

**PROJECT MANAGEMENT SKILLS AND IMPLEMENTATION OF EDUCATIONAL
INFRASTRUCTURE PROJECTS FUNDED BY CONSTITUENCY DEVELOPMENT
FUND IN PUBLIC SECONDARY SCHOOLS IN MANDERA EAST, KENYA.**

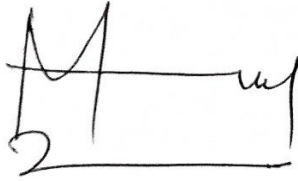
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**A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE
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DECLARATION

This is personal innovation and it consists of other scholarly materials written by other individuals who have been acknowledged in this research. The research is unique and thus have not been representation for any merit in any educational institution.



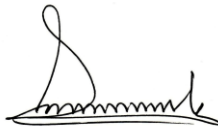
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DEDICATION

This study is dedicated to my father Ali Madey, my mother Abdia Ali and my daughter Amira Mohamed Ali whose encouragement and support helped me to continue until the end. I thank for their relentless support, inspiration and their understanding during my study period.

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ABBREVIATIONS AND ACRONYMS

USA:	United State of America
UNESCO:	United Nation Educational, Scientific and Cultural Organization
MOE:	Ministry of Education
SPSS:	Statistical Package for Social Sciences
ESSP:	Education Sector Strategic Plan
CDF:	Constituency Development Funds
SDGs	Sustainable Development Goals
ICT	Information Communication and Technology
ESP	Economic Stimulus Plan
LATIF	Local Authority Transfer Plan
KESSP	Kenya Education Sector Support Programme
CEF	Center of Excellence Fund
BOGs	Board of Governors
MOET	Ministry of Education and Technology
NGO	Non- Governmental Organization

ABSTRACT

Globally sustainable education infrastructure project is key in numerous countries including Kenya. Attributed to the challenges within project attaining proper implementation of educational infrastructure has become a challenge. This research therefore aims at investigation on how Project Management Skills have influenced execution of Educational Infrastructure Project Funded By Constituency Development Fund In Public Secondary Schools In Mandera East, Kenya. The research had specific objectives of establishing how planning and forecasting; ; risk management; budgeting; tracking and meeting facilitation influence implementation of educational infrastructure projects funded by the constituency development fund in public secondary schools in Mandera East, Kenya. This research is beneficial to the educational ministry for purposes of revising training programmes to incorporate training on project management. further, the research outcome is critical in enabling policy makers at government and educational level to make informed decision on issues related to project implementation The researcher use descriptive research design to illustrate occurrences that are currently in existence by embracing both qualitative and quantitative research approaches. The research targeted a total population 198 participants. Proportionate and stratified sampling methodologies were used by the researcher for purpose of ascertaining correct proportionate and sample size in each classification while Slovene's (1978). Was used to attain the sample size of 131 who comprised of 47 project management committee, 24 local administrators, 23 school principals, 10 CDF managers, 1 county director of education and 26 project contractors. Primary data (qualitative and quantitative) will be captured via questionnaires having open and closed ended question which will be administered through pick and drop method while those completed will be picked immediately. To establish validity, opinion will be sought from supervisor or colleague. To test reliability, test – retest methods will be used and be administered two times for five project managers. Second administration of questionnaires will be done after two weeks. Correlation coefficient will be use in examining the extent to which contents of the questions asked were unswerving in generating same response each time questionnaire was issued out. Consent was sought from respondents before data collection and the major aim of the research was explained expansively. Participants was assured of their confidentiality and thus their names was not be captured on the questionnaire. Data was analyzed using qualitative and quantitative methods. Likert scale was adopted to gather qualitative data and analyzed descriptively depending on attributes on question to be analyzed while quantitative data was coded. Data will be presented in form of frequency tables and hypothesis tested using correlation coefficient. In conclusion, the research established that skills used by project managers in the implementation of educational infrastructure project funded by CDF in public secondary school in Mandera East were ineffective thus the research recommends that project managers should acquire skills pertaining to planning and forecasting, risk management, budgeting, tracking and monitoring and meeting facilitation in order to enhance effective and efficient implementation of educational CDF funded project with Mandera East.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Worldwide sustainable educational infrastructure projects are a desirable aspect among all people who implement development projects, yet this noble yearning is hardly attained as many projects scattered globally have numerous setbacks (Androlly, 2009). The focus on implementation of school's projects in southern Wales in England, Wood (2010) reported from the study that project which were geared towards improving teaching and learning process become successful due to prudent management of the process through school heads participation in all aspect of the project undertaking and effective control of the funds.

According to research conducted by Virginia Department of Education (2010) in USA, established that schools in Virginia involved the school board and local division in building, specifying and determining educational architectural programs for classroom type and spaces required for construction projects in school. Further those individual states are responsible for allocating funds for infrastructure in numerous ways. Laws in Virginia state mandates the local school division to control, maintain, erect, equip and finish school construction. These division lack taxing power to give debts and thus the relevant government is obligated to provide finances needed for school construction. Further, the local division can use local returns to finances portion or part of the project and borrow finances from a bank. Construction cost, availability of finances, and school deliberation linked to construction or renovation project determines the financial solution adopted. According to Michael (2005), borrowing as a source of finance construction project can be done via borrowing from local government which is done below current market rates through education department. Numerous nations have capitalized on education as a major development pillar and thus quality of education is interpreted as reduced poverty, increased development and social inequalities (UNESCO, 2017). Further, education is supreme in order to achieve sustainable development since it assists when it comes to empowering individuals thus making them more proactive and skillful.

According to Bush & Oduor (2006) poor management of projects in educational institutions are manifested through stalled school building construction. According to them headteachers and school managers in education sectors are relied on and thus are responsible for overall school construction projects. Thus, common wealth secretariat (1996), puts to it that educational institution requires suitable management and skills in order to have successful construction project among learning institutions/schools. Project failures in Africa is on the rise despite increased investment in terms of time, resources, innovation and efforts put in place. This negative trend calls for the need to reexamine the current status of project performance in Africa with more emphasis on identifying the right measures that can be applied to enhance success. Project failures in Africa are attributed to the use of traditional methods of project management rather than the result oriented approach used by developing countries which aims at providing solution to solution through the use of technology and development recommendation (Amponsah, 2012 ; Ashkenas 2003)

According to Educational Sector Strategic Plan (ESSP) in Malawi, numerous education project have been delayed while other experiencing project delivery issues. Chirwa, Samwinga & Chakantu (2011) puts to it that mitigating measures used to avert declining performance among educational projects don't have a positive influence. Mulkeen (2010) puts to it that defective project execution and management are global issues resulting to incomplete government projects attributed to lack of finances, lack of resources such as teachers, desks, health workers, drugs among others.

Kenyan Education Act (2013), obligated school headteachers as accounting officers in educational project implementation from initiation to completion as stipulated in ministry of education policy thus placing the at the core of any educational project implementation. In Africa, head teachers lack proper project management skills and thus negatively influencing educational project completion. Fruitful execution of CDF funded school projects is undoubtedly a major aspect in the realization of sustainable development goals (SGDs). Normally most of CDF projects should be geared towards improving infrastructure within public schools. nevertheless, most of those projects have deviated from this. To make the matter worse the few implemented take longer to complete prompting the need to find out why such delays have been experienced. High schools' ventures in Kenya create an impression that nothing can go on in the absence

of financial resources. in the light of this Awiti (2018) observe that in some in stances certain groups of stakeholders do not meet because they do not have money to cater for meetings because of this most projects in public schools stagnate because people do not have ownership of those projects including those responsible for organizing development committee meeting.

The CDF Act of Kenya, 2013 requires the national government to set a side about 2.5 percent of it is national income to CDF related projects in the country every year. About 46.1 percent of this money goes to education sector in every constituency (Kamar ,2015). In Mandera East Constituency, there are so many stalled and incomplete project in many of the public secondary schools. According to vision 2030, secondary schools' principals are part of the stakeholders responsible for ensuring such projects come to completion successfully. However, the huge number of stalled and incomplete projects in public secondary schools within Mandera East Constituency raises questions on the skills of the school's management team to see development projects are completed on time and budget.

1.2 Statement of the Problem

Effective administration of project is important since they enable projects to meet quality standard on an allocated budget within a prescribed timeline. Numerous projects lack proper managerial skills and capacity to enable quality project delivery within the prescribed timelines (Ling & Ma 2014). Lugusa & Moronge (2016) found out that inappropriate management skills among projects in matters pertaining to risk management, planning, budgeting, forecasting, monitoring and evaluation was major determinants and poor performance of construction projects in educational institutions in Kenya. In Mandera East Constituency, there are so many stalled and incomplete project in many of the public secondary schools. However, the huge number of stalled and incomplete projects in public secondary schools within Mandera East Constituency raises questions on the skills of the school's management team to see development projects are completed on time and budget. Implementation of County Development Projects in Mandera east and the need for headteachers to acquire skills on project management is essential in ascertaining impact of project management skills on delivery of County development funds in learning institutions. Therefore, calling for the need to conduct research and examine the influence of project management skills on implementation of infrastructure project in educational institutions sponsored by the CDF.

1.3 Purpose of the Study

The main purpose of the research was to investigate the influence of project management skills on the implementation of educational infrastructure projects funded by the CDF in public secondary schools in Mander east, Kenya

1.4 Objectives of the Study

This research was directed by the below objectives; -

1. To establish how planning and forecasting influence implementation of educational infrastructure projects funded by the constituency development fund in public secondary schools in Mander East, Kenya.
2. To determine how risk management influence implementation of educational infrastructure projects funded by the constituency development fund in public secondary schools in Mander East, Kenya.
3. To assess how budgeting influence implementation of educational infrastructure projects funded by the constituency development fund in public secondary schools in Mander East, Kenya.
4. To determine the extent to which tracking and monitoring influence implementation of educational infrastructure projects funded by the constituency development fund in public secondary schools in Mander East. Kenya
5. To determine how meeting facilitation influence implementation of educational infrastructure projects funded by the constituency development fund in public secondary schools in Mander East, Kenya.

1.5 Research Questions.

This research was directed by the below research questions

1. How does planning and forecasting influence implementation of educational infrastructure projects funded by the CDF in public secondary schools in Mander East, Kenya?
2. How does risk management influence implementation of educational infrastructure projects funded by the CDF in public secondary schools in Mander East, Kenya?
3. How do budgeting influence implementation of educational infrastructure projects funded by the CDF in public secondary schools in Mander East, Kenya?

4. To what extent does tracking and monitoring influence implementation of educational infrastructure projects funded by the CDF in public secondary schools in Mandera East, Kenya?
5. How does meeting facilitation influence implementation of educational infrastructure projects funded by the CDF in public secondary schools in Mandera East, Kenya?

1.6 Research Hypothesis

This research tested the following hypotheses: -

1. **H₁**: There is Significant connection between planning and forecasting and implementation of educational infrastructure projects funded by the CDF in public secondary schools in Mandera East, Kenya.
2. **H₁**: There is Significant connection between risk management and implementation of educational infrastructure projects funded by the CDF in public secondary schools in Mandera East, Kenya.
3. **H₁**: There is Significant connection between budgeting and implementation of educational infrastructure projects funded by the CDF in public secondary schools in Mandera East, Kenya.
4. **H₁**: There is Significant connection between tracking and monitoring and implementation of educational infrastructure projects funded by the CDF in public secondary schools
5. **H₁**: There is Significant connection between meeting facilitation and implementation of educational infrastructure projects funded by the CDF in public secondary schools in Mandera East, Kenya.

1.7 Significance of the Study

This research ought to be beneficial to the educational ministry for purposes of revising training programmes to incorporate training on project management. The study anticipated that teams in charge of CDF provide information pertaining to the importance of training project managers for purposes of acquiring knowledge on project management to enhance project implementation at the initial stage and after project inception. The research outcome is critical in enabling policy makers at government and educational level to make informed decision on issues related to project implementation

1.8 Delimitation of the Study

The research was conducted in Mandera East Constituency-Mandera County. It concentrates on the effect of project management skills on educational infrastructure projects funded by constituency development fund in Secondary Schools that are public in Mandera East since most of the funds goes to the public secondary schools for construction of more class rooms and laboratories for the students. Secondary schools that are private were not part of the research since they are not beneficiaries of CDF

1.9 Limitation of the Study

One of the limitations of research pertained to issues related to finances since the research was self-sponsored student. To hover come this setback, the researcher engaged research assistant. Another limitation that the researcher met when conducting research was insecurity. Mandera East is well known for issues of insecurity attributed to its proximity to the Kenya – Somalia boarder which is prone to militia attacks. To counter this challenge the researcher made prior security arrangement having acquired permission from the relevant security authorities and thus researcher and research assistant were escorted by local security personnel when conducting research. Further, the research team created a rapport with residents at the time of gathering data. The researcher overcame the challenges to time due to commitments by fully using the available time to collect data with the aid of a research assistant.

