

**FACTORS DETERMINING CONSTRUCTION PROJECTS' SUCCESS:
A CASE OF BU'URA BORU PRE-PRIMARY SCHOOLS OF ADAMA CITY**



**HARAMBEE UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
DEPARTMENT OF PROJECT MANAGEMENT
POSTGRADUATE STUDIES**

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**A Thesis Paper Submitted to Department of Project Management in Partial
Fulfillment of the Requirements for Master Degree in Project Management**

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July, 2022

Adama, Ethiopia

DECLARATION

I, Eshetu Girma, hereby declare that this research project entitled “*Factors determining construction projects’ success: A case of Bu’ura Boru Preprimary schools of Adama city*” is my own original work and that all sources had been accurately reported and acknowledged, and that this document had not been previously, in its entirety or in part, submitted at any university in order to obtain academic qualifications.

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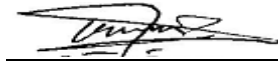
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CERTIFICATE

This is to certify that Eshetu Girma, has completed his thesis proposal entitled “*Factors determining construction projects’ success: A case of Bu’ura Boru preprimary schools of Adama city*”. In my opinion, this thesis is appropriate to be submitted as a partial fulfillment requirement for the award of Degree in Masters of Project Management.

Oumer Beriso (PhD)



July 20, 2022

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List of Abbreviations and Acronyms

CLRF: - Client Related Factor

CORF: - Contractor Related Factor

ERF: - Environment Related Factor

MRF: - Management Related Factor

PM: - Project Manager

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Abstract

The study attempted to examine factors determining construction projects' success with particular reference to Bu'ura Boru preprimary schools of Adama city. In order to attain this objective, a combination of both descriptive and explanatory research design was used along with mixed research approach. Target population of the study was about 402 that consists 108 permanent employees including the project site managers, 264 daily laborers, 12 team leaders and 12 community elders from the 12 kebeles, 5 team members at sub-city and 1 at city levels; from which 200 sample were used using Yemane's formula. As such, the researcher applied a census towards permanent employees and purposive sampling techniques for the rests. Both primary and secondary were collected through self-administered questionnaire. The instruments were checked by professionals and a pilot study was conducted to increase the content validity of the study while a Cronbach's alpha coefficient was computed for its reliability test. The study employed both descriptive statistics like frequency, percentage, mean and standard deviation to describe the practice of the factors; and inferential statistics like correlation and regression analyses to analyze the level of relationship between independent and dependent variables with the help of SPSS. As a result, the findings showed that there was a good practice of the four factor groups of the project success except that there was a budget deficit in some cases, scarcity and high inflation of construction materials. Finally, on the basis of findings of the study, it was recommended to exert a cumulative efforts by all stakeholder in order to motivate the society and also searching for other sources of fund. It was also recommended that government needs to play its role in prioritizing the projects, avoiding unlawful trade practice and stabilizing the market by increasing productivity.

Key words: *Project, Project success, Managerial skills, Client consultation.*

CHAPTER ONE

INTRODUCTION

1.1. Background of the study

A project in its basic definition is a temporary endeavor undertaken by people who work cooperatively together to create a unique product or service (PMI, 2000) within an established time frame and within established budget to produce identifiable deliverables. Project success has been defined by the criteria of time, budget and deliverables (Flaman & Gallagher, 2001). According to them a project usually needs resources to deliver its results. Most of the time project execution is based on detailed plan, which considers also external factors and constraints. Planning, execution and controlling of project is the primary field of project management. For major projects it is necessary sometimes to set up a special temporary organization, consisting of a project team and one or more work teams. Project managers frequently raise the issues of measuring and managing success and the factors which affect performance. Although it is widely agreed that the determination of critical success factors and their impacts on project results is important, the evidence from developing countries is limited. One major controversial issue is the definition of project success.

Pinto and Slevin (1988) recognized that there are few topics in the field of project management that are so frequently discussed and yet so rarely agreed upon as project success. The construction industry is an important sector of any economy and has multiple backward and forward linkages with other sectors (Sanvido, 1992). Projects can be considered as a set of activities that must be completed in accordance to specific objectives which involve the utilization of a company's resources. The project management is coordinating a process of interrelated functions such as planning, organizing and controlling construction activities for getting successful outcomes. Project management concept and techniques can be applied to any project ranging from simple task, office renovations or refurbishment to complex and complicated projects like the design and construction of an airport or shopping center (Babu&Sudhakar, 2015).

