
	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model	B	Std. Error	Beta		
(Constant)	20.089	1.424		14.104	.000
SE	1.234	.081	.651	15.280	.000

a. Dependent Variable: Completion of construction project

The test criteria was set such that the study accepts the hypothesis if the value of beta, $\beta_6 \neq$ O. Simple regression $Y_{Cp} = \alpha + \beta_5 SE + e$ was used where $Y_{cp}$is completion of construction projects, α is the y-intercept term, SE was social economic factors, $\beta_5$is the beta value and e is the standard error term. The results were as shown in table 4.16. This was carried out using significance of R square and Regression coefficient at 95.0% confidence level. The results reveal that the value of beta was 0.651 $\neq$0. The hypothesis

was therefore confirmed and accepted thus there is statistically significant relationship between social economic factors and completion of construction projects in public secondary schools in Bungoma County. Hence the equation;

Completion of construction projects = 1.234+0.651*Social economic factors +3.95

From the ANOVA results the F test gave a value of F (318,319) =233.477, p <0 .01, which was large enough to support the goodness of fit of the model in explaining the variation in the dependent variable. The findings from the study indicate that 42.3% of completion of construction projects was attributed to socio-economic factors.

This study finding concurs with Simiyu, Mwevu and Omete (2014) who found out that social problem had a huge impact on the success of the implementation of CDF projects in Kimilili Constituency, Bungoma County. A separate study that supports the current findings was done by Kibebe and Mwirigi (2014), who found that there was poor prioritization, poor appropriation of funds, poor decision making and illiteracy levels that influenced the completion of CDF initiated projects. Moreover, the findings indicated that the projects were not professionally carried out because there were corrupt deals, unskilled personnel, delays in funding and poor quality of materials. Nyaguthii and Oyugi (2013), in their study established the need to have local projects to be comprised of the locals for the purpose of ownership

Qualitative data generated through interview from the QASOs had the following;

"Misunderstandings among project team can affect quality. Corruption and misappropriation of project funds and other resources can delay project completion and also quality. Customers will not be happy with the project Resources from the community will be cheaper. If the community is involved in the project, its feels a sense of belonging hence the entire project will be owned by it. The community will talk well about the institution since it will earn its good will if it is involved in the project. There will be a link between the community, school and the ministry of education. Community involvement will also lead to cases of conflicts in project implementation".

4.5.6 Combine Critical Success Factors and Completion of Construction Projects.

The sixth objective was to establish the extent to which the combined project critical success factors influence completion of construction projects in public secondary schools in Bungoma County. The study set out the following hypothesis;

Hypothesis 6

H1: Combined project critical success factors significantly influence completion of construction projects in public secondary schools in Bungoma County

Multiple regression was used in testing the hypothesis. Thus

$$Y_{Cp} = \alpha + \beta_1 PC + \beta_2 APM + \beta_3 TM + \beta_4 AR + \beta_5 SE + e$$

Where Y_{cp} is completion of construction projects, PC was project characteristics, MC was Project manager characteristics, TM was top management support, AR was availability of resources, SE was social economic factors, α was the y-intercept term,β_1, β_2, β_3, β_4, and β_5 were the coefficient of project critical success factors and e is the standard error term.

The means of project characteristics (PC), attributes of project manager (APM), top management support (TM), availability of resources (AR), socio-economic factors (SE) and completion of construction project (Y_{cp}) was regressed. This was tested using significance of R square, regression coefficient (B) and correlation coefficient (Beta) at 95.0% confidence level. The results are presented in Table 4.20.

Table 4.20: Critical Success Factors and Completion of Construction Projects

Model's Goodness of Fit Statistics					
R	R Square	Adjusted R Square	Df	F	Sig.
0.727	0.528	0.521	5	70.234	0.000[b]

Regression Coefficients					
	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
Model	B	Std. Error	Beta		
(Constant)	2.639	.122		21.589	.000
Attributes of project	.286	.031	.412	9.335	.000
manager	.233	.016	.389	2.094	.037
Top management support	.113	.023	.256	4.918	.000
Availability of resources	.094	.020	.236	4.676	.000
Social economic factors	.105	.022	.211	.230	.018
Project Characteristics					

a. Dependent Variable: Completion of construction project

The test criterion was set such that the study accepts the hypothesis if the value of beta, β1, β2, β3, β4, and β5≠ O. From the results, the value of beta was 0.727 while R square was 0.528. The study therefore established a statistically linear positive multiple correlation of the combined critical success factors since β_1= 0.236, p= 0.00, β_2= 0.256, p= 0.000, β_3= 0.389, p=0.037, β_4= 0.211, p= 0.018 and β_5= 0.412, p=0.00 which were the coefficients of project characteristics (PC), attributes of project manager (APM), top management support (TM), availability of resources (AR) and socio-economic factors (SE) respectively. Given that R square is 0.528 meant 52.8% completion of construction projects was attributed to the combined critical success factors.

Replacing the coefficients in the equation,

$Y_{Cp} = \alpha + \beta_1$ project characteristics+ β_2 attributes of project manager + β_3 Top management support+ β_4 availability of resources + β_5 social economic factors + e

Completion of construction projects= 2.639+ 0.236 project characteristics + 0.256 attributes of project manager + 0.389 Top management support + 0.211 availability of resources + 0.412 social economic factors + 0.38951.

However, the hypothesis was set such that it is accepted if $\beta \neq 0$. Given that $\beta = 0.727 \neq 0$, the study therefore confirmed and accepted the hypothesis and concluded there is significant influence of combined project critical success factors on completion of construction projects in public secondary schools in Bungoma County.

4.5.7 Government Policy Compliance and Completion of Construction Projects.

The seventh objective was to establish the moderating influence of Government policy on the relationship between project critical success factors and completion of construction projects in public secondary schools in Bungoma County, Kenya. To achieve this objective, respondents who participated in the study were asked to state their level of agreement or disagreement in a Likert scale of 1 – 5 where; Strongly agree (SA)=5, Agree(A)= 4, Neutral or not sure (N)= 3, Disagree (D)= 2 and Strongly disagree (SD) = 1.

The six statements are presented on Table 4.21.