1.10 Assumptions of the Study

It was supposed that participants were cooperative and thus willingly responded to the questionnaire and provide the researcher with reliable and accurate information. Further that sample population was a representation of the whole population in Mandera east. Lastly, it was assumed that public schools were the only schools receiving constituency development funds in the region.

1.11 Definition of Significance terms used in the Study

Constituency: An area where a person is elected as representative in the Kenyan parliament

Secondary school: refers to an educational institution where youngsters receive the second major stage of the formal education and who mostly benefit from the constituency development fund.

Project management skills: sets of capabilities that principles require to effectively implement the educational infrastructure project in their schools

Risk management: Capability of project managers to predict and assess the probability of an occurrence of an event that has impact on project goals.

Implementation of educational infrastructure project: these are projects that are implemented within public secondary schools for instance building classes, laboratories among others

Planning and forecasting: managerial process where corporate actions are mapped out in accordance to ancient and contemporary trend.

Meeting Facilitation: is the act of **administering** meeting processes to ensure participation for purposes of attaining set agenda.

Tracking and monitoring: entails collection of data and ascertaining that the project delivery is complete and tracked as outlined in the project objectives.

Budgeting: a comprehensive plan for organization showing how financial resources have been allocated and acquired and translated into material resources for purpose of achieve project objectives and goals for a stipulate period of time and in correct quantities

1.12 Organizational of the Study

Research was prepared in five chapters. The first chapter elucidates on the study background, purpose, research problem, research question, research hypothesis, delimitation, definition of terms, assumption and limitation. Second chapter offers literature review in light of research's main themes discussed in this chapter, implementation of educational infrastructure projects, as the dependent variable in the study. The other themes captured as the independent variables are planning and forecasting, risk management, tracking and monitoring, meeting facilitation, project managements skills and how they influence execution of educational infrastructure projects. it will also provide the conceptual and theoretical frame work, summary of the literature and knowledge gap. The third chapter elaborated on methodology operationalized encompassing of the type of research design used, total population gathered, sample size and procedures, study tool, procedure for gathering data, analysis, ethical deliberation and variable operationalization. Chapter four entail analysis of data, its presentation and interpretation while chapter five will give summary of the research findings, conclusion, and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed literatures associated with the research which pertains to the research dependent variables (implementation of education infrastructure projects). Other themes on this research are the independent variables which include planning and forecasting, risk management, budgeting, tracking and monitoring meeting facilitation and project management skills all relating to how they influence implementation of education infrastructure projects. Also it looks at the theoretical and conceptual framework as well as the research gaps that have been identified in the studies.

To realize vision 2030, Kenyan Government have opted to devolve funds as a strategy to attain their goals. The use of Constituent development fund (CDF) coined in the year 2003 is one of the ways that the government have used to devolve funds to enable access to funds to enhance social and economic development at the community level. Constituent development projects such as educational infrastructure projects, instructional material project, learning bursary projects and other extract curriculum projects are some of the projects undertaken by the CDF through devolved funds in County government among public secondary schools. Core objective of the study is investigating to which extent does Constituent development funded projects affect execution of educational infrastructure project among secondary school in Mandera East County.

2.2 Implementation of Educational Infrastructure Projects

According to KESSP 2005-2010 report majority of secondary schools are overloaded and lack infrastructure despite the increased student enrolment from primary and the currently subsidizes secondary education. This have mounted lots of pressure on the current infrastructure among secondary school therefore calling for the need to build more classes that can hold 45 students and at the same time build larger dormitories, libraries and laboratory that can accommodate students.

Among the projects that are initiated in secondary schools' entails: - projects for installation of electricity, installation of information communication technology infrastructure, building classrooms, laboratory, dinning halls, libraries; water projects among others. These projects are done via Local Authority Transfer

Fund (LATIF), Constituency development funds (CDF), African government educational project funds, Economic Stimulus Package (ESP), school funded projects, Centers of Excellence Fund (CEF) and Kenya Education Sector Support Programme (KESSP) funded projects. The government also offers non infrastructural projects such as bursaries which are given the needy and vulnerable student within learning institutions as well as school feeding programs. Wanjala et al, 2014, established that project under KESSP, CDF, ESP, LATIF and CEF attract a lot of funds for the purpose of enhance educational infrastructure among public secondary school in Kenya.

A report by Kilemi Mwiria's Taskforce Report (2015/2016), established that in public secondary schools parent have been alleviated from paying infrastructure development funds and obligations forwarded to Constituency development fund and country governments. This has given the county government the role of initiating and implementing education infrastructure projects among schools. The government of Kenya channels finances directly to county government for educational infrastructure projects. Regardless of this positive step, numerous research has found out that the structural and legal framework are feeble at the community level and projects are not tracked and they project also lack adequate fundings.

Numerous public secondary schools lack proper project management. among the challenges faced with projects managers include lack of appropriate skills on project management by school leadership, lack of finances, inadequate project plan, M&E and inadequate stakeholders participation into the project process. Further, institutional challenges pose as a threat to project implementation resulting to project delay and cost overruns (Wamunyu, 2011). Odhiambo (2005), in her research investigating on effective project implementation among educational institutions established that, school managers should have appropriate skill set need for effectively and efficiently implement educational infrastructure projects as established in her research. They should be able to rank projects based on skills, outsource and allocate the needed finances, schedule even and project activity and established communication channels and solicit ideals from stakeholders by involving stakeholders in to the project processes. In this research the research aimed at investigating on aspects affecting implementation of educational infrastructure project among public secondary in Mandera east. The research aims at investigating the extent to which

headteacher project management skills, risk management, meeting facilitation, planning and forecasting, tracking and monitoring affect implementation of educational infrastructure projects among secondary schools.

2.3 Planning and Forecasting and Execution of Educational Infrastructure Projects

Planning process entail making informed decision pertaining to what is to be done, whose responsible, how and when it should be done. It's a process used to determine action course in order to achieve desired results. It is important in bridging the gap between the current state and what needs to be accomplished thus making it possible for event to take place within projects which could have not happened. Planning therefore is essential in the first stage of the project. According to Moodley (2002), the major aim of planning in the initial stage is to ascertain that objectives of the project and goals are attained. Each project is unique in terms of objectives, timelines, costs, and needed resources (Bartol, 1991). This is an indication that educational infrastructure projects are also different in terms of time, resources, budgetary allocations among others based on the nature of the project. Project planning also anticipates future events and makes informed to decision pertaining to best course of action. Project planning produces future action scheme, in order to attain results, at specified cost, in a certain duration of time. It aims at influencing, exploiting, controlling, directing the extent and speed to which change is achieved and might deliberate to bring about change within its decision making.

Planning process is deliberate and mindful determination for purposes of formulating design and sequence of event for purposes of attaining project objectives. Its systematic and thus helps in decision making on events happening future, it also determines objectives of project activities and necessary steps needed to achieve them. Therefore, planning is the processes of selecting and relating factual matters and making assumed decision pertaining to the future through formulation and visualization of project activities necessary for purposes of attaining project outcome. Therefore, it helps in deciding project future and ways of making it happen. Numerous studies have established that the planning process in essential to attain organizational success. Where success is measured by determinants such as volume of sales, return on investment and growth in terms of earning per share among others.

Another research conducted in industrial firms established that formal planning process in drug, chemical, oil and steel industries continuous performed better when compared with those which do not conduct formal planning. According to the research, formal planning is key since it clarifies objectives while the objectives give direction on all planning choices which are directed towards achieving objectives. Through planning the importance of the objectives are reinforced thus ensuring maximum utilization of management time and efforts. Formal planning is important process when it comes to gathering important information to enhance future forecasting in an accurate manner. This minimizes making misinformed decision attributed to the fact that organization needs to advance and anticipate what will come in the future, thus calling for proper resource allocation and acquisition through planning to reduce wastage and ensure best allocation of resources. Attributed to the fact that planning enables organization to specific their steps and actions to meet organization objectives, it acts as a ground for making informed decision-making pertaining to activities int eh future. Further, it helps management make routine decision pertaining to ongoing activities as stipulated in the plans, objectives, schedules, policies and regulations. According to Fisher (2011), planning is crucial since it puts pressure on the projects in terms of time. This is because time is measurable thus put pressure on project managers, leaders, sponsors, firms' executive members against scheduled time

2.4 Risk Management and Execution of Educational Infrastructure Projects

According to Meriam Webster (2009), risk refers to the probability of losing. PMBOK Guide (2008), defines project risk are undefined occurrences which happens and if the occur they affect one or more project objectives. Risk management entrail dealing with project occurrences that are expected to take place in any phase of the project cycle. Generally, projects are risk and therefore project managers play major roles in the process of planning, identifying and managing project risks. Hobbs (2015) puts to it that there are five methods that can be used mitigate project risk which include:- prevention (which is risk elimination via conducting project activities differently – in this case they methodology used is not an accurate option); Avoidance (which is a backup plan than encompasses the use of other plans leading to identical outcome but using another direction); reduction (here risk measure are taken to minimize the possibility of the risk occurrence); transfer(spreading risks to reduce the impact of risk such as the use of insurance firms); and lastly acceptance (where risks that are acceptable because

reduction risk cost is greater than the advantages attained if the required measures have not taken place. Risk management aims at detecting and assessing project risk and managing by reducing the possibility of its occurrence. All projects have risks attribute to inestimable number of occurrences that might negatively influence project activities. Therefore, risk management does not only remove risks but also detect, assess and manage project risks.

The concept of risk management and how it can be applied to practice. Smith et al (2006) elaborates that management of risk is not perceivable as an instrument used to forecast future event, rather, it's an instrument that enables facilitation of project for purposes of making informed decision making depending on information acquired from the project. Therefore, decisions made on inadequate information should be avoided to enhance overall project performance. Risk management is considered a process with defined actions. The scope of defining risk management differs among scholars despite the key information being the same.

Cooper et al (2005) define risk management as a systematic procedure of applying policies used by the management processes and norms to task for purpose of examining the detecting, treating assessing, contextualizing, communicating, analyzing and monitoring project risks. According to him, risk management planning the key concept of understanding and managing project risks. Smith et al, (2006) puts to it that managing risk plan processes encompasses risk detection, valuation and response. According to him all the steps are mandatory during risk planning and thus should be involved when managing risk for purposes of implementing project processes efficiently. According to the available literature on risk management, there are variety of risk planning which are composed in form of frameworks made up of the aforementioned procedures. In some risk management plan additional procedures have been provided regarding to risk monitoring.

Smith et al, (2006) opines that to increase risk management efficiency, risk planning ought to be nonstop all stages of a project thus early exposure of risk and thus mitigating then in all the stages will be easy. Risk management is important for the project and actors as well. Risk are easy to understand and through risk management potential risk are identified in the project. In simple terms we can say that risk

management enables the management view probable consequences of risk that might emerge as a result of risk that are unmanageable and how to avoid such types of risks. Risk management also improve the control level of the project by efficiently solving problems that might emerge within the project processes in a genuine ground through analyzing condition of the project initial stage of the projects (Thomas, 2009). According to Perry (1986), risk management provides a means through which sudden project surprises can be minimized (Cooper et al. 2005). Webb (2003), established that different cultural attitudes among organization and the different methodologies used by different firms in terms of policies and procedure as the determinants of different attitudes towards risk management. Darnall and Preston, (2010) risk level are linked to complexities within projects. A large project has high number of potential risk and vice versa linked to it attributed to numerous factors that might arouse its occurrence. Gould and Joyce (2002) factors influencing risk include finances business environment which are related to the project location, regulations and surround, time design and quality. Other influences of risk include organizational risks and technological levels. .

Cleden (2009) puts to it that project complexities limits project capabilities depending on its size. A bigger project is more complex since it need a lot of resources. When risks are recognized in such projects, the project team and manager should be aware of the probability of having more risks linked to the project that might threaten its completion. Project managers and teams therefore, should aim at managing identified risk and be aware of probability of an occurrence of another risk. Risk management as an instrument should be used to identify most of the project risk and the manager ought to be equipped with ways of managing risk qualms that are not contained in risk management plan.

Risk plan is a document prepared by project managers to predict risk, approximate their effect and outline responses pertaining to the risk. The plan also entails assessment matrix which is a scheme describing the way risk should be managed. Process of managing risk is a continued proves through out the project cycle since it encompasses planning, identifying, analyzing, monitoring and control. Within a project lifecycle, numerous processes are restructured and new risks can emerge at any given time. Risk managers therefore, are obligated to minimize the likelihood of risk occurrence to avoid project failure. Risks that can influence a project positively should be embraced. The process of risk identification begins when a project is started and risks intensifies as the project develops in its stages. Once a risk has been identified

it needs to be examined and likelihood of occurrence ascertained, the magnitude of the effect be scheduled, cost, scope and value be ranked. Risk occurrences might affect one or multiple sectors in a project. Likelihood of events, sectors affected and the magnitude is always based on how risk priority are assigned. All risk that can be identified ought to be included in a risk register and a statement documented. During risk documentation, two elements ought to be addressed.