Consensus exists among researchers that most reasons for project success can be attributed to the presence or absence of certain project characteristics, referred to as major success factors. Major success factors require special attention from management owing to their impact on project performance (Mahmood & Shahrukh, 2012). A project, irrespective of its size or magnitude, must be completed under three constraints “Cost, Time and Scope” often referred to as the “Triple Constraints of Project Management” (Sanvido, 1992). Completion of construction projects within the specified triple constraints and quality are signs of successful project management.

It has been generally observed that in most of the public sector projects in developing countries, objectives and deliverables are not clearly defined which adversely affect the project planning, designing and execution, as a result, projects over run the triple constraints cost, time and scope. The degree of success of any project is therefore measured with reference to triple constraints of the projects (Zewdu & Aregaw, 2015). The ability of projects to deliver value to customers or users on completion is another crucial measure of importance and in many cases, this condition is not met. In this regard, from 18 kebeles of Adama city, only 5 of them have successfully completed their construction projects and the remaining 12 kebeles are delayed and underway except Dedecha Arara kebele which did not yet began the construction at all. Thus, this study tried to investigate whether four factors of the study significantly determine project success with particular reference to Bu’ura Boru preprimary school projects in the city.

1.2. Statement of the problem

Projects are needed to be completed within the time frame, budgeted cost and required quality. However, many projects take longer time to complete, cost more than necessary and some projects are canceled because of inefficient planning, execution, controlling and related challenges directly and/or indirectly related with it (Richard, 2012). According to the study conducted on Ethiopian construction industry by Koshe and Jha, (2016) shows that in Ethiopia only 8.25% projects have been finished to the original targeted completion date. According to this study, the remaining 91.75% delayed off its contractual time.

According to Thia and Swierczek (2010) project managers frequently raise the issues of measuring and managing success and the factors which affect performance. They also mentioned that although it is widely agreed that the determination of critical success factors and their impacts on project results is important, the evidence from developing countries is limited. This gap initiated

the researcher to undertake this study. At the completion of the study, literature gap from one of the developing country will be added to the literature.

Also as far as the researcher's knowledge is concerned, few/none of the similar study was conducted on the same study area since Bu'ura Boru preprimary school is one of the recent projects promoted by Oromia regional state's education Bureau.

1.3. Research hypotheses

Depending on review of the related literature, the researcher developed the following hypotheses:

H₁: Contractor related factors have a significant influence on the construction project success.

H₀: Contractor related factors have no a significant influence on the construction project success.

H₂: Project management related factors have a significant effect on the success of the project.

H₀: Project management related factors have no a significant effect on the success of the project.

H₃: Client related factors have significant effect on the success of the preprimary school project.

H₀: Client related factors have no significant effect on the success of the preprimary school project.

H₄: Environment related factors have a significant influence on construction project success.

H₀: Environment related factors have no a significant influence on construction project success.

1.4. Objective of the study

1.4.1. General objective

The main objective of the study was to investigate factors determining construction projects success with particular reference to Bu'ura Boru preprimary schools of Adama city.

1.4.2. Specific objectives

- i. To examine whether contractor related factors significantly influence on the project success.
- ii. To investigate the effect of project management related factors on success of the projects.
- iii. To assess effect of client related factors on success of the buildings' construction projects.
- iv. To find out the influence of environment related factors on the construction projects' success.

1.5. Significance of the study

In line with objectives of the study it was believed that the research is important because many projects fail without delivering the expected outcomes and many of them are not meeting their

goal in accomplishment as kindly planned in the project document earlier. To know factors determining project success and give possible solutions, it was laudable to conduct this research.

This study is important for several stakeholders including the researcher, management of the project, clients, future researchers and academicians. The researcher will be beneficiary in having exposure to conducting research in which theoretical knowledge will be changed into real practice and then acquire master's degree. For the management of the project, the findings of this study would be important in understanding of the factors affecting its project success hence inform them on necessary correction strategies to mitigate on their effects.

For future researchers and academicians, the study will be important in areas requiring further research to build on the topic of factors affecting project success among the project under the study. In addition, the findings of this study would be important source of reference for future scholars and researchers.

1.6. Scope of the study

Conceptually, the study covered only the determinant factors of the construction projects' success by raising four common factors like contractor related factors, managerial factors, client related factors and Environment related factors. The geographic delimitation was bounded by the case of 'Bu'ura Boru' preprimary schools in Adama City Administration. The respondents were from all the stake holders starting from the contractors that include project managers, daily laborers, clients and community elders. Hence the data collection instrument supports the inclusiveness. The data collection instrument was only limited to self-administered questionnaire and then, analyzed by both descriptive and inferential statistical tools under descriptive and explanatory research designs.