Table 4.21 Government Policy Compliance and Completion of Construction Projects

No	Statements	SA f (%)	A f (%)	NS f (%)	D f (%)	SD f (%)	Mean	Std Deviation
1.	Availability of school construction project procurement plan is important	261(81.6)	59(18.4)	0(0)	0(0)	0(0)	4.8156	0.38840
2.	Tendering for project goods and services for school construction projects is critical	252(78.8)	63(19.7)	5(1.6)	0(0)	0(0)	4.7719	0.45605
3.	Availability of school infrastructure account for school construction projects is crucial	249(77.8)	69(21.6)	2(0.6)	0(0)	0(0)	4.7719	0.43494
4.	Having project construction budget for school construction project matters.	248(77.5)	65(20.3)	7(2.2)	0(0)	0(0)	4.7535	0.48000
5.	Submission of books of account for audit for school construction projects is important	250(78.1)	66(20.6)	4(1.3)	0(0)	0(0)	4.7688	0.54101
6.	Discussion of audited accounts for school construction projects is vital	242(75.6)	67(20.9)	11(3.4)	0(0)	0(0)	4.7219	0.51997
	Composite mean and Standard Deviation						**4.7673**	**0.4701**

Statement one; availability of school construction project procurement plan is important. Out of 320 who participated in the study, 261 (81.6%) strongly agreed, 59(18.4%) agreed while none was not sure, disagreed or strongly disagreed respectively. Statement mean 4.8156 was above the composite mean 4.7673 implying availability of school construction project procurement plan has influence on completion of construction projects. Statement two; tendering for project goods and services for school construction projects is critical. Out of 320 respondents, 252 (78.8%) strongly agreed, 63(19.7%) agreed, 5(1.6%) were not sure while none disagreed and strongly disagreed respectively. Majority of the respondents 315(98.5%) agreed tendering for project goods and services for school construction projects was critical. The statement mean 4.7719 was above the composite mean 4.7673 implying tendering for project goods and services for school construction projects has influence on completion of construction projects.

Statement three; availability of school infrastructure account for school construction projects is crucial. Out of 320 who participated in the study, 249 (77.8%) strongly agreed, 69(21.6%) agreed, 2 (0.6%) were not sure while none disagreed or strongly disagreed. Majority of the respondents 318(99.4%) agreed availability of school infrastructure account for school construction projects is critical. Statement mean 4.7719 was above the composite mean 4.7673 implying availability of school infrastructure account for school construction projects has influence on completion of construction projects. Statement four; having project construction budget for school construction project matters. Out of 320 respondents, 248 (77.5%) strongly agreed, 65(20.3%) agreed while 7(2.2%) were not sure. None of the respondents disagreed or strongly disagreed. Majority of the respondents 313 (97.8%) agreed having project construction budget for school construction matters. Statement mean 4.7535 was below the composite mean 4.7673 implying having project construction budget for school construction project does not support completion of construction projects.

Statement five; submission of books of account for audit for school construction projects is important. Out of 320 respondents, 250 (78.1%) strongly agreed, 66 (20.6%) agreed while 4 (1.3%) were not sure. None of the respondents disagreed or strongly disagreed. Majority of the respondents 316 (98.7%) agreed submission of books of account for audit for school projects is important. Statement mean 4.7688 was above the composite mean 4.7673 implying submission of books of account for audit for school construction projects has influence on completion of construction projects. Statement six; discussion of audited accounts for school construction projects is vital. Out of 320 respondents, 242 (75.6%) strongly agreed, 67 (20.9%) agreed while the remaining 11 (3.4%) were not sure. None of the respondents disagreed or strongly disagreed. Majority of the respondents 309 (96.6%) agreed discussion of audited accounts for school construction projects is vital. Statement mean 4.7219 was below the composite mean 4.7673 implying discussion of audited accounts for school construction projects do not influence completion of construction projects in public secondary schools in Bungoma County.

Hypothesis 7

H1: Government policy compliance significantly moderates the relationship between project critical success factors and completion of construction projects in public secondary schools in Bungoma County. Multiple regression was used. Thus

$Y_{Cp} = \alpha + \beta_6 A + \beta_7 GP + e$

Where Y_{cp} is completion of construction projects, α is the y-intercept term, A is project critical success factors, GP is government policy compliance

The first step was to establish the coefficient R value of the combined influence of critical success factors on completion of construction projects as shown in Table 4.22

Table 4.22 Combined Critical Success Factors

Model's Goodness of Fit Statistics					
R	R Square	Adjusted R Square	Df	F	Sig.
0.727	0.528	0.521	5	70.234	0.000^b

The value of R obtained was 0.727. This value was then compared to the R values obtained in the regression model when government policy was used as a control variable in the second step. The results of the second step were as shown in Table 4.23

Table 4.23 Results of First Order Partial Correlation of Government Policy Compliance and Project Critical Success Factors (CSF)

Control / moderating variable(z)	First order partial correlation ($r_{xy.z}$)	Moderation effect of government policy (compared to zero order simple correlation coefficient of CSF and Completion of construction projects (r_{xy} = 0.727)	Significance (p-value = 0.05, 2-tailed)
Procurement	0.677	Positive	0.004
Usage and audit of school project funds	0.623	Positive	0.000
Overall significance = 0.004			

The test criteria was to accept the hypothesis if $rxy.z1 \neq r_{xyz2} \neq rxy.z3 \neq r_{xyz4} \neq r_{xyn.}$
From the results, rxy.z1=0.677 and rxy.z2=0.623,
yet 0.677≠0.623.

The hypothesis was confirmed and accepted.

The study concluded there is a statistically significant linear moderating influence of government policy compliance on the relationship between project critical success factors and completion of construction projects in public secondary schools in Bungoma County.

The present findings are in line with a study by Agaba and Shipman (2007) who asserts that procurement is a critical financial process that will need to be well planned to avoid loss of cash or delivery of poor quality goods. Separately, Ogubala and Kiarie (2014) concluded that inadequate competencies of procurement staff as well as the lack of management support affect procurement plan. Procurement procedures are bound to affect project completion since a project's source for goods and services and how the sourcing is done counts. The study recommended the need to adopt procurement

procedures in line with Public Procurement and Disposal Act 2005. Separately, Kogi (2013) established that project cost controls influence effectiveness of implementation of Construction projects also agrees with the findings of this study. The study found out that effective cost control of a project requires adherence to the project budget during implementation of the project. Further, Griffin (2010) noted every project has a limited budget and there is a point beyond which there are no remaining resources to fund the work of the project. In addition, Kariungi (2014), studied procurement procedures and the kind of impact they had on project works .The study revealed that late project closure could be attributed to procurement delays.

4.5.8 Completion of Construction Projects

Completion of construction projects was an independent variable in this study. The respondents who participated in the study were asked to state their level of agreement or disagreement in a Likert scale of 1 – 5 where; Strongly agree (SA)=5, Agree(A)= 4, Neutral or not sure (N)= 3, Disagree (D)= 2 and Strongly disagree (SD) = 1.

The five statements are presented on Table 4.24.