The first issues in risk documentation is applying procedures that reduce likelihood or risk occurrence and secondly a contingent plan should be prepared. A contingent plan is a sequence of events that ought or take place before or when a risk transpires. To mitigate risk there is a cost which sometime can be excess when the risk is assumed and thus the project will have to incur the aftermath. It is therefore crucial to evaluate the likelihood and effect of risks against the strategy to be used in mitigating the risk in terms of cost before contingent plan implementation. Implementation of contingent plan before risk have happened is a preemptive action for purposes of minimizing the effect or eliminating the risk completely. Implementation of a contingent plan on the other hand afterwards reduces the impact. Risk occurrence identification and documentation is the first step in risk management planning. Also, its crucial to monitor risks and schedule them among project team and a report issued pertaining to the project. Risk sources are divided into two major sections (internal and external) according research week international conference (2005). Internal sources are controllable and they include risks pertaining to contractors, suppliers, clients, subcontractors and consultants. External sources on the other hand are brought forth by globalization and economic forces such as unexpected circumstances emerging political controls and or government, social and cultural issues, health safety and environmental restrictions.

2.5 Budgeting and Implementation of Educational infrastructure Projects

In institutions budget is plan detailed in nature used to indicate acquisition, human resource allocation, financial allocation and material allocation for purposes of achieving project goals and objectives as stipulated quantitatively in a time schedule. The budgeting components such as human resources, finances, acquisition are very crucial since they help institution come up with the end product. Budgeting is a process used by managers to bargain for scarce resources that are competitive in nature. For instance,

project need to give results that are not in existence such as construction of a n office. This project for instance is bound to time, cost and performance necessities and thus a committee member budget that is competent can meet the performance necessitates. Mapesa and Kumbua, (2006), posits that in Kenya Constituency Development Fund have remained to develop political agenda among appointed constituency development fund committee which include individual's supporting parliament members, friends and civilian who are incompetent. This have jeopardize completion of CDF project and brought about a misunderstanding of how constituency development fund operate attributes to deficiency in skill set pertaining to project budgetary need identification, budgetary planning, monitoring and evaluation.

Mapesa and Kumbua, (2006), puts to it that School Board of governors in Kenya, get their fundings from parent and teachers association, CDF, donations and harambee for the main purposes of funding infrastructural school projects. Some of these funds have been disbursed very late and thus have delayed school infrastructure projects. Mulwa (2004) established that project lack resources leading to project termination. Further lack of project resources are caused by setbacks resulting from requisition and delivery of resources. This is due to poor management and communication between the project managers and donors and or between project managers and executive managers. According to him donors depend on total budget cost and lines before they transfer funds to a project account/ organization. In her research, executives members within organization change project priorities thus resulting to diversion of financial resources to other activities which are alleged to be urgent. Further, imprecise initial budget estimates result to untimely depletion of project resources that comes as a result of lack of a contingent plan on financial risks attributed to for instance price fluctuation due to inflation.

In educational institutions headteachers and the major custodians of school funds and are key implementors by approving school budgets. Motsamai, Lynette and Corene (2011) in their research in Mafeteng district – Lesotho, established that headteachers directed and managed schools as part of their obligations. MOET (2010), Education Act Section 21, headteachers are chief accountant officers and thus are obligated to school management committee/ Board of directors on allocation and use of school finances. In their roles they are obligated to maintain and record revenue and spendings, prepare school annual budget and give to school Board committee for approval after every three months and annually,

prepare financial statement for approval the school Board committee. According to Collins (2013), financial management in educational institutions are executed by individuals in a position to exercise authority of management and regulate tasks linked to finances for the main aim of attaining effective education.

Ojera and Yambo (2014) in their research established that financial management in school is a management action linked to school finances for purpose of attaining effective education. Further than school finance management encompasses budget planning, coordinating, leading and auditing. According to them financial management in school is authoritative since it permits school to attain effective education in institutions where budget implementation is effective through active involvement of Board of Management when it comes to mobilization of resources. Further, the Board of management should mutually demand budgetary allocation for school infrastructures to enhance a learning environment that is conducive. Further partnership with Nongovernmental Organization, Stakeholders and constituency development fund is essential since its in line with 2013 basic education Act which posits that Board of management should ascertain that there are suitable and acceptable infrastructure and there is accountability for the collected finances by the school (Republic of Kenya, 2013).

2.6 Tracking and Monitoring and Implementation of Educational infrastructure Projects

Monitoring is a continued and sporadic review and supervision of project for purpose of ensuring that inputs have been delivered, outputs, schedules and other necessary actions required by the project have progressed in accordance to the project plan (Mulwa, 2012). Project monitoring is a continued process aiming at majorly providing stakeholders with early signs of project quality, schedules and project quantities are delivered as intended by the project outcome. According to Slevin (1987), project managers play a major role in monitoring projects and developing counteractive action, if required. Effective monitoring process need project assessment contrary to the project plan and supervision of project exclusion. Donna (2002) puts to it that monitoring projects and tracking includes assessment, supervision, feedback and appraisal to enable project effectiveness and development towards attaining project goals and objectives. Gitonga (2010) established that monitoring in a continuous process and determine how project input affect project output effectiveness. Further that monitoring process is significant in

controlling project risk. According to him, risks are imminent events that are capable of affecting projects adversely in terms of project quality, scope, cost and schedule. Further those numerous approaches used in monitoring projects include conducting survey, observation, use of focus group, recording keeping and mapping. On the other hand, evaluation of projects and review techniques (PERT), helps in organizing, scheduling and coordinating all project occurrences in a network chart. This data might be adopted by managers managing projects to analyze and compare project deliverables in evaluation process. Analysis using Critical path methods (CPM) can be used to demonstrate the connection between variables. This method is used in project to establish the most resourceful track amongst project commencement and closure. Projects that are small on the other use can use other tools such as personal organizers, note books, diagrams, day planners and graphs to mark project updates and schedules.

Hopkins (2004) posits that project M &E assists to create innovative goal, strategies and programs. They enable project program to be on track and help expand project effectiveness and accountability. Continued process of M&E is important when tracking project development and controlling risks. Dawson, (2008) posits that approaches used in monitoring and evaluation might be costly, take along period of time when it comes to designing and implementation and thus needs trained monitoring and evaluation personnel to guarantee project success, the importance of using such techniques be realized despite its limitations. Gray Keerkens (2001) established that project monitoring is important when it comes to planning project activities including budget and resource allocation. Project managers can apprehend needs, describe project milestone and baseline and as well track the project to its termination through providing a vibrant comprehension of project. Tools used in monitoring assist managers to uphold accurate and detailed information pertaining to performance of the project. This information can be used as supportive data when it comes to quality monitoring. According to Rick (2008), project managers require a mixed skill set to enable them manage project effectively since they work entail making project plan from project commencement and project reports at the end of the project. This has to be done in accordance to stipulated timelines and budget with significant achievement despite project complexities and project size.

How frequent projects should be done is dependent on numerous factors which include project scope, number of employees working on the project, available skill set among employee, scheduled timelines, communication, project complexity, risk linked to the project and availability of resources (Selvin, 1986). Features of project are monitored using information, budgetary allocation, progress and quality. When the project is on the progress (execution phase), it is important to monitor information for purposes of keeping track on what the project have been accomplished. According to Dawson (2008), projects are facilitated by manager through communication to employees and clients. Further, through monitoring project teams ensure that individual who participate in the projects put in mind the documented project plan in order to enables them be focused on the determined goals. Therefore, project managers are recommended to note all project aspects and address issues as they emerge.

2.7 Meeting Facilitation and Implementation of Educational infrastructure Projects

According to Merriam Webster (2007) meeting is the process to getting together. Project managers think of meeting as defined by Merriam Webster (2017), and forgets that the definition is descriptive and not the results. Based on the collaborative principle, project managers get together with the team mates in order to achieve results (Encarta World English Dictionary, 2006). Project managers interpret working together as meeting while needed results and achieving something. The concept of meeting therefore, include working as a team and getting the needed outcome for purposes of improving on project management. the mindset on meeting in project implementations changes each time teams attend meeting, for purposes of achieving a desired result. Very few managers emphasize on meeting are assume that team capability is just build by working together to achieve results.

According to Duncan (1999), meeting through any media such as phone, face to face and or video conferencing gives a means for project teams to discuss information, create awareness and enhance skill improvement, critical thinking, authentication, arrangement and thus help in finishing project task easier and as well increase teams' morale. These are also critical factors for a successful project. Bryce (2006) puts to it that managers managing projects ought to ascertain that there is factual need for holding meetings. In their law they state that no one attend unimportant meeting unless he or she is looking for an excuse of not conducting his/her assignment. According to their research some project sponsors holds

meeting for days while providing them with information and ends up asking no question at all. In another scenario the meeting is regarded to be brainstorming and rather than that it turned out to be an exercise of validating what has been decided upon by the executive. Teams in projects therefore should be eliminated from attending unnecessary meeting. Therefore, before holding any meetings, there is need to take time and think on the purpose of the meeting the needed results that will stem from the meeting. Further the communication to the team should be done in a manner that it stresses the true worth of the meeting process.

To facilitate meeting in a project is important in project implementations since it relates on how projects are managed. Meeting facilitation is important as a success factor within projects despite being seen as an interruption to project teams and time wastage. A research by American Management association established that effective and efficient meeting can realize many function in a company for instance, it can resolve conflict, enhance better decision making and also can help team comprehend the importance of finances and time put for the in a meeting, Lugusa and Moronge (2016), found out that inadequate meetings before projects commencement and during technical project planning were the factors enhancing poor performance of infrastructural project among education institutions.

2.8 Project Management skills and Implementation of Educational Infrastructure Projects

Successful implementations of infrastructural projects in devolved units in Kenya according to Adek (2016), established that infrastructural projects required support from the management as a success factors. Lohr, (2009), the magnitude to which management skill set in implementing projects when it comes to allocating resources and utilization gave confidence to the community thus dictating project failure and or success. According to Burke, (2011), project planning, schedule is essential in any project life cycle. Schedule provides the milestone on each project phase from the initial to the last stage of a project cycle as well as resources allocated. During the stages progress of the project can be monitored and the outcome reported.

For project implementations to be successful, project managers need to be trained on the phases in a project cycle to acquire skill set pertaining to resource allocation, planning, risk management, monitoring and

evaluation and meeting facilitation (Kerzner, 2011). Planning reinforces management efforts thus enable them to engage actively in change and pressure other way of carryon with other activities (International Project Management Association, 2016). Murch (2001), established that managers managing projects ought to acquire technical expertise and skillset to enable them conduct roles easily. Nyaga (2001) is in agreement with Kerzner, (2011) and posits that the process of monitoring and evaluation project is a constant process. Therefore, it is a factor that need to be considered in order to successful complete projects as planned in a timely manner.

According to Maylor (2016), managers should support and engage themselves in learning and training process. These practices reflect on employee behavior and thus should be infused in all organization level from top to bottom. The learning should be towards acquiring the desired knowledge for a purpose. The learning therefore should entail experiments, reflections and towards attainment of organizational success. According to him, the use of reflection and experiment in learning is essential in solving unpredictable future complexities that might arise this bring about control towards learning, stability and change.

Managers dealing with projects should control occurrences of risk and give solutions through planning and allocation of resources (Chamoun (2011). According to him poo skills by project managers results to depletion of time, resources and distort final product in project thus hindering project success. Nyaga (2014) established that time allocate and efforts put towards project planning and involvement of management officials in project implementations process influences project success and or failure. The more time and efforts are applied in project the higher the chances of attaining projects success by meeting the targeted goals.

2.9 Theoretical Framework

This subsection shows the theoretical framework to which the study is grounded. It indicates how planning and monitoring theories related to the implementation of education infrastructure projects.

2.9.1 Planning Theory

Brennan (1996), puts to it that project planning encompasses planning structured process into key process in terms of defining planning scope, activity, resources, sequence, time, cost, development schedule, project planning and budgetary allocation. Output from this process act as input when it comes to execution of the processes. Johnson and Brennan, (1996) posits that planning is a presentation of management. therefore, takes planning as an activity done by human for purposes of responding to a scenario. Further it assumes that planning agents are units that are capable of detecting, acting and planning. Therefore, management planning entails designing, coordinating and allowing self-governance activities. Success limiting factors in planning are external intervention that are key when establishing projects success within the implementation process.