1.7. Operational definitions

Project success: refers to the completion of an activity within budgeted cost, within the allocated time period, at the proper technical performance and with acceptance of the customer (Hawk 2006).

Client consultation: refers to the extent to which project promoters adequately communicate, consult and actively listen to and with the client (Hailu, 2018).

Managerial skills: refers to the necessary technical and administrative skills for successful project completion (Pinto & Slevin, 1989).

Contractor related factors: refers to contractors' ability and willingness to provide resources, authority and influence (Hailu, 2018).

Staff or team competence: refers to the competencies of project team members including technical background, communication skills, troubleshooting, commitment, problem-solving and teamwork (Thi & Swierczek, 2010).

1.8. Organization of the study

Structurally, this paper comprised five chapters. The first chapter was an introduction which consists of background of the study, statements of the problem, basic research questions, objectives of the study, significance of the study and scope of the study. Chapter two deals with the review of related literature several theories related to the determinant factors of the project success. Under the empirical framework section different studies on related matter has been reviewed. Chapter three was about research design and methodology. Chapter four consists about the study result and discussion while the last chapter presents conclusion and recommendations of the study.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. Theoretical reviews

2.1.1. Construction Industry

The construction industry includes all companies primarily engaged in construction as general contractors, operator builders, heavy construction (airports, highways, and utility systems), and construction by specialty trades. Also included companies that engage in the preparation of sites for new construction and in subdividing land for building sites. Construction work may include new work, additions, alterations, or maintenance and repairs. Construction work is often described by either type, residential (home building) versus non-residential (commercial and government buildings and infrastructure projects), or by funding source, public versus private (Sanvido, 1992).

The construction industry is one of the largest job creators in developing countries and is highly competitive. The high number of project failures suggests the existence of underlying major success factors which have not been identified (Inayat, Hani, & Asad, 2015). Researches on project success show that it is impossible to generate a universal checklist of project success criteria suitable for all projects. Success criteria will differ from project to project depending on participants, scope of services, project size, and sophistication of the owner related to the design of facilities, technological implications, and a variety of other factors. On the other hand, common threads relating to success criteria often develop not only with an individual project but across the industry as we relate success to the perceptions and expectations of the owner, designer, or contractor (Babu, & Sudhakar, 2015).

2.1.2. Critical success factors of projects

I) Competencies of the project manager and team members

In the literature, many factors related to the competencies of project managers and team members have been proposed for the successful completion of projects. These factors not only affect project performance but they also have an impact on client satisfaction and project acceptance (Procaccino & Verner 2006). Pinto and Slevin (1989) demonstrated the importance of selecting project

managers who possess the necessary technical and administrative skills for successful project completion. The project manager's competence becomes most critical during the planning and termination stages (Zwikael & Globerson 2006).

The competence of the team members is also found to be a critical factor throughout the project cycle (Puthamont & Chareonngam 2007). Similarly, well established communication channels between the project manager, the organization and the client are necessary for the acceptance of the project outcome by the client. Thamhain (2004) conducted a field study to examine the influences of the project environment on team performance and resulting project performance. He found a positive relationship between team involvement and performance especially in complex project environments.

II) Organizational factors

From the literature, the factors related to the organization include top management support, project organization structure, functional managers' support and project champion. Tukul and Rom (1995) found that one of the most critical factors for the successful completion of projects is top management support. Support is usually strongest if there is a project champion and if this champion is from top management. Top management helps project managers understand and achieve the project's objectives, which are specified by the client and/or top management. Top management usually controls a project manager's access to resources, which are supervised by functional managers. The level of support from top management usually determines the level of support provided the functional manager.

Performance depends on the project organizational structure. For projects with a functional form, the availability of resources is not usually an obstacle, because the functional manager is usually also the project manager. But for projects with a pure project form, or with a matrix organizational form, adequate resources can be a difficult issue. It requires skilled negotiation and positional power within the organization. In that case, full support from the organization for the project helps to facilitate and implement strategies for the successful completion of projects (Zwikael and Globerson 2006).

III) Project characteristics

In the literature, project characteristics have long been overlooked as being critical success factors. In one of the few studies available, Morris and Hough (1987) identified schedule duration and urgency as critical factors. However, many projects fail due to problems within projects.