Table 4.24 Completion of Construction Projects

No	Statements	SA f (%)	A f (%)	NS f (%)	D f (%)	SD f (%)	Mean	Std Deviation
1.	Construction projects adhere to project timelines	0(0)	0(0)	7(2.2)	54(16.9)	259(80.9)	1.2531	0.49606
2.	Projects are completed within budget	0(0)	0(0)	9(2.8)	63(19.7)	248(77.5)	1.2125	0.46017
3.	Construction projects are of the desired quality	0(0)	0(0)	0(0)	45(14.1)	257(85.9)	1.1406	0.34818
4.	Projects are completed according to specifications	0(0)	0(0)	83(25.9)	57(17.8)	180(56.3)	1.6969	0.85573
5.	Customers are satisfied with the projects	0(0)	0(0)	18(5.6)	79(24.7)	223(69.7)	1.3594	0.58634
	Composite mean and Standard Deviation						**1.3325**	**0.549296**

Statement one; Construction projects adhere to project timelines. Out of 320 who participated in the study, 259 (80.9%) strongly disagreed, 54(16.9%) disagreed, 7(2.2%) were not sure while none agreed or strongly agreed respectively. Statement mean score of 1.2531 was below the composite mean score of 1.3325 implying construction projects were not adhering to project timelines on completion. Statement two; Projects are completed within budget. . Out of 320 who participated in the study, 248 (77.5%) strongly disagreed, 63(19.7%) disagreed, 9(2.8%) were not sure while none agreed or strongly agreed respectively. Statement mean score of 1.2125 was below the composite mean score of 1.3325 implying projects were not completed with budget. Statement three; Construction projects are of the desired quality. Out of 320 who participated in the study, 257 (85.9%) strongly disagreed, 45(14.1%) disagreed, while none was not sure, agreed or strongly agreed respectively.

Statement mean score of 1.1406 was above the composite mean score of 1.3325 implying construction projects were to some extent of the desired quality. Statement four; Projects are completed according to specifications. Out of 320 who participated in the study, 180(56.3%) strongly disagreed, 57(17.8%) disagreed, 83(25.9%) were not sure while none agreed or strongly agreed respectively. Statement mean score of 1.6969 was above the composite mean score of 1.3325 implying projects are completed according to specifications to some extent. Statement five; Customers are satisfied with the projects. Out of 320 who participated in the study, 1223(69.7%) strongly disagreed, 79(24.7%) disagreed, 18(5.6%) were not sure while none agreed or strongly agreed respectively. Statement mean score of 1.3594 was above the composite mean score of 1.3325 implying customer were satisfied to some extent with the projects.

The findings of the current study are in line with Aftab, Ismael and Ade (2012), whose study found out that delays in project completion and poor performance in the construction industry has been experienced and has led to failure in achieving effective time and cost performance. In a separate study, Al-momani (2000), who examined the cause and extent of delays in different projects such as construction of homes, commercial buildings and other structures found out that significant causes of project delay were poor design, change orders, weather, site conditions, late delivery, economic

conditions and increase in quantities. Further Salleh (2009), whose research was in Brunei Darussalam projects noted, that projects have failed due to slow decision making, inadequate resources and poor experience by the contractor.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents a summary of the findings, conclusions, recommendations and areas for further research.

5.2 Summary of Findings

The following was the summary and key findings on examination of the influence of critical success factors, government policy compliance and completion of construction projects in public secondary schools in Bungoma County, Kenya as per the set objectives.

5.2.1 Project Characteristics on Completion of Construction Projects

Statement one; School construction projects that take a long duration do not adhere to the schedule. Majority of the respondents 94.4% agreed that school construction projects that take a long duration do not adhere to the schedule. Statement two; duration of school construction project affects project budget. Majority of the respondents 97.6% agreed duration of school construction project affects its budget. Statements number three; the duration of a school construction project affects its quality. Majority of the respondents 96.3% agreed that the duration of a school construction project affects its quality. Statement number four; many school construction projects go beyond their estimated cost. Majority of the respondents 99.4% agreed many school construction projects go beyond their estimated cost. Statement number five; the cost of school construction project materials keep changing. Majority of the respondents 96.3% agreed the cost of school construction project materials keep changing. Statements number six; an urgent school construction project is difficult to meet the desired quality. Majority of the respondents 89.4% agreed an urgent school construction project is difficult to meet the desired quality. Statement number seven; an urgent school construction project is likely not to satisfy its customers. Majority of the respondents 91.2% agreed an urgent school construction project is likely not to satisfy its customers. Statements number eight; an

urgent school construction project is likely to go above its budget. Majority of the respondents 98.2% agreed an urgent school construction project is likely to go above its budget. Statements number nine; school construction projects required for immediate use may not be of good quality. Majority of the respondents 93.6% agreed school construction projects required for immediate use may not be of good quality.

The study set out the first hypothesis: H1: Project characteristics significantly influence completion of construction projects in public secondary schools in Bungoma County. The test criteria was set such that the study accepts the hypothesis if the value of beta, $\beta_1 \neq O$. Simple regression $Y_{Cp} = \alpha + \beta_1 PC + e$ was used where $Y_{cp}$is completion of construction projects, α is the y-intercept term, PC is the project characteristics, β_1 is the beta value and e is the standard error term. The mean of project characteristics (PC) was regressed with mean of completion of construction projects (Y_{cp}) in public secondary schools in Bungoma County. This was carried out using significance of R square and Regression coefficient at 95.0% confidence level. From the results, correlation coefficient (R) or the beta value β_1 of $0.627 \neq 0$ at p=0.00 indicates there exist statistically significant linear relationship between project characteristics and completion of construction projects. The coefficients of determination, R-square (r^2) of 0.393 implies 39.3% of the variance in completion of construction projects is attributed to project characteristics. The significance value is 0.000 which is less than 0.05 means the model is statistically significant in predicting how project characteristics influence completion of construction projects. Further, an F-significance value of p = 0.000 was established showing that there is a probability of 0.00% from the regression model to reject the hypothesis. The hypothesis was therefore accepted.

5.2.2 Attributes of the Project Manager on Completion of Construction Projects.

Statement one; A school construction project managers' experience matters. Majority of the respondents 91.5% agreed a school construction project manager's experience matters. Statements two; the technical background of school construction project manager is important. Majority of the respondents 97.2% agreed the technical background of project manager is important. Statement three; School construction

project manager's competencies are crucial for the project. All the respondents agreed school project manager's competencies are crucial for the project. Statement four; School construction project manager's ability to work on time matters a lot. All the respondents agreed school construction project manager's ability to work on time matters a lot. Statement five; the school construction project manager's consistence on project work is important. Majority of the respondents 95% agreed school construction project manager's consistence on project work is important. Statement six; project manager's level of communication to project teams is valuable. All the respondents agreed project manager's consistence on project work is important. Statement seven; project manager's timely communication is good for the project. Majority of the respondents 95.9% agreed project timely communication is good for the project.