2.9.2 Monitoring Theory

Effective and efficient monitoring process according to Koskela & Gregory (2002) in their theory only takes place when an intervention being implemented has realized its outcome as planned. According to them monitoring involves a routine tracking major component of an intention for instance outputs and inputs. Therefore, its crucial to employ more time on monitoring projects and resources to order to ascertain on the quality of the outcome as a critical factor. This is an indication monitoring requires intervention of the highest magnitude in order to attain the expected outcome. By concentration on project development to realize expected output, determines the number of inputs, times and resources required to finalize and get the expected outcome by ensuring that there is sufficient input.

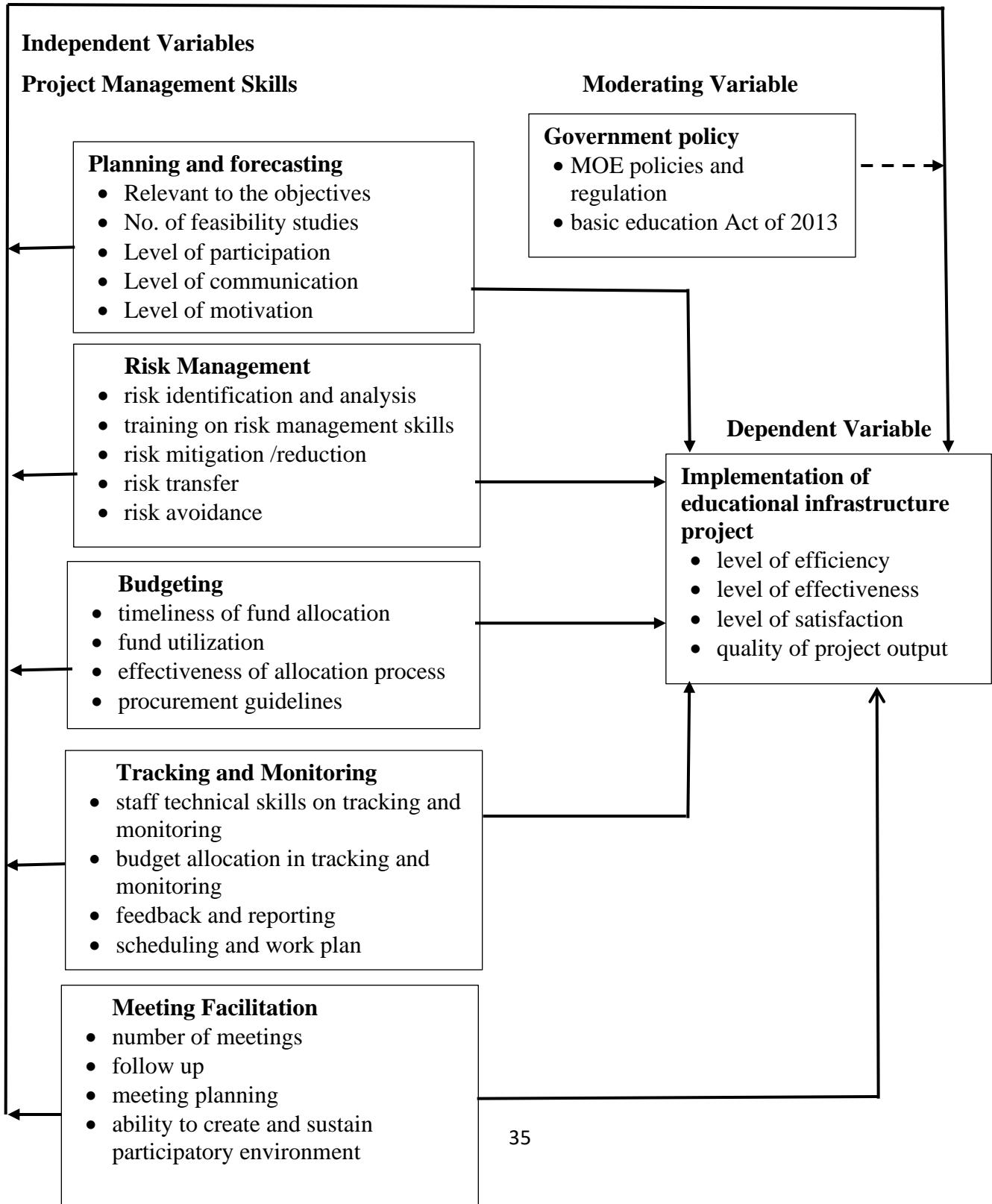
According to Koskela & Gregory (2002) time and finances are not immeasurable attributed to the fact that there are competing issues the need human intervention and resources, they need to estimated based on the previous experience which is common. This should take place during the planning process and should be considered as progress indicators. Therefore, experts in monitoring should play a critical role in intervention throughout the process of project implementation. Koskela & Gregory (2002) puts to it that, it is necessary to monitor project implementation process. This process should be done in every phase of a project and therefore, it's the role of monitoring expert to monitor success limiting factors and continue to come up with ways that will help before affecting the intervention to enhance proper

implementation. Outputs should also be monitored in order to realize progress and allocate resources required. Lastly in their theory Koskela & Gregory (2002) continued external factor monitoring have significant negative impact on success limit thus continued monitoring should be done in order to establish project milestone in terms of output and input since they are important element towards a project progress and will enhance project success.

2.10 Conceptual Framework

Below illustrated conceptual framework shows the research variables with project management skills namely; planning and forecasting, risk management, budgeting, tracking and monitoring and meeting facilitation are the independent variables hypothesized to contribute significantly on the effect of educational infrastructure project implementation among public secondary schools. The moderating variable which is government policies may influence the implementation of educational projects which is the dependent variable in our study.

Figure 2.1 below is the conceptual framework of the study, which shows the relationship between the variables



2.11 Summary of the Literature Review

This chapter reviewed related literature pertaining to project management skills which are important in educational infrastructure project implementation among public secondary school in Mandera East. Researcher focused on investigating determinants that affected infrastructural project implementation among public school in Mandera East subcounty. It aims at investigating the extent to which project management skill, planning and forecasting, budgeting, risk management, meeting facilitation, monitoring and tracking affects implementation of infrastructural project among public secondary school. Numerous studies have given evidences on success among organizations through planning where success factors were measured for instance via volume of sales and growth in terms of earning per share and return on investment among others.

Research conducted in numerous industrial firms processing drugs, oil, chemical and steel showed that firms engaging in planning constantly performed better than those with no plans. That formal planning is key as it clarifies on projects objectives. Objectives on the other hand give direction and direct planning decision to the realization of project objectives. Frequent monitoring of project therefore is dependent of numerous project factors such as number of employees, time allocated, project understanding, communication, project complexities, risks linked with the project and resource availability. For projects to succeed its implementation, managers should be trained on the numerous project stages and project management skill set like risk management, planning, meeting facilitation, resource mobilization in order to effectively and efficiently manage projects. Through planning managers embrace change and actively find better of effecting change

2.12 Knowledge Gap

This research investigated on the factors affecting infrastructural project implementation among public secondary school in Mandera subcounty. Numerous studies have been carried out in numerous parts of the country on factors affecting implementation of infrastructural project among school and for the first time its being done in the aforementioned subcounty. This research aims to fill the gap within the existing literature shown below.

Table 2.1 Research gap

Author	Topic	Findings	Research gaps
Lugusa and Moronge (2016)	Influence of project management skills on performance of bank financed project in Kenya. A case of commercial bank project	Budgeting and risk management had a positive influence on bank financed project	Research centered only bank financed project. So there was the need to a similar study on educational infrastructure project
Kipyegon Mwangi and Kimani (2012)	Risk management adoption framework for software project	Staff training and awareness is key to risk identification and mitigation	Focus was only made on software project hence need to carry out a study on educational infrastructure project

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This sections blueprint entails the research design, targeted population, sampling technique and procedure applicable. Further the data collection process and instruments are identified and pilot testing done on the instrument and its validity and reliability assed. Finally, it entails the techniques used in analysis of data, ethical deliberations and operationalization of operational variables.

3.2 Research Design

This research adopted a research design that is descriptive in nature. Specifically, it used cross section survey since it allows researcher accumulate both qualitative and quantitative data as recommended by Kothari (2004). According to him, descriptive research allows the researcher too obtain precise information pertaining to phenomena understudy thus one can come to valid conclusions from the facts obtained. A longitudinal research design, on the other hand, was not appropriate for the study since it involved conducting multiple same subjects' observations over a lengthy time period, at times lasting many.

3.3 Target Population

The study targeted respondents involved in implementation educational infrastructure Projects for public secondary schools in Mandera east, Kenya. These were local PMC members (Chairperson and treasurer) who managed secondary school infrastructure projects on a regular basis, secretaries, principals, and the local administration (chiefs). It also targeted the key informants in form of government representatives (Ministry of Education and CDF manager) and Contractors. According to Ministry of education report (2021) there are 34 public secondary schools in Mandera east. Total population of 198 was targeted as tabulated below.

Table 3.1 : Distribution of Targeted Population

Categories	Target Population (N)
Project Management Committee	71
Local Administration	40
School Principals	34
CDF managers	15
County Director of Education	1
Project Contractors	37
Total	198

Source: to Ministry of education report (2021)

3.4 Sample Size and Sampling Procedures

Sampling method and sample size adopted was described in this section. This is explained in subsequent themes:

3.4.1 Sample Size

Sample is an array of people selected from a bigger group for purpose of estimating demographic characteristics (Kothari, 2014). It is a percentage or segment of a population that has been selected to accurately represent the whole population. Yamane formula was used to calculate sample size from a total population of 198 as illustrated.

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

N = Population

e = Acceptable margin of error

n = Sample

Margin error of 5% and confidence interval of 95% was adopted in computing sample size using the Slovene’s formula as shown below.

$$n = \frac{198}{1 + 198(0.05)^2}$$

$$n = \frac{198}{1 + 198 (0.0025)}$$

$$n = 131$$

sample size calculated will proportionally be distributed as shown in the table below.

Table 3.2: Sample Size

Classification	Population per category	Sample Size - Proportionate (x/198*131)
Project Management Committee	71	47
Local Administration	40	26
School Principals	34	23
CDF Managers	15	10
County Director of Education	1	1
Project Contractors	37	24
Total	198	131

3.4.2 Sampling Procedure

Proportionate and stratified sampling methodologies were used by the researcher for purpose of ascertaining correct proportionate and sample size in each classification. Stratified random technique gave participants equal opportunities of being part of sample population and as well gave an equal opportunity for participating in data collection.

3.5 Data Collection Instruments

Questionnaire and interview were used as major tools for gathering data. Questionnaire included closed questions. Closed questions were designed to save time and money and make analysis simpler, since they were used immediately. An interview guide having questions as per research objectives were adopted to gather qualitative data. Participants interviewed were County Director of Education and CDF managers. Kielhofner and Coster. (2006), referred to questionnaire as certified tool for collecting questions and statements geared towards collecting data from respondents, so as to achieve the research objectives.

3.5.1 Pilot Testing

Research questionnaire were adopted evaluate pilot test for purpose of eliminating questions before being issued to chosen population. Pilot test identifies design, equipment flaws and the proxy data for probability sampling. This was done using 10% of the sample size. According to Bullinger et al. (2012), piloting is between 10 and 15 percent of sample size. The pilot study used 10 questionnaires which were administered to respondents at Garrisa who were in various public secondary schools. In choosing Garissa public secondary schools, the researchers felt it unethical to carry out a pilot study in the same area where the real study would be carried out.

3.5.2 Research Instrument validity

Instrument's reliability is determined by its ability to accurately measure the designs. The research build a questionnaire from previous research that were in line with the current research for purposes of elucidating research objectives. Supervisor cross check the questionnaires to ascertain that the theoretical attributes are put into appearance as envisioned. Corrections and recommendations were integrated by researcher as opined by the supervisor, lecturers as well as from respondents who pertook pilot test in ascertain the research tool validity.

Researchers conducted KMO tests and Bartlett tests for variables acquired from respondents via pilot test to ascertain criterion validity

The researcher avoided biasness and thus participants to the study never wrote their designation on the research tool. Further, he issued questionnaires and opted not to involve research assistant who could

have brought about biasness via gestures or tone variation. Nevertheless, the words used in the questionnaire were chosen correctly so that they didn't steer certain responses or make it hard for the participant to comprehend the scenario.

3.5.3 Research Instrument Reliability

Reliability quantifies yields by a research tool in a consistent manner after numerous trials. For this purpose, test – retest approach was operationalized to ascertain research tool reliability. Questionnaires were administered two times for five project managers. Second administration of questionnaires were done after two weeks. Correlation coefficient was used in examining the extent to which questionnaire contents were consistent in generating same response each time the instrument was administered. According to Mohajan (2017), correlation of 0.8 is accepted and endorsed.