Belassi and Tukel (1996) specified the size and the value of a project, the uniqueness of project activities, the density of a project network, project life cycle and the urgency of the project outcome. Tukel and Rom (1995) found that many large projects (more than 100 activities) exceed their deadlines. There are usually penalties imposed on projects when deadlines are exceeded. The most common penalties are monetary and credibility loss.

The project manager's performance on the job can be heavily influenced by the uniqueness of the activities. It is easier for project managers to plan, schedule and monitor their projects if a project has more standard tasks. Project density also influences performance. Tukel and Rom (1995) defined project density as the ratio of total number of preceding actions to the total number of activities. The density will affect the allocation of resources, especially man hours. Because of resource constraints, project managers are often forced to use overtime, which exceeds the estimated budget, or they are forced to delay activities competing for the same resources, which results in delays in project completion. The urgency of a project relates to success. Pinto and Slevin (1989) defined urgency as the need to implement the project as soon as possible. In many cases, project performance criteria are not met because of the urgency of a project (Puthamont & Chareonngam 2007). Projects with political purposes are typical examples. In these situations, not enough time is allocated for planning and scheduling projects, and as a result they are more likely to exceed budgets and fail.

Finally, two more characteristics of the project will be considered in the conceptual framework. These are the stages in project life cycle (concept, development, implementation and completion) and the type of project (Soja 2006). The priority given to the internal and customer-driven measures of performance at different stages of a project depends on the primary objective at each stage (Pinto and Slevin 1988, Tukel and Rom 2001). Tukel and Rom (2001) also identified that the choice of performance measures is influenced by the project type and industry classification.

2.1.3. Project success

Literatures agree that one of the most common challenges in project management is determining whether or not a project is successful, Mishra and Taran (2005), PMBOK (2013). More recently, practitioners and scholars have determined that project success should also be measured with consideration toward achievement of the project objectives. In the history of project success research, scholars have identified categories for project success determinants as factors and criteria Baccarini (1999). In the same study the success criteria were explained as those that are used to measure success and the factors are those that facilitated the achievement of success.

Project success has often been measured with a simplistic formula, perceived as unequivocal and easy to assess. Such measures have often defined success as meeting the objectives of the project budget and schedule and achieving an acceptable level of performance. Freeman and Beale (1992) identified seven specific criteria used to measure project success. Five of these are frequently used: technical performance; efficiency of execution; customer satisfaction; personal growth; organizational ability; and business performance. A project can be considered to be successful by meeting the internal performance measures of cost, time and technical performance, but also insuring that the project is accepted by the customer (Kerzner 1998).

According to Kerzner (2001), project success was defined as the completion of an activity within the constraints of cost, time and performance. This definition of project success has been modified to include completion: within the allocated time period; within budgeted cost; at the proper performance or specification level; with acceptance by the customer/user; when you can use the customer's name as reference; with minimum or mutually agreed upon changes in scope; without disturbing the main work flow of the organization; without changing the corporate culture.

According to Belay, Alemayehu and Assefa (2016) group of contractors' response on building construction projects of Bole Sub City was: site management; adequacy of funding; leadership skills of project manager takes the first three ranks. The consultants gave a priority to decision making effectiveness; adequacy of funding; control mechanism. According to clients: leadership skills of project manager; project clear objective; adequacy of funding. Other respondents ranked the success factors one up to three as follow: contractor's cash flow; planning effort; technology availability; training the human resource in the skill demanded by project.

The top ten major success factors from overall ranking success factors were: leadership skills of project manager; project clear objective; adequacy of funding; decision making effectiveness; project monitoring; project manager's commitment to meet quality, cost and time; project manager's early & continued involvement in project; contractor's cash flow; Site management; coordinating ability and rapport of project manager with contractors/ subcontractors; project manager's authority to take financial decision, selecting key team members; organizing skills of project manager are the top ten major success factors according to their significant on building project in Bole Sub City in order to accomplished projects successfully.

2.1.4. Success Criteria in Project and Project Management

As discussed above there were several criteria that have been studied in order to state the issue of project success. Project success criteria were the dependent variable which measures success, Srimathi et al (2017). According to Cooke (2002), Lim & Mohamed (1999) success criteria were taken as benchmark to measure or judge success. Traditionally project success criteria focused on cost, time and quality, the study by Atkinson (1999) showed that these criteria are no longer sufficient to measure the success of projects. In the same manner, several researchers agree that success cannot be achieved only through these three criteria because of project success complexity Kylandri et al (2012). According to Nicholas (1989) the best overall criterion for project success was when all major stakeholders' objectives were achieved including the user, project manager and the development group all think their expectations were met or exceeded.