The study set out the following second hypothesis: H1: Attributes of project manager significantly influence completion of construction projects in public secondary schools in Bungoma County. The mean of attributes of project manager (CPM) was regressed with the mean of completion of construction project (Y_{cp}). This was tested using significance of R square and Regression coefficient at 95.0% confidence level. The relationship between the characteristics of project manager (CPM) and completion of construction projects had a statistically significant positive correlation given coefficient (R) of 0.774 at P=0.00. The coefficient of determination, R-square of 0.599 implies that 59.9% of the variance in completion of construction project is explained by attributes of project manager. The significance value is 0.000 which is less than 0.05 thus the model is statistically significant in predicting how characteristics of project manager influence completion of construction project. An F-significance value of p = 0.000 was established showing that there is a probability of 0.00% from the regression model to reject the hypothesis. Since the value of beta is 0.774 and is not equal to zero, the hypothesis was accepted. The regression equation to estimate the completion of construction project was hence stated as:

Completion of construction project = 10.795+0.774*attributes of project manager+3.229. Thus the hypothesis was confirmed and accepted.

5.2.3 Top Management Support on Completion of Construction Projects

Statement one; top management's timely approval of school construction projects is important. Majority of the respondents 96.9% agreed with the statement. Statement two; It is necessary for top management to review school construction projects. All the respondents agreed it is necessary for top management to review school construction projects. Third statement; top management's efficiency in allocation and approval of sufficient funds for projects is vital. All the respondents agreed top management efficiency in allocation and approval of sufficient funds for project is vital. Statement four; top management's level of involvement in school construction projects matters. All the respondents agreed top management's level of involvement in school construction projects matter. Statement number five, top management's level of commitment to school construction project counts. All the respondents agreed top management level of commitment in school construction project matter. Statement six; lack of executive input puts a school construction project at a severe disadvantage. Majority of the respondents, 77.8% agreed lack of executive input puts a school construction project at a severe disadvantage and has influence on completion of construction projects.

The study set out the third hypothesis H1: Top management support significantly influence completion of construction projects in public secondary schools in Bungoma County. The mean of top management support (TM) and completion of construction project (Y_{cp}) was regressed. The purpose of this analysis was to find the relationship between composite index of top management support and completion of construction project in Bungoma County. This was tested using significance of R square, regression coefficient (B) and correlation coefficient (Beta) at 95.0% confidence level. The test criteria was set such that the study accepts the hypothesis if the value of beta, $\beta_3 \neq O$. Simple regression $Y_{Cp} = \alpha + \beta_3 TM + e$ was used where Y_{cp} is completion of construction projects, α is the y-intercept term, TM was top management support, $\beta_3$is the beta value and e is the standard error term. The mean of top management support (TM) was regressed with mean of completion of construction projects (Y_{cp}) in public secondary schools in Bungoma County. This was done using significance of R square and Regression coefficient at 95.0% confidence level. The results reveal that the value of beta was 0.652 $\neq 0$. The hypothesis was therefore accepted and thus there is statistically

significant relationship between top management support and completion of construction projects in public secondary schools in Bungoma County. Hence the equation;

Completion of construction projects = 10.686+0.652* top management support +3.76. The hypothesis was confirmed and accepted.

5.2.4 Availability of Resources on Completion of Construction Projects.

Statement number; availability of funds for school construction projects is necessary for their completion. Majority of the respondents 70.3% agreed implying availability of funds for school construction projects it does not support completion of construction projects. Statement two; delay of school construction project funds interferes with projects. All the respondents agreed delay of school construction project funds interferes with completion of construction projects. Statement three; availability of materials for school construction projects hastens project work. All the respondents agreed availability of materials for school construction projects hastens project work. Statement four; unavailability of equipment for school construction projects hinders project progress. All the respondents agreed unavailability of equipment for school construction projects hinders project progress. Statement five; shortage of equipment for school construction projects interferes with project quality. From the response all the respondents agreed shortage of equipment for school construction projects interferes with project quality. Statement six; availability of workers for school construction projects hastens project work. Majority of the respondents, 97.5% agreed availability of workers for school construction projects hastens project work.

The study set out the fourth hypothesis H1: Availability of resources significantly influence completion of construction projects in public secondary schools in Bungoma County. The mean of availability of resources and completion of construction project (Y_{cp}) was regressed. This was tested using significance of R square, regression coefficient (B) and correlation coefficient (Beta) at 95.0% confidence level. The test criteria was set such that the study accepts the hypothesis is the value of beta, $\beta_3 \neq O$. Simple regression $Y_{Cp} = \alpha + \beta_4 AR + e$ was used where Y_{cp} is completion of construction projects, α is the y-intercept term, AR is availability of resources, $\beta_3$is the beta value and

e is the standard error term. The mean of availability of resources (AR) was regressed with mean of completion of construction projects (Y_{cp}) in public secondary schools in Bungoma County. The results were as shown in table 4.14. This was carried out using significance of R square and Regression coefficient at 95.0% confidence level. The results reveal that the value of beta was 0.577 ≠0. The hypothesis was therefore confirmed and accepted and thus there is statistically significant relationship between availability of resources and completion of construction projects in public secondary schools in Bungoma County. Hence the equation;

Completion of construction projects = 11.741+0.577* availability of resources +3.95. From the ANOVA results the F test gave a value of F (318,319) =158.779, p <0 .01, which was large enough to support the goodness of fit of the model in explaining the variation in the dependent variables.

5.2.5 Socio-Economic Factors on Completion of Construction Projects.

Statement one; Good understanding among school construction project team is crucial. All the respondents agreed good understanding among school construction project team supports completion of construction projects. Statement two; Poor communication among school construction project team disrupts project work. All the respondents agreed poor communication among school construction project team disrupts project work and has influence on completion of construction projects. Statement three; Disputes among school construction project team can hinder project completion. Majority of the respondents 60.9% were not sure whether disputes among school construction team can hinder project completion. Statement four; Inflation can affect school construction projects. Majority of respondents 82.1% agreed inflation can affect school construction projects. Statement five: Corruption can be an obstacle to school construction projects. Majority of the respondents 98.7% agreed corruption can be an obstacle to school construction projects. Statement six; Misappropriation of school construction project funds can interfere with projects. All the respondents agreed misappropriation of school construction project funds has influence on completion of construction projects. Statement seven; involving the community more in school construction projects is of value to the project. Majority of the respondents 95.4% agreed involving the community

more in school construction projects is of value to the project. Statement eight; Involving Community members in a project leads to customer satisfaction. Majority of the respondents 95.9% agreed involving community members in a project leads to consumer satisfaction. Statement nine; Soliciting for support from the community for school construction projects is necessary. Majority of the respondents 89.4% agreed soliciting for support from the community for school construction projects is necessary. Statement ten; Soliciting for labour from the community is good for school construction projects. All the respondents agreed sourcing for labour from the community is good for school construction projects and influences completion.

The study set out the fifth hypothesis H1: Social economic factors significantly influence completion of construction projects in public secondary schools in Bungoma County. The mean of socio-economic factors (SE) and completion of construction project (Y_{cp}) was regressed. The purpose of this analysis was to establish the relationship between social economic factors and completion of construction project in Bungoma County. This was tested using significance of R square, regression coefficient (B) and correlation coefficient (Beta) at 95.0% confidence level.