3.6 Data Collection Procedures

Data collection involved applying measures to extract relevant responses from participants in the study. Following the research proposal endorsement by University of Nairobi, was possible to undertake data collection. NACOSTI license was requested as well as authorization letter from University of Nairobi, that enabled him to commence gathering data. Researcher involved four research assistants who assisted him in data collection exercise since this ensured, expeditious and effective data collection by the research assistants who were trained first to have a glimpse of research instruments, goals of the research and the ethical issues involved. The researcher together with the four research assistants distributed the questionnaires to respondents on one on one basis to enable proper explanation of what is required from them during the process. Participants were responsible for the questionnaires for a fortnight in order to read, comprehend and fill in the necessary data at their convenience. Complete questionnaires were compiled for purpose of analyzing data.

3.7 Data Analysis Techniques

The researcher analyzed the data using inferential and descriptive statistics. Descriptive statistics involved analyzing quantitative data using measure of central tendency which involve the frequency,

percentage and mean. In a narrative statement, qualitative data will be assessed based on qualitative statements on the themes from the objectives. Correlations will be performed using inferential statistics to determine the association amongst the Independent and dependent variables. Regression analysis will be performed to establish whether the Independent variable is a good predictor of a change in the Dependent variable.

The Pearson correlation (r) is a statistic measure of how closely two sets of values are related. A significant positive correlation is shown by r value near to +1, whereas solid negative correlation is indicated by a value of r close to -1.

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{n(\sum x^2) - (\sum x)^2} \sqrt{n(\sum y^2) - (\sum y)^2}}$$

Where r = Pearson correlation, x = first set of variables' values, y = second set of variables' values, and n = number of participants chosen.

Data was analyzed using SPSS version 1.0.0.1406 for computation and mining the data this is due to its ability to perform many complex statistical tests and that interpretation of result is relatively easy.

3.8 Ethical Consideration

The major ethical deliberations in the process of any research is confidentiality and permission.

The researcher in explaining the research details as well as its purpose and aim, the participant was in a position to understand their contribution towards the research. The participants voluntarily participated in the research and their confidentiality upheld by not indicating their names on the questionnaires and also not unveiling their personal information. Therefore, only important details that helped the researcher attain study objectives that were disclosed. The research adhered to the plagiarism policy by the University of Nairobi which describes the practice of taking another person's work or ideology and translating it as yours (UON 2013). Care was taken by the research and thus recognized scholars via referencing works and sources that have been borrowed as well as other data sources via referencing.

3.9 Operationalization of the variables

Operational variables explain the exact measures used in the research variables. It is a measured plan for the specific research variables as indicated below.

Table 3.3: Operationalization of the variables

Objectives	Independent variables	Indicators	Scale of measurement	Data Analysis tools	Analysis method
Establish how planning and forecasting influence implementation of educational infrastructure projects funded by the CDF in public secondary schools in Mandera East, Kenya.	Planning and Forecasting	<ul style="list-style-type: none"> • Relevant to the objectives • No. of feasibility studies • Level of participation • Level of communication • Level of motivation 	Nominal Interval	Mean Standard deviation Frequencies Percentages	Descriptive statistics
To determine how risk management influence implementation of educational infrastructure projects funded by the CDF in public	Risk management	<ul style="list-style-type: none"> • risk identification and analysis • training on risk management skills • risk mitigation /reduction 	Interval Ratio	Mean Standard deviation Frequencies Percentages	Descriptive statistics

Objectives	Independent variables	Indicators	Scale of measurement	Data Analysis tools	Analysis method
secondary schools in Mandera East, Kenya.		<ul style="list-style-type: none"> • risk transfer • risk avoidance 			
To assess how budgeting influence implementation of educational infrastructure projects funded by the CDF in public secondary schools in Mandera East, Kenya.	Budgeting	<ul style="list-style-type: none"> • timeliness of fund allocation • fund utilization • effectiveness of allocation process • procurement guidelines 	Nominal Interval	Mean Standard deviation Frequencies Percentages	Descriptive statistics
To determine the extent to which tracking and monitoring influence implementation of educational infrastructure projects funded by the constituency development fund in public secondary	Tracking and Monitoring	<ul style="list-style-type: none"> • staff technical skills on tracking and monitoring • budget allocation in tracking and monitoring • feedback and reporting • scheduling and work plan 	Nominal Interval	Mean Standard deviation Frequencies Percentages	Descriptive statistics

Objectives	Independent variables	Indicators	Scale of measurement	Data Analysis tools	Analysis method
schools in Mandera East. Kenya					
To determine how meeting facilitation influence implementation of educational infrastructure projects funded by the CDF in public secondary schools in Mandera East, Kenya.	Meeting Facilitation	<ul style="list-style-type: none"> • number of meetings • follow up • meeting planning • ability to create and sustain participatory environment 	Nominal Interval	Mean Standard deviation Frequencies Percentages	Descriptive statistics

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, INTERPRETATION AND DISCUSSIONS

4.1 Introduction

Chapter four will provide outcome attained from questionnaire. The aim of the research was to investigate on Project management skills and implementation of educational infrastructure project funded by CDF in public secondary schools in Mandera east, Kenya. It will start by providing a descriptive analysis pertaining to respondents' response rate, gender age and educational background. Further it has discussed on the research objectives which include;- establishing how planning and forecasting influence implementation of educational infrastructure, determine how risk management influence implementation of educational infrastructure, assess how budgeting influence implementation of educational infrastructure and investigate how tracking and monitoring influence implementation of educational infrastructure projects sponsored by CDF among public secondary schools in Mandera East. Kenya

4.2 Descriptive statistics

4.2.1 Response rate

Out of 131 questionnaires disseminated only 120 questionnaires were returned, this represents 92% of total response while 14% were not used in the researched attributed to the fact the participant never filled the questionnaire.

Table 4.1: Participants Response Rate

Classification	Returned	Not returned
Project Management Committee	40	5
Local Administration	24	2
School Principals	21	2
CDF Managers	10	0
County Director of Education	1	0
Project Contractors	24	2

Total	120	11
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The tabulation above indicates that the response obtained were adequate and thus the research could use the results for generalize research findings

4.2.2 Age

The research targeted respondents under 35 years of age to more than 51 years of age. The results is shown below

Table 4.2 Participants Age

	Frequency	Percentage
Under 35yrs	1	0.8
35-40yrs	15	12.5
41-45 yrs	37	30.8
46-50yrs	65	54.1
>=51yrs	2	1.6
	120	100%

Results above indicates that majority of the respondents were between 46 and 50 years of age (65%) while the least respondents were under 35 years (1%) and those having more than or equal to 51 years (2%). The rest were 35-40 years (15%); and 41-45 years (37%). Participant age was helpful to the research since it showed that participants were people who have been tangled and contributed in project implementation processes. Thus, age bracket formed a good ground for the research.

4.2.3 Level of Education

The researcher determined participants level of education and the results obtained below

Table 4.3: Level of education

	Frequency	Percentage
PhD.	4	3.3%
Post Graduate	41	34.1%
Undergraduate	60	50%
Diploma	15	12.5%
Others	0	0
	120	100%

Majority of the respondents were undergraduate (50%) and post graduates (34.1%). Diploma and PHD were the least each holding 15% and 4% respectively. From the results, participants were well educated and thus acquire knowledge on project implementation.

4.3 Discussions

4.3.1 Planning, Forecasting and Its Influence on Implementation of Educational Infrastructure Projects

The first objective of the research was to determine how planning and forecasting influenced implementation of educational infrastructure. Below were the results obtained.

Table 4.4: Planning, Forecasting and Its Influence on Implementation of Educational Infrastructure Projects

Statements	1	2	3	4	5
Before educational infrastructure projects are implemented feasibility studies are done.	8 (6.6%)	9 (7.5%)	21 (17.5)	41 (34.1%)	41 (34.1%)
Headteachers have the ability to control and appraise project events and certify they are in line with project plan.	11 (9.1%)	10 (8.3%)	25 (20.8%)	39 (32.5%)	35 (29.1%)
Head teachers have the ability to conduct project planning	11 (9.1%)	10 (8.3%)	25 (20.8%)	34 (28.3%)	40 (33.3%)

There is official communication done before implementation of educational infrastructure projects	10 (8.3%)	10 (8.3%)	20 (16.6%)	39 (32.5%)	41 (34.1%)
School staff and parents has participated well in the implementation of the infrastructural development projects in your school	10 (8.3%)	10 (8.3%)	24 (20%)	35 (29.1%)	41 (34.1%)
Average	10	9.8	23	37.6	39.6
Percentage	8.3	8.1	19.1	31.3	33

From the findings above 68.2% of the participants were unified that before educational infrastructures are implemented feasibility studies are done. Participants felt that through conducting a feasibility study on CDF infrastructure projects among public school enabled them to get the project right before committing finances, time and resources into to project thus enhancing proper planning while eliminating correction flaws that might occur in future. This is in accordance to Moodley (2002), who posits that the major aim of planning in the initial stage is to ensure that project goals and objectives are attained. Further, Fisher (2011), planning is crucial since it puts pressure on the projects in terms of time. 12% of the respondent felt that feasibility study to a moderate extent influenced implementation of educational infrastructure while 6.6% opined that it does not affect project implementation while 7.5 opined that it affected to a small extent. Those who opined that feasibility studies affected project to a small extent and moderately felt that lack of reliable data during feasibility study and ignorance of ideas that might result to project failures might result to project failures.

29.1% and 32.5% of respondents greatly and great extent felt that Headteachers had the ability to control and appraise project events and certify they are in line with project plan. This is in accordance to Kenyan Education Act (2013), which obligated school headteachers as accounting officers in educational project implementation from initiation to completion as stipulated in ministry of education policy thus placing the at the core of any educational project implementation. 20.8% of the participants to a moderate effect felt that Headteachers had the ability to control and appraise project events and certify while 8.3% and

9.1% who opined that headteachers to a small and no extent had the ability. The participants felt that headteachers are not the only individuals involved in the educational infrastructure planning and forecasting.

Participants to very great extent (34.1%) and to a great extent (32.5) felt that official communication done before implementation of educational infrastructure projects. This is in accordance to Moodley (2002) who posits that communication is essential within the planning process to enhance informed decision making among stakeholders. Communication in this instance was done to government entities in charge of disbursing CDF, parents and other stakeholders involved in educational projects. On investigating on whether school staff and parents has participated well in execution of the infrastructural projects in the school 34.1% to a very great extent while 29.1% (greatly agreed and 20% (moderately agree) that they participated in the implementation process. Participants who moderately agreed opined that to some extent their contributions were not taken into effect during the planning process.

4.3.2 Risk Management and Implementation of Educational Infrastructure Projects

The second objective investigated how risk management influenced implementation of educational infrastructure. Below were the results obtained.

Table 4.5: Risk Management and Implementation of Educational Infrastructure Projects

Statements	1	2	3	4	5
There is proper strategy in place for identifying project risk	10 (8.3%)	53 (44.1%)	40 (33.3%)	8 (6.6%)	9 (7.5%)
There is proper mechanism in place for analysis of qualitative and quantitative risk and risk prioritization.	5 (4.1%)	60 (50%)	40 (33.3%)	7 (5.8%)	8 (6.6%)
There is proper plan for risk response or mitigation strategies.	5 (4.1%)	56 (46.6%)	44 (36.6%)	8 (6.6%)	7 (5.8%)
Risk identification strategies that are effective enables organization to take measures that are corrective thus enhancing reduced project cost.	5 (4.1%)	5 (4.1%)	20 (16.6%)	40 (33.3%)	50 (41.6%)
Lack of risk plan reduces completion of infrastructural projects in educational institutions.	8 (6.6%)	5 (4.1%)	17 (14.1%)	40 (33.3%)	50 (41.6%)
Average	6.6	35.8	32.2	20.6	24.8
Percentage	6%	30%	27%	17%	20%

44.1% and 33.3% of the participants felt that to a small extent and moderately respectively there were no proper strategy in place for identifying project risk while 6.6% and 7.5% of participants felt that to a great and very great extent respectively that there was no proper strategy in place for identifying project risk. This is an indication that public secondary school in Mandera county lacked proper risk identification plan for mitigating or responding to risk. This is further evidenced when the researcher requested participants to give their opinion on whether there was proper mechanism in place for analysis of qualitative and quantitative risk and risk prioritization. The research found out that mechanism used were to a small extent (50%) while 33.3% felt that they were but to a moderate extent. Smith et al, (2006) opines that to increase risk management efficiency, risk planning ought to be continued in all stages of a

project thus enabling early exposure of risk and thus mitigating then in all the stages will be easy. Further on examining whether there is proper plan for risk response or mitigation strategies it was established that there was to small extent 46.6% and moderately 36.6% while 4.1% of the participants opined there were risk planning strategies. From the findings therefore it is established that rather than lacking risk identification plan they also lacked, prioritization mechanism and risk mitigation strategies and that explains why implementation of educational infrastructures funded by CDF in Mandera County fail or are never accomplished or deliver.