The test criteria was set such that the study accepts the hypothesis if the value of beta, $\beta_6 \neq$ O. Simple regression $Y_{Cp} = \alpha + \beta_5 SE + e$ was used where $Y_{cp}$is completion of construction projects, α is the y-intercept term, SE was social economic factors, $\beta_5$is the beta value and e is the standard error term. The results were as shown in table 4.16. This was carried out using significance of R square and Regression coefficient at 95.0% confidence level. The results reveal that the value of beta was 0.651 $\neq$0. The hypothesis was therefore confirmed and accepted thus there is statistically significant relationship between social economic factors and completion of construction projects in public secondary schools in Bungoma County. Hence the equation;

Completion of construction projects = 1.234+0.651*Social economic factors +3.95. From the ANOVA results the F test gave a value of F (318,319) =233.477, p <0 .01, which was large enough to support the goodness of fit of the model in explaining the variation in the dependent variable. The findings from the study indicate that 42.3% of completion of construction projects was attributed to socio-economic factors.

5.2.6 Combined Critical Success Factors on Completion of Construction Projects.

The study set out the sixth hypothesis H1: Combined project critical success factors significantly influence completion of construction projects in public secondary schools in Bungoma County. Multiple regression was used in testing the hypothesis. Thus

$Y_{Cp} = \alpha + \beta_1$ PC+ β_2 APM+ β_3 TM+ β_4 AR + β_5 SE + e. Where Y_{cp} is completion of construction projects, PC was project characteristics, APM was attributes of Project manager, TM was top management support, AR was availability of resources, SE was social economic factors, α was the y-intercept term,β_1, β_2, β_3, β_4, and β_5 were the coefficient of project critical success factors and e is the standard error term. The means of project characteristics (PC), attributes of project manager (APM), top management support (TM), availability of resources (AR), socio-economic factors (SE) and completion of construction project (Y_{cp}) was regressed. This was tested using significance of R square, regression coefficient (B) and correlation coefficient (Beta) at 95.0% confidence level.

The test criterion was set such that the study accepts the hypothesis if the value of beta, β1, β2, β3, β4, and β5≠ O. From the results, the value of beta was 0.727 while R square was 0.528. The study therefore established a statistically linear positive multiple correlation of the combined critical success factors since β_1= 0.236, p= 0.00, β_2= 0.256, p= 0.000, β_3= 0.389, p=0.037, β_4= 0.211, p= 0.018 and β_5= 0.412, p=0.00 which were the coefficients of project characteristics (PC), attributes of project manager (APM), top management support (TM), availability of resources (AR) and socio-economic factors (SE) respectively. Given that R square is 0.528 meant 52.8% completion of construction projects was attributed to the combined critical success factors.

Replacing the coefficients in the equation, $Y_{Cp} = \alpha + \beta_1$ project characteristics + β_2 Attributes of project manager + β_3 top management support + β_4 availability of resources + β_5 socio-economic factors + e.

Completion of construction projects= 2.639+ 0.236 project characteristics + 0.256 Attributes of project manager + 0.389 top management support + 0.211 + 0.412 socio-economic factors + 0.38951.

On ranking of the importance of critical success factors on completion of construction projects, project manager attributes was highly ranked with 41.2%, compared to top management support with 38.9%, availability of resources with 25.6%, social economic factors with 23.6% and project characteristics with 21.1%. However, the hypothesis was set such that it is accepted if $\beta \neq 0$. Given that $\beta = 0.727 \neq 0$, the study therefore confirmed and accepted the hypothesis and concluded there is significant influence of combined project critical success factors on completion of construction projects in public secondary schools in Bungoma County.

5.2.7 Moderating Influence of Government Policy Compliance on Project Critical Success Factors and Completion of Construction Projects.

Statement one; availability of school construction project procurement plan is important. All the respondents agreed availability of school construction project procurement plan has influence on completion of construction projects. Statement two; tendering for project goods and services for school construction projects is critical. Majority of the respondents 98.5% agreed tendering for project goods and services for school construction projects was critical. Statement three; availability of school infrastructure account for school construction projects is crucial. Majority of the respondents 99.4% agreed availability of school infrastructure account for school construction projects is critical. Statement four; having project construction budget for school construction project matters. Majority of the respondents 97.8% agreed having project construction budget for school construction matters. Statement five; submission of books of account for audit for school construction projects is important. Majority of the respondents 98.7% agreed submission of books of account for audit for school projects is important. Statement six; discussion of audited accounts for school construction projects is vital. Majority of the respondents 96.6% agreed discussion of audited accounts for school construction projects is vital.

The study set out the seventh hypothesis H1: Government policy significantly moderates the relationship between project critical success factors and completion of construction projects in public secondary schools in Bungoma County. Multiple regression was used. Thus

$Y_{Cp} = \alpha + \beta_6 A + \beta_7 GP + e$, Where Y_{cp} is completion of construction projects, α is the y-intercept term, A is project critical success factors, GP is government policy compliance. The first step was to establish the coefficient R value of the combined influence of critical success factors on completion of construction projects. The value of R obtained was 0.727. This value was then compared to the R values obtained in the regression model when government policy compliance was used as a control variable in the second step.

The test criteria was to accept the hypothesis if $r_{xy.z1} \neq r_{xyz2} \neq r_{xy.z3} \neq r_{xyz4} \neq r_{xyn.}$
From the results, rxy.z1=0.677 and rxy.z2=0.623. The hypothesis was confirmed and accepted. The study therefore concluded there is a statistically significant linear moderating influence of government policy on the relationship between project critical success factors and completion of construction projects in public secondary schools in Bungoma County.

5.3 Conclusions

Based on research findings, it is suffice to conclude that project characteristics, attributes of the project manager, top management support, availability of resources, socio-economic factors and government policy compliance are key in completion of construction projects.

Project characteristic have statistically significant positive influence on completion of construction projects. A project taking too long may not be completed well since it will degenerate and hence attract more expenses. If schedule is adhered to, the right quality will likely be attained. A good project should be done within the given time frame to avoid watering down on quality since duration of projects can hamper continuous funding of a project. If the cost of the project is too high, work may be compromised in the event of trying to lower the cost hence affecting the quality of the entire project. Urgent

construction projects may not have time to cure and eventually develop cracks hence affecting the entire cost of the project since it will require frequent repairs. Inadequate allocation of funds for a project by top management will yield low quality project. There is need for proper and timely allocation of resources for good quality projects. An urgent school construction project is likely to go beyond its budget and lead to customer dissatisfaction.

There is a significant positive correlational influence of the attributes of a project manager on completion of construction projects. A school construction project managers' experience, competencies, consistence on project work, level of communication to project team and technical background of school construction project manager is important and matters for project completion. Experience of a project manager matters a lot since he/she will be in a position to draw from their first failures and success stories. Lack of technical competencies limits the ability of the team leader to supervise and monitor the project work. The project manager must be consistent and should have the capacity to work for long hours to deliver a timely and quality project. Timely and proper communication is essential. Late communication will touch on quality and cost of the entire project.