Participants to the study were aware that effective risk identification enables organization to take measures that are corrective thus enhancing reduced project cost where 41.6%, 33.3% of participants agreed to a very large extent and large extent respectively while 33.6% felt that it is effective to a moderate extent. They were also aware that lack of risk plan reduces completion of infrastructural projects in educational institutions where 40 (33.3%) approved largely while 50 (41.6%) approved very largely. To enhance project success, managers dealing with projects should control occurrences of risk and give solutions through planning and allocation of resources (Chamoun (2011).

4.3.3. Budgeting and Implementation of Educational Infrastructure Projects

The third objective of the research was to determine how budgeting influenced implementation of educational infrastructure. Below were the results obtained.

Table 4.6: Budgeting and Implementation of Educational Infrastructure Projects

Statements	1	2	3	4	5
Stringent approval procedures of additional funding affect educational infrastructure Completion project.	5 (4.1%)	6 (5%)	10 (8.3%)	49 (40.8%)	50 (41.6%)
Late disbursement of funds by finance institutions results to delayed project completion	0	5 (4.1%)	5 (4.1%)	60 (50%)	50 (41.6%)

Poor estimation of project costs increases approval time	0	1 (0.8%)	4 (3.3%)	55 (45.8%)	60 (50%)
Deficiency in accountability and transparency of project funds by management results to conflict.	0	1 (0.8%)	10 (8.3%)	55 (45.8%)	55 (45.8%)
Low project budgeting results to failed projects	0	4 (3.3%)	4 (3.3%)	47 (39.1%)	65 (54.1%)
Average	1	3.4	6.6	53.2	56
Percentage	0.8%	2.8%	5.5%	44.3%	46.6%

Research findings as tabulated in the above table established that stringent approval procedures of additional funding affect educational infrastructure Completion with 1.6% of participant resolved greatly while 40.8% resolved to a great extent while 8.3% of participants resolved moderately. Participants argued that stringent CDF approval for additional funds are outlined in Outline in revised CDF operational procedure (2010).

Pertaining to the issues of late disbursement of funds by finance institutions and delayed school infrastructure completion, the study found out that late disbursement of funds delayed project completion with 41.6% agreeing to a very greatly while 50% of the participants greatly. This is also according to Mapesa and Kumbua (2006), who established that late disbursement of funds have delayed school infrastructure projects. Participants opined that late disbursement hindered facilitation of funds as a resource thus hindered mechanism for delivering raw materials thus resulting to project stagnation and termination.

On investigating on whether poor estimation of project costs increases approval time, 50% of the participants opined that poor estimation of project cost increased CDF approval time very greatly while 45.8% felt that it increased CDF approval time greatly while 3.3% felt that it influenced moderately. According to Mulwa (2004) CDF depend on total budget cost and lines before they transfer funds to a project and thus poor estimation of cost increased approval time. Deficiency in accountability and

transparency of project funds by CDF management results to conflict between parents and school management very greatly 45.8% and greatly by 45.8% while 8.3% moderately. This is an indication that most educational infrastructural projects funded by CDF in Mandera County lack transparency and accountability thus causing conflicts between the school management, parents and CDF project managers. Further, according to MOET (2010), Education Act Section 21, headteachers are chief accountant officers and thus are obligated to school management committee/ Board of directors on allocation and use of school finances. The research established that Low project budgeting results to failed projects as 54.1% of participants agreed greatly while 39.1 agreed greatly 3.3% agreeing to a moderate extent.

4.3.4 Tracking and Monitoring and Implementation of Educational Infrastructure Projects

The fourth objective investigated how tracking and monitoring influenced implementation of educational infrastructure. Below were the results obtained.

Table 4.7: Tracking and Monitoring and Implementation of Educational Infrastructure Projects

Statements	1	2	3	4	5
Technical expert is vital in capacity building because it facilitates interaction and educational infrastructure projects	8 (6.6%)	10 (8.3%)	15 (12.5%)	41 (34.1%)	46 (38.3%)
Feedback and reporting is carried out on the implementation of school infrastructural projects in your school	8 (6.6%)	9 (7.5%)	13 (10.8%)	40 (33.3%)	50 (41.6%)
Scheduling and work plan for monitoring is done on the implementation of school infrastructural projects in your school	0	9 (7.5%)	9 (7.5%)	52 (43.3)	50 (41.6%)
Feedback and report from monitoring is used in making informed decisions in the implementation process.	51 (42.5%)	45 (37.5%)	20 (16.6%)	2 (1.6%)	2 (1.6%)

Monitoring ensures that educational infrastructure projects are delivered on time.	50 (42.6%)	45 (37.5%)	20 (16.6%)	3 (2.5%)	2 (1.6%)
Average	23.6	23.6	15.4	27.6	29.8
Percentage	19.6%	19.6%	12.8%	23%	24.8

From the tabulation above, technical expert is vital in capacity building because it facilitates interaction and educational infrastructure projects with 38.3% and 34.1% participants agreeing to a very great extent and great extent while 12.5% of participant moderately agreeing. This is in agreement to Hopkins (2004) who posits that monitoring and evaluation of projects requires technical expertise to create new goal, strategies and programs. They enable project program to be on track and help expand project effectiveness and accountability.

Participants (41.6%) very greatly and 33.3% greatly agreed that feedback and reporting is carried out on the implementation of school infrastructural projects while 10.8% agreed moderately. This is an indication that educational infrastructure projects funded by CDF in Mandera East do reports and gather feedback pertaining to infrastructural project. Further that scheduling and work plan for monitoring is done with 41.6% of participate agreeing to very great extent while 43.3% agreeing a great extent while 7.5% agreeing moderately.

As much as feedback and reports, scheduling and work plan for monitoring were done 42.5% of participant felt that feedback and report from monitoring were not used to make informed decisions in the implementation process. This hindered effective monitoring process among school infrastructure project funded by CDF in Mandera East since 42.6% of participant felt that monitoring of educational infrastructure projects did not deliver in time while 37.5% felt that it delivered to a small extent while 16.6% felt that it delivered minimally.

4.3.5 Meeting Facilitation and Implementation of Educational Infrastructure Projects

The fifth objective investigated how meeting facilitation influenced implementation of educational infrastructure. Below were the results obtained.

Table 4.8: Meeting Facilitation and Execution of Educational Infrastructure Projects

Statements	1	2	3	4	5
The meeting is held annually and quarterly to discuss the project success.	0	5 (4.1%)	20 (16.6%)	45 (37.5%)	50 (41.6%)
Follow up of the educational infrastructure projects are usually done	45 (37.5%)	10 (8.3%)	10 (8.3%)	10 (8.3%)	45 (37.5%)
The project success is to create and sustain participatory environment	30 (25%)	20 (16.6%)	20 (16.6%)	20 (16.6%)	30 (25%)
I am involved in risk planning in the school	20 (16.6%)	40 (33.3%)	41 (34.1%)	12 (10%)	7 (5.8%)
I offer ideas on new methods of executing educational infrastructure project effectively.	20 (16.6%)	41 (34.1%)	40 (33.3%)	10 (8.3%)	9 (7.5%)
Average	23	23.2	26.2	19.4	28.2
Percentage	19.1%	19.3	21.8%	16.1%	23.5%

From the findings above 41.6% and 37.5% of participants very greatly and greatly agreed that meeting are held annually and quarterly to discuss the project success within Mandera East County on matters pertaining to educational infrastructure success. Meeting facilitated took the form of face to face and other methods such as videoconferencing as per Duncan (1999). According to the participants meeting are held to discuss important issues pertaining to education. This is in line with Bryce (2006) who puts to it that project managers ought to ascertain that there is factual need for holding meetings. Holding meeting is essential as per Lugusa and Moronge (2016) inadequate meetings before projects commencement and

during technical project planning were the factors enhancing poor performance of infrastructural project among education institutions.

On examining whether follow-up are conducted among school funded projects by CDF, it was established that to a very large (37.5%) extent and to no extent (37.5%). This is an indication that In Mandera East, educational infrastructure project in some regions are followed up while in some regions they are not followed. The rest of the participants 8.3% moderately, to great extent felt that follow ups were made while 8.3% to small extent opined that educational projects were not followed up thus hindering effective monitoring and evaluation processes.

Very greatly 25% and greatly 16.6%, project success is to create and sustain participatory environment. Participant who agreed at very great extent and great extent felt that by sustain and creating participation educational institutions are able to identify those who support their projects. On the contrary 25% and 16.6% of participant to no extent and to small extent felt that project success is not only to create and sustain participatory environment. They opined that there are other ways in which can be used to sustain participatory environment through stakeholders' analysis.

On establishing on whether participants were involved in risk planning, the research established that 34.1% were involved in risk planning moderately while 33.1 were involved in a small extent and 16.6% were not involved. On the contrary 5.8% and 10% were involved to a very great extent and greatly respectively. Most participants were not involved in risk planning when it comes to school project within Mandera East thus most secondary school lacked proper risk planning strategies. Further moderate number of people 33.3% offered ideas on new methods of executing educational infrastructure while 16.6% felt that they never offered ideas on new methods of executing educational while 34.1% gave ideas on a small extent. On the contrary 7.5% and 8.3% of participants very greatly and greatly gave new methods of executing educational projects. This is an indication that very few individuals are allowed to offer ideologies and strategies for executing educational projects in Mandera East thus hindering participation of stakeholders. Who might contribute important information and enhance knowledge acquisition for making informed decisions.

4.3.6 Project management skills and Implementation of CDF funded Projects

The researcher investigates on how project management skills influenced implementation of CDF educational project in Mandera and County and below are the results.

Table 4.9: Project management skills and Implementation of CDF funded Projects

Statements	1	2	3	4	5
The educational infrastructure projects were implemented within the stipulated time	25 (20.8%)	27 (22.5%)	15 (12.5%)	28 (23.3%)	25 (20.8%)
Projects implemented within the stipulated cost	28 (23.3%)	20 (16.6%)	22 (18.3%)	20 (16.6%)	30 (25%)
The educational infrastructure projects are efficient	20 (16.6%)	26 (21.6%)	30 (25%)	24 (20%)	20 (16.6%)
Projects satisfy the stakeholders in terms of quality and project specifications	28 (23.3%)	20 (16.65)	22 (18.3%)	20 (16.6%)	30 (25%)
Projects meet the stakeholder expectations	20 (16.6%)	26 (21.6%)	30 (25%)	24 (20%)	20 (16.6%)
Average	24.2	23.8	23.8	23.2	25
Percentage	20.1%	19.8%	19.8%	18.5%	20.8%

From the tabulation above it was established that educational infrastructure projects were not implemented within the stipulated time by 20.8% of the participants while 22.5% felt that it was implemented to a small extent. On the contrary 20.8% of the participants felt that educational infrastructure projects were implemented within stimulated time very greatly while 23.3% opined that it was greatly done while 12,5 felt that it was done but moderately. This is an indication that some educational infrastructure project within Mandera east were completed within stipulated time while others

were not. this is accordance to Nyaga (2014) who established that time allocate and efforts put towards project planning and involvement of management officials in project implementations process influences project success and or failure. The more time and efforts are applied in project the higher the chances of attaining projects success by meeting the targeted goals. Further, 23.3% opined that projects were not implemented within the stipulated cost while 16.6% felt that so small extent the projects were implemented within stipulated cost. On the contrary, 25% of the participants and 16.6% of the participants felt that Projects implemented within the stipulated cost to a very great extent and great extent respectively while 18.3% felt that it was moderately done. This is an indication that some projects were implemented within stipulated cost while other were not implemented thus resulting to educational infrastructure project failure in Mandera East.

On examining project efficiency, it was established that projects were not efficient since only 16.6% and 20% of the respondents felt that the project were efficient to very great extent and great extent while 25% felt that it was efficient moderately. On the contrary 16.6% felt that the project was inefficient while 21.6% were efficient to a small extent. This is an indication that educational infrastructure project efficiency within Mandera East is questionable and thus have not attained efficiency. This is further evidenced by the research where 23.3% of participants felt that project did not satisfy stakeholder needs in terms of quality and specification while 16.6% felt that it did but to a small extent. On the contrary 25% and 16.6% of the participant felt that project satisfied stakeholders need in terms of quality and specification to very great and great extent while 18.3% felt that it satisfied moderately. Nevertheless 16.6% of participants felt that educational projects in Mandera east never satisfied stakeholders expectations while 21.6% felt that it meets their expectation to a small extent. On the contrary, 16.6% and 20% of the participants felt the educational projects meet stakeholders' expectation to very great and great extent while 25% felt that it meets their needs moderately. The findings go hand in hand with Nyaga (2014) who established that time allocate and efforts put towards project planning and involvement of management officials in project implementations process influences project success and or failure. Further that Lohr, (2009), the magnitude of skill set within project implementation when it comes to allocating resources, time schedule, stakeholders' involvement and utilization gave confidence to the community thus dictating project failure and or success.

4.4 Inferential Statistics

The research adopted multiple regression and Pearson correlation analysis at 95% confidence level to determine the connection between the research variables.

4.4.1 Pearson Correlation

Correlation is used to analyze the magnitude of connectedness between two variables (Hox et al., 2017). To test the connection between dependent and independent variable Pearson correlation was used. Pearson correlation analysis assumed that data is distributed normally and that they are continuous.

4.4 Correlation analysis

	Project Management	Budgeting	Risk Management	Planning	Meeting Facilitation	Tracking & Monitoring
Project Management	1	.836	-.579	.408	-.759	.791
Budgeting	.836	1	-.488	.345	-.630	.670
Risk Management	-.579	-.488	1	-.957*	-.045	-.025
Planning	.408	.345	-.957*	1	.154	-.215
Meeting Facilitation	-.759	-.630	-.045	.154	1	-.835
Tracking & Monitoring	.791	.670	-.025	-.215	-.835	1

*. Correlation is significant at the 0.05 level (2-tailed).

From the correlation analysis a weak positive correlation .408 was established between planning and forecasting and implementation of educational infrastructure project among public secondary school in Mandera East. This is an indication that increased planning resulted to increased implementation of educational infrastructure projects.

Budgeting had a positive important correlation .836 on implementation of infrastructure project among public secondary school in Mandera East. An indication that increased budgeting enhanced increased implementation of infrastructure projects. On the contrary Risk management had a strong negative correlation -.579 on implementation of educational infrastructure project among public secondary school in Mandera East.

Meeting facilitation had a strong negative correlation of -.759 on implementation of educational infrastructure project among public secondary school in Mandera East. While tracking had a strong positive correlation of .791 on implementation of educational infrastructure project among public secondary school in Mandera East. An indication that increased tracking resulted to increased implementation of projects

4.4.2 Regression analysis

The researcher conducted a multiple regression analysis to test the relationship between the variables. This showed how the dependent variable is influenced by the independent variables.

Table 4.10: Model Summary

Model	R	R²	R² Adjusted	Std. Error
1	0.859	0.737	0.716	1.158

It was established that independent variables were significant statistically in predicting dependent variable since R² adjusted stood at 0.716. This indicates a variation of 71.6% on implementation of public secondary educational infrastructure projects funded by CDF in Mandera east which were described by planning and forecasting, risk management, budgeting, tracking & monitoring and Meeting facilitation. Other variables effecting public secondary school educational infrastructure projects in Mandera east were not described.

Table 4.11: ANOVA

Model		SS	Df	MS	F	Significance.
1	Regression	199.121	5	49.780	35.048	.000
	Residual	71.017	50	1.420		
	Total	270.138	54			

ANOVA test findings shows values for p at 0.000 and calculated F at 35.048. attributed to the fact that $p < 0.05$ and calculated F is more than critical F (2.455) then regression is significant in establishing how planning and forecasting, risk management, budgeting, tracking & monitoring and Meeting facilitation. effecting public secondary school educational infrastructure projects in Mandera East.

Table 4.12: Coefficient Determination

	Coefficient				
	Unstandardized B	Std. Error	Standardized Beta	T Stat	Significance
(Const.)	1.267	0.182		3.317	.001
Planning and Forecasting	0.812	0.321	0.714	2.530	.014
Risk management	0.712	0.278	0.611	2.561	.013
Budgeting	0.568	0.208	0.462	2.731	.007
Tracking & Monitoring	0.771	0.312	0.672	2.471	.016
Meeting facilitation	0.568	0.208	0.462	2.731	.007

Regression analysis showing coefficient determination shows a significant importance between (planning and forecasting, risk management, budgeting, tracking & monitoring and Meeting facilitation), implementation of public secondary school educational infrastructure projects in Mandera East at 1.267. An increase in planning and forecasting results to an increase by 0.812 on implementation of

public secondary school educational infrastructure projects in Mandera East when other variables are constant. The significance of this variable stands at 0.014 at $\alpha = 0.05$.

An increase in risk management results to an increase by 0.712 implementation of public secondary school educational infrastructure projects in Mandera East when other variables are constant. The significance of this variable stands at 0.013 at $\alpha = 0.05$. An increase in loan budgeting results to an increase by 0.568 on implementation of public secondary school educational infrastructure projects in Mandera East having a significance level of 0.007 at $\alpha = 0.05$. An increase in tracking and monitoring results to an increase by 0.771 on implementation of public secondary school educational infrastructure projects in Mandera East having a significance level of 0.016 at $\alpha = 0.05$. An increase in meeting facilitation results to an increase by 0.568 on implementation of public secondary school educational infrastructure projects in Mandera East having a significance level of 0.007 at $\alpha = 0.05$.

Generally planning and forecasting greatly influenced implementation of public secondary school educational infrastructure projects followed, tracking and monitoring, risk management, budgeting and meeting facilitation attributed to the fact that they had a p value < 0.05 .

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.1 Introduction

Chapter five outlines the summary of the findings, conclusions and recommendations.

5.2 Summary of research findings

The study had five objectives which included: - establishing how planning and forecasting influence implementation of educational infrastructure projects funded by the constituency development fund in public secondary schools in Mandera East; determining how risk management; budgeting; tracking and monitoring; meeting facilitation influence implementation of educational infrastructure projects funded by the constituency development fund in public secondary schools in Mandera East, Kenya.

The research sample size comprised of 131 participants where of 131 dispersed questionnaires 120 questionnaires were issued to the researcher, this represents 92% of total response while 8% were not used in the researched attributed to the fact the participant never filled the questionnaire. The response obtained from the response rate were adequate and thus the research used the results to generalize research findings. The researcher also asked participants to indicate their age where respondents under 35 years of age to more than 51 years. Most participants were between 46 and 50 years (65%) while least participants were under 35 years (1%) and those having more than or equal to 51 years (2%). The rest were 35-40 years (15%); and 41-45 years (37%). Participant age was helpful to the research since it showed that participants were people who have been part and contributed project implementation process. Thus, age bracket formed a good ground for the research.

The researcher also asked the participant to indicate their education level. Majority of the respondents were undergraduate (50%) and post graduates (34.1%). Diploma and PHD were the least each holding 15% and 4% respectively. From the results, participants were well educated and thus acquire knowledge on project implementation. The research had five objectives which included:- establishing how planning and forecasting; risk management; budgeting; tracking and monitoring and meeting facilitation influence

implementation of infrastructure projects funded by the constituency development fund in public secondary schools in Mandera East, Kenya.

The research sample size comprised of 131 participants where of 131 dispersed questionnaires 120 questionnaires were issued to the researcher, this represents 92% of total response while 8% were not used in the researched attributed to the fact the participant never filled the questionnaire. The response obtained from the response rate were adequate and thus the research used the results to generalize research findings. The researcher also asked participants to indicate their age where respondents under 35 years of age to more than 51 years. Most participants were between 46 and 50 years (65%) while least participants were under 35 years (1%) and those having more than or equal to 51 years (2%). The rest were 35-40 years (15%); and 41-45 years (37%). Participant age was helpful to the research since it showed that participants were people who have been part and contributed project implementation process. Thus, age bracket formed a good ground for the research. The researcher also asked the participant to indicate their education level. Majority of the respondents were undergraduate (50%) and post graduates (34.1%). Diploma and PHD were the least each holding 15% and 4% respectively. From the results, participants were well educated and thus acquire knowledge on project implementation.

5.2.1 Planning, Forecasting and Its Influence on execution of Infrastructure Projects

The first objective investigated how planning and forecasting influenced implementation of educational infrastructure. Results showed 68.1% of the participants were in unison that before educational infrastructures are implemented feasibility studies are done. Participants felt that through conducting a feasibility study on CDF infrastructure projects among public school enabled them to get the project right before committing finances, time and resources into to project thus enhancing proper planning while eliminating correction flaws that might occur in future.. 12% of the respondent felt that feasibility study to a moderate extent influenced implementation of educational infrastructure while 6.6% opined that it does not affect project implementation while 7.5 opined that it affected to a small extent. Those who opined that feasibility studies affected project to a small extent and moderately felt that lack of reliable data during feasibility study and ignorance of ideas that might result to project failures might result to project failures. 29.1% and 32.5% of respondents very greatly and greatly felt that Headteachers had the

ability to control and appraise project events and certify they are in line with project plan. This is in accordance to Kenyan Education Act (2013), which obligated school headteachers as accounting officers in educational project implementation from initiation to completion as stipulated in ministry of education policy thus placing the at the core of any educational project implementation. 20.8% of the participants to a moderate effect felt that Headteachers had the ability to control and appraise project events and certify while 8.3% and 9.1% who opined that headteachers to a small and no extent had the ability. The participants felt that headteachers are not the only individuals involved in the educational infrastructure planning and forecasting.

Participants to very great extent (34.1%) and to a great extent (32.5) felt that official communication done before implementation of educational infrastructure projects. Communication in this instance was done to government entities in charge of disbursing CDF, parents and other stakeholders involved in educational projects. On investigating on whether school staff and parents has participated well in the execution of the infrastructural projects 34.1% to a very great extent while 29.1% (greatly agreed and 20% (moderately agree) that they participated in the implementation process. Participants who moderately agreed opined that to some extent their contributions were not taken into effect during the planning process.

5.2.2 Risk Management and Implementation of Educational Infrastructure Projects

The second objective investigated how risk management influenced implementation of educational infrastructure. From the findings 44.1% and 33.3% of the participants felt that to a small extent and moderately respectively there were no proper strategy in place for identifying project risk while 6.6% and 7.5% of participants felt that to a great and very great extent respectively that there was no proper strategy in place for identifying project risk. This is an indication that public secondary school in Mandera county lacked proper risk identification plan for mitigating or responding to risk. This is further evidenced when the researcher requested participants to give their opinion on whether there was proper mechanism in place for analysis of qualitative and quantitative risk and risk prioritization. The research found out that mechanism used were to a small extent (50%) while 33.3% felt that they were but to a moderate extent. On examining whether there is proper plan for risk response or mitigation strategies it was established

that there was to small extent 46.6% and moderately 36.6% while 4.1% of the participants opined there were risk planning strategies. From the findings therefore it is established that rather than lacking risk identification plan they also lacked, prioritization mechanism and risk mitigation strategies and that explains why implementation of educational infrastructures funded by CDF in Mandera County fail or are never accomplished or deliver. Participants to the study were aware that effective risk identification enables organization to take measures that are corrective thus enhancing reduced project cost where 41.6%, 33.3% of participants agreed to a very large extent and large extent respectively while 33.6% felt that it is effective to a moderate extent. They were also aware that lack of risk plan reduces completion of infrastructural projects in educational institutions where 40 (33.3%) largely while 50 (41.6%) agreed very largely.

5.2.3 Budgeting and Implementation of Educational Infrastructure Projects

The third objective investigated how budgeting influenced implementation of educational infrastructure. Research findings established that stringent approval procedures of additional funding affect educational infrastructure Completion with 1.6% of participant agreeing very greatly while 40.8% agreeing greatly while 8.3% of participants agreeing to a moderate extent. Pertaining to the issues of late disbursement of funds by finance institutions and delayed school infrastructure completion, the study found out that late disbursement of funds delayed project completion with 41.6% agreeing very greatly while 50% of the participants agreeing greatly. On investigating on whether poor estimation of project costs increases approval time, 50% of the participants opined that poor estimation of project cost increased CDF approval time very greatly while 45.8% said that it increased CDF approval time greatly while 3.3% felt that it affected moderately. Deficiency in accountability and transparency of project funds by CDF management results to conflict between parents and school management very greatly 45.8% and greatly by 45.8% while 8.3% moderately. This is an indication that most educational infrastructural projects funded by CDF in Mandera County lack transparency and accountability thus causing conflicts between the school management, parents and CDF project managers. The research established that Low project budgeting results to failed projects as 54.1% of participants resolved very greatly while 39.1 agreed greatly 3.3% agreeing moderately

5.2.4 Tracking and Monitoring and Implementation of Educational Infrastructure Projects

The fourth objective investigated how tracking and monitoring influenced implementation of educational infrastructure. According to the findings, technical expert is vital in capacity building because it facilitates interaction and educational infrastructure projects with 38.3% and 34.1% participants agreeing to a very great extent and great extent while 12.5% of participant moderately agreeing. Participants very greatly (41.6%) and 33.3% greatly agreed that feedback and reporting is carried out on the implementation of school infrastructural projects while 10.8% agreed moderately. This is an indication that educational infrastructure projects funded by CDF in Mandera East do reports and gather feedback pertaining to infrastructural project. Further that scheduling and work plan for monitoring is done with 41.6% of participate agreeing to very great extent while 43.3% agreeing a great extent while 7.5% agreeing moderately. As much as feedback and reports, scheduling and work plan for monitoring were done 42.5% of participant felt that feedback and report from monitoring were not used to make informed decisions in the implementation process. This hindered effective monitoring process among school infrastructure project funded by CDF in Mandera East since 42.6% of participant felt that monitoring of educational infrastructure projects did not deliver in time while 37.5% felt that it delivered to a small extent while 16.6% felt that it delivered minimally.