The results show a statistically significant positive influence of top management support on completion of construction projects in public secondary schools. When top management do not approve sufficient funds, the quality of the project will be sacrificed. Funds that are not allocated on time will delay the entire project and hence its quality. Time to allocate funds for the project should be within the work plan. Top management must be fully involved in project for ownership and accountability. Top management should be involved entirely to have quality projects. They can help in resource mobilization, monitoring and evaluation for proper completion of project.

From the study findings, availability of resources positively influences completion of construction projects. Availability of funds for school construction projects is necessary for their completion and delay in construction project funds interferes with project completion. Availability of materials for school construction projects hastens project work. Unavailability and or shortage of equipment for school construction projects

interferes with project quality and hinders project progress. Availability of workers for school construction projects guarantees good flow and completion of project work.

There exists a statistically significant positive influence of socio-economic factors on completion of construction projects in public secondary schools. The community should be involved directly in school projects. This will improve their perception and goodwill towards completion of construction projects in public secondary schools. The management need to be keen on price fluctuations that eventually have an effect on completion of construction projects.

There exists a statistically significant positive influence of combined project critical success factors on completion of construction projects in public secondary schools. Project characteristics, attributes of the project manager, top management support, availability of resources and socio-economic factors together have a bearing on completion of construction projects in public secondary schools. To guarantee success in completion of construction projects, critical success factors in this study need to be put in focus.

There exists a statistically significant positive moderating influence of government policy compliance on project critical success factors and completion of construction projects in public secondary schools. Procurement, usage and audit of school funds have moderating influence on project critical success factors and completion of construction project. However, the degree of influence varies.

5.4 Recommendations

The following were recommendations made from the study

1. Projects should be carried out within schedule in adherence to the budget. Urgent projects need to focus on good results.
2. Project manager's technical expertise, commitment and consistence to project work are crucial for project completion. Any person managing construction projects should get technical competencies. The importance of proper and timely communication by the project manager cannot be over emphasized.

3. Top management should approve project plan and allocate sufficient resources for the project on time. Top management need to be fully involved in project work to enhance its completion.
4. Timely availability of funds, materials and equipment is a prerequisite for completion of projects on time, in the required quality and cost and would satisfy customers.
5. Interpersonal skills such as good relationship among the project team and the community are necessary for project completion. Effects of inflation on a project can be mitigated by the project team if the project is done within schedule. Corruption in construction projects must be fought by all stakeholders to enhance project completion. Involving the community in school construction projects enhances sense of ownership and promotes good will that is required for project completion.
6. Procurement procedures should be followed to ensure right personnel for the project, quality and affordable materials and equipment that are acquired competitively. There is need to have continuous school audit of funds allocated to guide proper usage of project funds and avoid pilferages.
7. The Ministry of Education, Science and technology should provide policy guidelines integrating critical aspects that influence school construction projects' completion.

5.5 Suggestions for Further Research

The following were suggestions for further research;

1. The study was carried out in Public secondary schools in Bungoma County Kenya. Future studies are encouraged to cover other counties to confirm whether the findings are consistent.

2. Future studies are encouraged to cover both public and private schools and compare the findings with the current research.

3. The research was restricted to education sector. Future studies are encouraged to have other sectors and compare the findings.

4. Consecutive studies are encouraged to establish other influence of other critical success factors that were not part of this study.

5. Future studies are encouraged to establish the direct influence of Government policy compliance on completion of construction projects.

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APPENDICES

Appendix 1

Letter of Transmital

JOSEPHINE .N. OJIAMBO,

P.O BOX 842,

KIMILILI

Esteemed Principals and Parents, Teachers Association Chairpersons.

I am a student of the University of Nairobi seeking to research in order to determine and share deeper concerns about the Influence of critical success factors, government policy compliance and completion of construction projects in public secondary schools in Bungoma County. You have been selected to participate in the research in the questionnaire in that area .Your input to this research will be critical to the outcome of the research. Through your participation and service experience, I hope to get information in regard to the problem I am investigating. The information you will give will be kept confidential and will be only used for Academic research. I value your participation and thank you in advance for the commitment of time, energy and effort. The research is relevant to you as a school project manager/team member and the research report will be made available to you at your request .Thank you so much. I look forward to you cooperation.

Yours Faithfully,

Josephine N. Ojiambo

PhD Candidate

University of Nairobi.

Email:wanyamajosephine62@gmail.com

Appendix 2

Questionnaire for Principals and PTA Chairpersons of Public Secondary Schools.

The purpose of this questionnaire is to examine the critical success factors, government policy compliance and completion of construction projects in public secondary schools in Bungoma County. Please respond to the questionnaire as honestly as possible. Your responses will be used for purposes of this study only and will be kept confidential and anonymous. DO NOT indicate your name or number anywhere.

	SURVEY QUESTIONNAIRE		
	QUESTIONS	**RESPONSES**	**INSTRUCTIONS**
1.0	**INTRODUCTION**		
1.1	Date	2017	DD/MM/YY
1.2	Administrative region	Bungoma County	
2.0	**GENERAL INFORMATION OF RESPONDENTS**		
2.1	What age bracket do you belong?	Between 25-34 years……1 Between 35-44 years…….2 Between 45-54 years ……3 Between 55-64 years……4 65 years and above……5	CIRCLE THE MOST APPROPRIATE
2.2	My number of years of working on the schools' construction projects	1-10 years……...1 11- 20 years…….2 21 – 30 years…….3	CIRCLE THE MOST APPROPRIATE

		31- 40 years……4 41- 50 years……4	
2.3	Please indicate your gender	Male……1 Female……2	CIRCLE THE MOST APPROPRIATE
2.4	The sex of a construction project manager/team member influences its completion	YES……1 NO……2	CIRCLE THE MOST APPROPRIATE
2.5	Kindly indicate your educational qualification	Secondary……1 Tertiary……2 University…..……..3	CIRCLE THE MOST APPROPRIATE
2.6	Have you had any training in management of construction projects?	Yes……1 No…….....2	CIRCLE THE MOST APPROPRIATE

The following statements relate to questions on project critical success factors and completion of construction projects in public secondary schools in Bungoma County, Kenya. Kindly indicate your level of agreement or disagreement on a five point Likert scale from 1 – 5, where Strongly Agree (SA)=5, Agree (A)= 4, Undecided or Not sure (NS)= 3, Disagree (D)= 2 and Strongly disagree (SD)=1