5.2.5 Meeting Facilitation and Implementation of Educational Infrastructure Projects

The fifth objective investigated how meeting facilitation influenced implementation of educational infrastructure. From the findings above 41.6% and 37.5% participants very greatly and greatly agreed that meeting are held annually and quarterly to discuss the project success within Mandera East County on matters pertaining to educational infrastructure success. According to the participants meeting are held to discuss important issues pertaining to education. On examining whether follow-up are conducted among school funded projects by CDF, it was established that to a very large (37.5%) extent and to no extent (37.5%). This is an indication that In Mandera East, educational infrastructure project in some regions are followed up while in some regions they are not followed. The rest of the participants 8.3% moderately, to great extent felt that follow ups were made while 8.3% to small extent opined that educational projects were not followed up thus hindering effective monitoring and evaluation processes. Very greatly 25% and greatly 16.6%, project success is to create and sustain participatory environment.

Participant who agreed at very great extent and great extent felt that by sustain and creating participation educational institutions are able to identify those who support their projects. On the contrary 25% and 16.6% of participant to no extent and to small extent felt that project success is not only to create and sustain participatory environment. They opined that there are other ways in which can be used to sustain participatory environment through stakeholders' analysis.

On establishing on whether participants were involved in risk planning, the research established that 34.1% were involved in risk planning moderately while 33.1 were involved in a small extent and 16.6% were not involved. On the contrary 5.8% and 10% were involved very greatly and greatly respectively. Most participants were not involved in risk planning when it comes to school project within Mandera East thus most secondary school lacked proper risk planning strategies. Further moderate number of people 33.3% offered ideas on new methods of executing educational infrastructure while 16.6% felt that they never offered ideas on new methods of executing educational while 34.1% gave ideas on a small extent. On the contrary 7.5% and 8.3% of participants very greatly and greatly gave new methods of executing educational projects. This is an indication that very few individuals are allowed to offer ideologies and strategies for executing educational projects in Mandera East thus hindering participation of stakeholders. Who might contribute important information and enhance knowledge acquisition for making informed decisions.

5.2.6 Project management skills and Implementation of CDF funded Projects

The researcher investigates on how project management skills influenced implementation of CDF educational project in Mandera East. From the findings it was established that educational infrastructure projects were not implemented within the stipulated time by 20.8% of the participants while 22.5% felt that it was implemented to a small extent. On the contrary 20.8% of the participants felt that educational infrastructure projects were implemented within stimulated time greatly while 23.3% very greatly while 12.5 felt that it was done but moderately. This is an indication that some educational infrastructure project within Mandera east were completed within stipulated time while others were not. Further, 23.3% opined that projects were not implemented within the stipulated cost while 16.6% felt that so small extent the projects were implemented within stipulated cost. On the contrary, 25% of the participants and 16.6% of the participants felt that Projects implemented within the stipulated cost very greatly and greatly

respectively while 18.3% felt that it was moderately done. This is an indication that some projects were implemented within stipulated cost while other were not implemented thus resulting to educational infrastructure project failure in Mandera East.

On examining project efficiency, it was established that projects were not efficient since only 16.6% and 20% of participants felt that the project were efficient very greatly and great extent while 25% felt that it was efficient moderately. On the contrary 16.6% felt that the project was inefficient while 21.6% were efficient to a small extent. This is an indication that educational infrastructure project efficiency within Mandera East is questionable and thus have not attained efficiency. This is further evidenced by the research where 23.3% of participants felt that project did not satisfy stakeholder needs in terms of quality and specification while 16.6% felt that it did but to a small extent. On the contrary 25% and 16.6% of the participant felt that project satisfied stakeholders needs in terms of quality and specification to very great and great extent while 18.3% felt that it satisfied moderately. Nevertheless 16.6% of participants felt that educational projects in Mandera east never satisfied stakeholders expectations while 21.6% felt that it meet their expectation to a small extent. On the contrary, 16.6% and 20% of the participants felt the educational projects meet stakeholders expectation to very great and great extent while 25% felt that it meet their needs moderately.

5.3 Conclusion

In conclusion, it was established that skills used by project managers in the implementation of educational infrastructure project funded by CDF in public secondary school in Mandera East were ineffective. The link between risk management and meeting facilitation as variables showed a strong negative correlation coefficient of -0.579 and -0.759 respectively when it comes to implementation of educational infrastructure funded by CDF. This is an indication that there is need to improve on risk mitigation strategies through skill acquisition and also increase the rate at which meeting as facilitated. Further that as much as project managers had planning and forecasting strategies were in place they were not strong enough thus as indicated by a weak positive correlation of 0.408 thus the need to increase on planning and forecasting strategies to increase high rates of implementation of educational infrastructure project among public

secondary schools in Mandera East. Lastly budgeting, tracking and monitoring within education projects were well done in some regions in some regions within Mandera East when compared to others. This calls for the need to always issues adequate budgeting as well as tracking and monitoring. This also calls for the need to ensure that project managers acquire the skills sets necessary for handling budgets as well as tracking and monitoring to ensure effective and efficient implementation of educational infrastructure funded by CDF in Madera East.

5.4 Recommendations

Grounded on findings, the research recommends that project managers should acquire skills pertaining to planning and forecasting, risk management, budgeting, tracking and monitoring and meeting facilitation in order to enhance effective and efficient implementation of educational CDF funded project with Mandera East.

As much as headteachers ability to control and appraise project events and certify they are in line with project plan in accordance to Kenyan Education Act (2011) they need to be trained of project management managements skill.

The research also recommends within the implementation of educational projects, all relevant stakeholders should be involved in the planning process and stakeholders kept involved through communication since communication is essential within the planning process to enhance informed decision making among stakeholders.

For implementation of infrastructure project to be successful, CDF funded project should be tracked and monitored and the results used to make informed decisions.

5.5 Areas of further research

The researcher recommends other researchers to conduct the same research in some other parts of Mandera County so that they can establish if the same variables affects other regions in county.

Secondly other research should be conducted on other variable other than what has been established here should be investigated in Mandera East and Mandera County at large.

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APPENDICES

Appendix I: Research Questionnaire for Project Management Committee, Local Administration, School Principals and Project Contractors.

SECTION A: (DEMOGRAPHIC CHARACTERISTICS)

1. GENDER? Male [] Female []
2. AGE?
 a) Under 35yrs [] b) 35-40yrs [] c) 41-45 yrs [] d) 46-50yrs []
 e) >=51yrs []
3. Education Level
 PhD [] Post Graduate [] under graduate [] Diploma []
 Others

SECTION B: Planning and forecasting

Indicate your rate of agreement to the subsequent attributes on planning and forecasting? 1= No extent at all; 2= Small extent; 3= Moderate extent; 4= Great extent; 5= Very great extent

Statements	1	2	3	4	5
Before educational infrastructure projects are implemented feasibility studies are done.					
Headteachers have the ability to control and appraise project events and certify they are in line with project plan. Head teachers have the ability to conduct project planning					
There is official communication done before implementation of educational infrastructure projects					

School staff and parents has participated well in the implementation of the infrastructural development projects in your school					
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SECTION C: Risk Management

Indicate your rate of agreement to the subsequent attributes on risk management? 1= No extent at all; 2= Small extent; 3= Moderate extent; 4= Great extent; 5= Very great extent

Statements	1	2	3	4	5
There is proper strategy in place for identifying project risk					
There is proper mechanism in place for analysis of qualitative and quantitative risk and risk prioritization.					
There is proper plan for risk response or mitigation strategies.					
Risk identification strategies that are effective enables organization to take measures that are corrective thus enhancing reduced project cost.					
Lack of risk plan reduces completion of infrastructural projects in educational institutions.					

SECTION D: Budgeting

Indicate your rate of agreement to the subsequent attributes on budgeting? 1= No extent at all; 2= Small extent; 3= Moderate extent; 4= Great extent; 5= Very great extent

Statements	1	2	3	4	5
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Stringent approval procedures of additional funding affect educational infrastructure Completion project.					
Late disbursement of funds by finance institutions results to delayed project completion					
Poor estimation of project costs increases approval time					
Deficiency in accountability and transparency of project funds by management results to conflict.					
Low project budgeting results to failed projects					

SECTION E Tracking and Monitoring

Indicate your rate of agreement to the subsequent attributes on tracking and monitoring?:

1= No extent at all; 2= Small extent; 3= Moderate extent; 4= Great extent; 5= Very great extent

Statements	1	2	3	4	5
Technical expert is vital in capacity building because it facilitates interaction and educational infrastructure projects					
Feedback and reporting is carried out on the implementation of school infrastructural projects in your school					
Scheduling and work plan for monitoring is done on the implementation of school infrastructural projects in your school					
Feedback and report from monitoring is used in making informed decisions in the implementation process.					
Monitoring ensures that educational infrastructure projects are delivered on time.					

SECTION F Meeting Facilitation

Indicate your rate of agreement to the subsequent attributes on meeting facilitation? 1= No extent at all; 2= Small extent; 3= Moderate extent; 4= Great extent; 5= Very great extent

Statements	1	2	3	4	5
The meeting are held annually and quarterly to discuss the project success.					
Follow up of the educational infrastructure projects are usually done					
The project success is to create and sustain participatory environment					
I am involved in risk planning in the school					
I offer ideas on new methods of executing educational infrastructure project effectively.					

SECTION G: The educational infrastructure projects

Indicate your rate of agreement to the subsequent attributes of the educational infrastructure projects? 1= No extent at all; 2= Small extent; 3= Moderate extent; 4= Great extent; 5= Very great extent

Statements	1	2	3	4	5
The educational infrastructure projects were implemented within the stipulated time					
Projects implemented within the stipulated cost					
The educational infrastructure projects are efficient					

Projects satisfy the stakeholders in terms of quality and project specifications					
Projects meet the stakeholder expectations					

Thank you for your co-operation

Appendix II: Interview Guide for County Director of Education and CDF Managers

1. Kindly indicate your gender?
2. Kindly indicate the highest level of Education.....
3. Kindly indicate the number of years you have worked with County Government of Mandera?
.....
4. How does risk management influence the educational infrastructure projects? Kindly explain
.....
5. What challenges are faced in risk management?.....
6. How does budgeting influence the educational infrastructure projects? Kindly explain
.....
7. What challenges are faced in budgeting?.....
8. How does planning and forecasting influence the educational infrastructure projects? Kindly explain
9. How does tracking and monitoring influence the educational infrastructure projects? Kindly explain.....
10. How does meeting facilitation influence the educational infrastructure projects? Kindly explain.....
11. How does project management skills of school heads influence on the implementation of educational infrastructure projects funded by the constituency development fund in public secondary schools in Mandera east, Kenya?.....
.....
12. What proposals would you make to these project management skills to make school infrastructure project implementation success full in Mandera east, Kenya?.....

Appendix III: Timeframe

Activity	FEB 2022	MAR 2022	APRIL 2022	MAY 2022	JUNE 2022	JULY 2022	AUGUST 2022
Formulation of the Research topic and training for the r	■	■					
Development of proposal, deliberations with supervisor and making amendments		■	■	■			
Defending research proposal					■		
Collection of data					■	■	
Data analysis						■	
Witting reports and editing						■	■
Revision of the reports and approval of final report							■
Final report							■

Appendix IV: Budget

Activity	Requirements	Budget in Ksh.
1. Development of proposal	1.1 Transportation required to attend meetings with supervisor	30,000
	1.2 internet connection to enhance online searches and communication	3,000
	1.3 Printing research proposal	2,000
2. Gathering Data	2.1 Facilitation for research assistants	15,000
	2.2 Photocopies of research tools	5,000
	2.3 Transport facilitation for research assistants	15,000
	2.4 Research assistant remuneration	8,000
3. Data analysis	3.1 Accommodation for research assistants	3,200
4. Report writing	4.1 Report editing	1,000
	4.2 Final printout of the research	4,000
Total Budget		86, 200

Appendix V. NARCOSTI PERMIT

Republic of Kenya
National Commission for Science, Technology and Innovation
Ref No: 587191
RESEARCH LICENSE
Mohamed Ali Madey
This is to Certify that Mr. MOHAMED ALI MADEY of University of Nairobi, has been licensed to conduct research in Mandera on the topic: Project management skills and Implementation of Educational infrastructure infrastructure project Funded by constituency development fund in public secondary schools in Mandera East, Kenya for the period ending : 22/September/2023.
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