3.0	**PROJECT CHARACTERISTICS**					
No.	**Statement**	**SA**	**A**	**NS**	**D**	**SD**
3.1	School construction projects that take a long duration do not adhere to the schedule					
3.2	Duration of school construction project's affects project					

	budget					
3.3	The duration of a school construction project affects its quality					
3.4	Many school construction projects go beyond their estimated cost.					
3.5	The cost of school construction project materials keep changing					
3.6	An urgent school construction project is difficult to meet the desired quality					
3.7	An urgent school construction project is likely not to satisfy its customers					
3.8	An urgent school construction project is likely to go above its budget					
3.9	School construction projects required for immediate use may not be of good quality					

4.0	**ATTRIBUTES OF PROJECT MANAGER**					
No.	**Statement**	**SA**	**A**	**NS**	**D**	**SD**
4.1	A school construction project managers' experience matters.					
4.2	The technical background of school construction project manager is important					
4.3	School construction Project manager's competencies are crucial for the project					
4.4	School construction project manager's ability to work on time matters a lot.					
4.5	The school construction project manager's consistence on project work is important					
4.6	Project manager's level of communication to project teams is valuable					
4.7	Project manager's timely communication is good for the project					

5.0	**TOP MANAGEMENT SUPPORT**					
No.	**Statement**	**SA**	**A**	**NS**	**D**	**SD**
5.1	Top management's timely approval of school construction project's is important					
5.2	It necessary for top management to review school construction projects					
5.3	Top management's efficiency in allocation and approval					

	of sufficient funds for projects is vital					
5.4	Top management's level of involvement in school construction projects matters					
5.5	Top management's level of commitment to school construction project counts					
5.6	Lack of executive input puts a school construction project at a severe disadvantage					

6.0	**AVAILABILITY OF RESOURCES**					
No.	**Statement**	**SA**	**A**	**NS**	**D**	**SD**
6.1	Availability of funds for school construction projects is necessary for their completion.					
6.2	Delay of school construction project funds interferes with projects					
6.3	Availability of materials for school construction projects hastens project work					
6.4	Unavailability of equipment for school construction projects hinders project progress					
6.5	Shortage of equipment for school construction projects interferes with project quality					
6.6	Availability of workers for school construction projects hastens project work					

7.0	**SOCIAL- ECONOMIC FACTORS**					
No.	**Statement**	**SA**	**A**	**NS**	**D**	**SD**
7.1	Good understanding among school construction project team is crucial					
7.2	Poor communication among school construction project team disrupts project work					
7.3	Disputes among school construction project team can hinder project completion					
7.4	Inflation can affect school construction project s					
7.5	Corruption can be an obstacle to school construction projects					
7.6	Misappropriation of school construction project funds can interfere with projects					
7.7	Involving the community more in school construction projects is of value to the project					
7.8	Involving Community members in a project leads					

	to customer satisfaction					
7.9	Soliciting for support from the community for school construction projects is necessary					
7.10	Sourcing for labour from the community is good for school construction projects.					
8.0	**GOVERNMENT POLICY COMPLIANCE**					
	Statement	**SA**	**A**	**NS**	**D**	**SD**
8.1	Availability of school construction project procurement plan is important					
8.2	Tendering for project goods and services for school construction projects is critical					
8.3	Availability of school infrastructure account for school construction projects is crucial					
8.4	Having project construction budget for school construction project matters					
8.5	Submission of books of account for audit for school construction projects is important					
8.6	Discussion of audited accounts for school construction project is vital					
9.0	**COMPLETION OF CONSTRUCTION PROJECTS**					
No.	**Statement**	**SA**	**A**	**NS**	**D**	**SD**
9.1	Construction projects adhere to project timelines					
9.2	Projects are completed within budget					
9.3	Construction projects are of the desired quality					
9.4	Projects are completed according to specifications					
9.5	Customers are satisfied with the projects					

Appendix 3

Interview Schedule for Sub-County Quality Assurance and Standards Officers

This form will be used to collect proceedings of the Key informant interview who shall be Quality Assurance and Standards Officers' .They will be interviewed on critical success factors, government policy compliance and completion of construction projects in public secondary schools in Bungoma County. Notes shall be extensive and reflect accurately on the content of the discussion, as well as any notable observations of nonverbal behavior, such as facial expressions, hand movements etc.

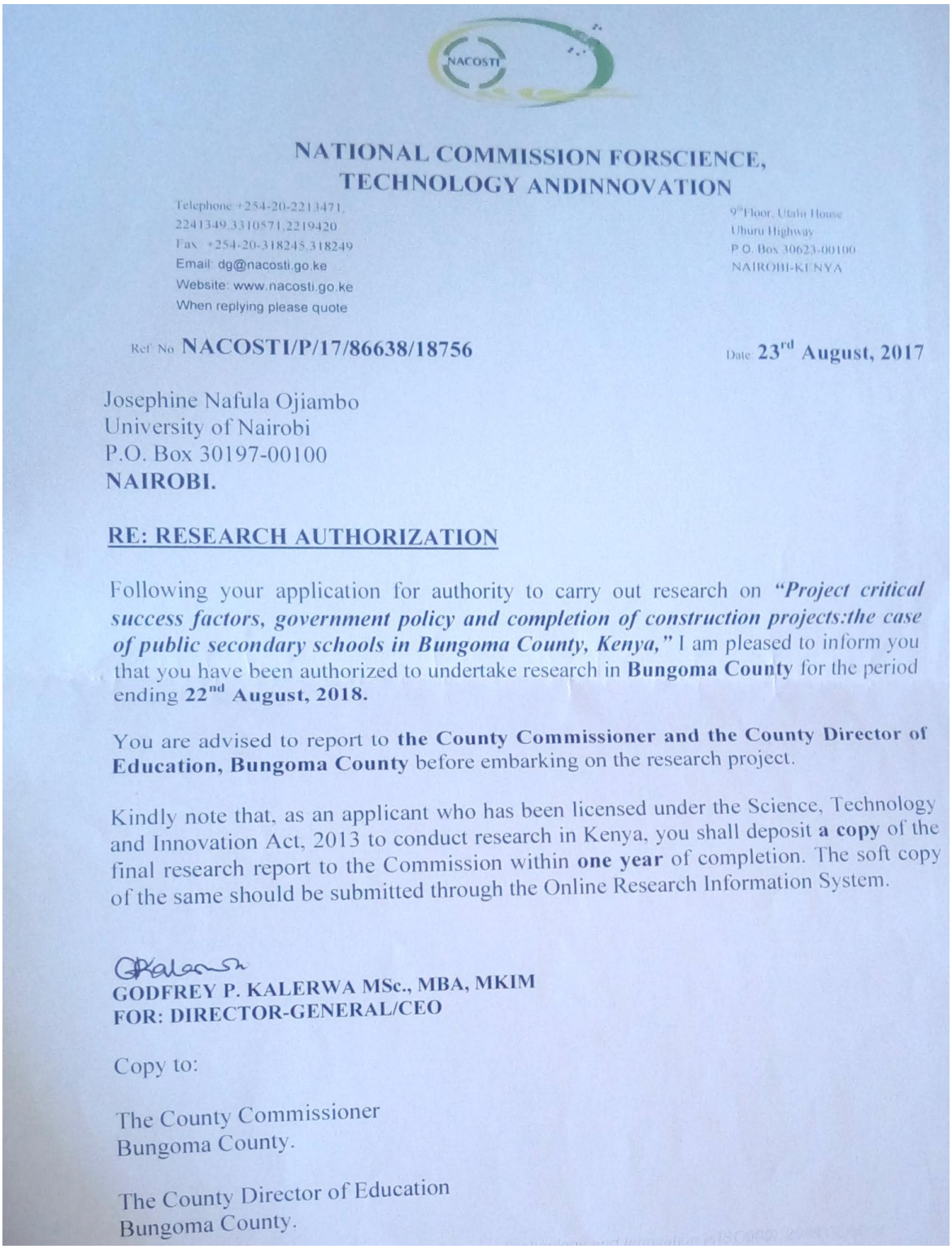
1. What relationship is there between the duration of a project and its quality? Explain
2. Does the cost of a project affect its quality? Explain
3. Explain any relationship between the urgency of a project and its quality and cost.
4. How do the following traits of school principals and PTA Chairpersons as school project managers affect the quality of a project?

- Qualifications and experience
- Timeliness and consistence
- Level of commitment
- Timely and appropriate communication

5. How does top management support's approval of project plan affect the quality of a project? Explain
6. Explain how top Management's allocation of sufficient resources for project work can influence a project's quality?
7. Explain how time of allocation of project funds affects project completion.
8. How does availability of funds, materials and equipment affect completion of construction projects?
9. Is it important for top management to be fully involved in project work? Explain.
10. Do misunderstandings among project team affect project quality? Explain
11. Do you think corruption and misappropriation of project funds can lead to customer dissatisfaction?
12. Do you think involving the community in the project is important for the quality of a project? Explain.

Appendix 4

Letter for Data collection from NACOSTI



NATIONAL COMMISSION FORSCIENCE,
TECHNOLOGY ANDINNOVATION

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2241349,3310571,2219420
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Email: dg@nacosti.go.ke
Website: www.nacosti.go.ke
When replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

Ref No: **NACOSTI/P/17/86638/18756**

Date: **23rd August, 2017**

Josephine Nafula Ojiambo
University of Nairobi
P.O. Box 30197-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Project critical success factors, government policy and completion of construction projects:the case of public secondary schools in Bungoma County, Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Bungoma County** for the period ending **22nd August, 2018.**

You are advised to report to **the County Commissioner and the County Director of Education, Bungoma County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

GODFREY P. KALERWA MSc., MBA, MKIM
FOR: DIRECTOR-GENERAL/CEO

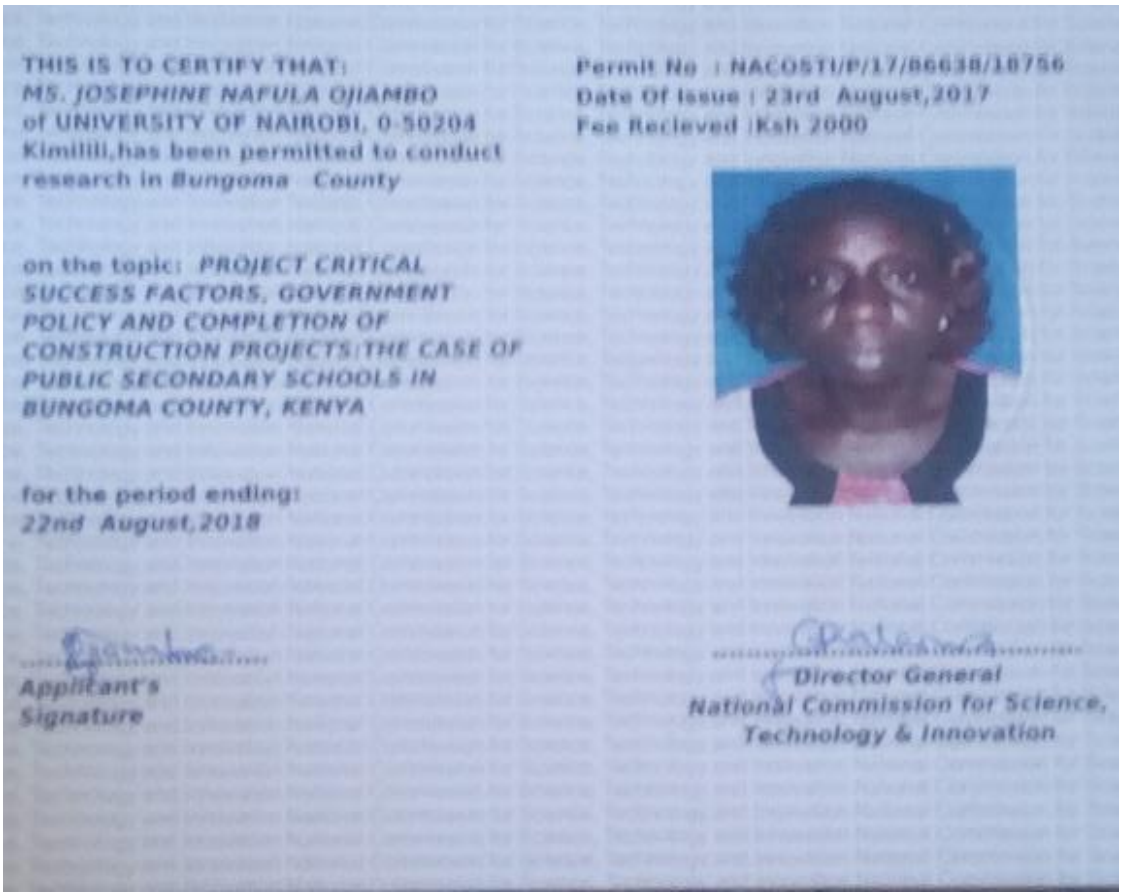
Copy to:

The County Commissioner
Bungoma County.

The County Director of Education
Bungoma County.

Appendix 5

Research Permit



THIS IS TO CERTIFY THAT:
MS. JOSEPHINE NAFULA OJIAMBO
of UNIVERSITY OF NAIROBI, 0-50204
Kimilili,has been permitted to conduct
research in *Bungoma County*

on the topic: *PROJECT CRITICAL SUCCESS FACTORS, GOVERNMENT POLICY AND COMPLETION OF CONSTRUCTION PROJECTS:THE CASE OF PUBLIC SECONDARY SCHOOLS IN BUNGOMA COUNTY, KENYA*

for the period ending:
22nd August,2018

Applicant's
Signature

Permit No : NACOSTI/P/17/86638/18756
Date Of Issue : 23rd August,2017
Fee Recieved :Ksh 2000

Director General
National Commission for Science,
Technology & Innovation