Along the same line, current project management guides place an emphasis on the delivery of projects within the constraint of time, cost and scope also referred to as the iron triangle, PMBOK (2013). More specifically, the project management objectives referred as the iron triangle were more easily measurable in the quantitative scale this was the point at which project management ends. Comparatively the rest project objectives were tend to be qualitative and not easily measured in any objective manner, or may be longer-term and more complex to measure quantitatively in a reasonable period. This led to the idea that the project management criteria being a subset of all project criteria.

Frefer et al (2018) included in their overview a summary list of success criteria for projects and project management as below:

- ❖ Cost, Time, Performance, Satisfaction, Use, Effectiveness, Pinto and Slevin (1988).
- ❖ Technical performance, Efficiency of project execution, Managerial and organizational implications, Personal growth, Project termination, Technical innovativeness, Manufacturability and business performance, Freeman and Beale (1992).
- ❖ Time Performance, Cost Performance, Quality Performance, Health, Safety and Environment, Client Satisfaction, Khosravi and Afshari (2011).
- ❖ Cost, Time, Meeting the technical specification, Customers' satisfaction, Stakeholders, satisfaction, Bryde and Robinson (2005).
- ❖ Cost, Time, Quality, Scope, Customer Satisfaction, Safety, Team Satisfaction, Shareholder Satisfaction, Bahia and Farias (2010).
- ❖ Cost, Quality, Time, Customer Satisfaction, Technical Specifications, and Functional Requirements, Revenue and Profits, Competitive Advantage, Market Share, Reputation Tmeemy et al (2010).
- ❖ Cost, Time, Technical Requirements, Customer Satisfaction, Objectives Achievement, Gomesa and Romao (2016).
- ❖ Client's satisfaction, Project completed on time, Project completed to specified quality standard, Absence of disputes, safety, Completion within budget, Mukhtar and Amirudin (2016).
- ❖ Quality, Time, Cost, Health, Safety and Environment, Scope, Customer' Satisfaction, Efficiency of use resource, Effectiveness Productivity, Profitability, Shareholder satisfaction, Experience gain from the project, Achievement of project's objectives, Sustainability, Reliability, Omer and Haleema (2017).

A brief generalization of those studies provide that the criteria of cost, time, quality and stakeholders' satisfaction were found as right theories and selected to construct this study up on.

2.2. Empirical findings

Thia and Swierczek (2010) assessed successful project performance based on key project factors. The indicators of project success are cost, time, technical performance and customer satisfaction as used in previous studies. They took sample consisted of 239 project members and managers currently involved in infrastructure projects in Vietnam. Regression analysis was used to test five hypotheses developed from theories on project success. Three groups of factors including manager

competencies, member competencies and external stability have significant positive relationships to the success criteria. The completion and implementation stages in the project life cycle are also positively related to success. The implementation stage of a project moderates both the effects of external stability and organization support on success. The implication for project managers is that implementation is the key stage in determining the success of projects.

Belay, Alemayehu and Assefa (2016) investigated and ranked the major success factors in building construction projects of Bole Sub City. This study was conducted in Addis Ababa Bole Sub City on investigating of major success factors based on selected respondents. The literature review was conducted and data collection about success factors on building projects was conducted by using questionnaire, desk review and interview. The collected data was analyzed up to end of December, 2015. The main sources of the information were, clients, contractors, consultants and others in building construction projects of Addis Ababa Bole Sub City. Respondents were purposively selected. 120 questionnaires were distributed to 7 contractors, 4 clients, 5 consultants and 2 others companies in order to identify types of success factors. From the identified major success factors; Leadership skills of project manager; project clear objective, adequacy of funding, decision making effectiveness and project monitoring are the highest significant success factors according to their rank order which are evaluated based on their relative importance index. Considering the obtained results of this research, in order to accomplish building construction projects successfully the contractor of the project should have an experienced leader of the project and effective decision maker project manager. Client should ensure adequate preparation for fund is made before projects are started and the objective of project should be clearly stated for constructing parties

Belout and Gauvreau (2004) constructed a model in which the relationship between the independent variables and project performance will be affected by the project life cycle, project structure and project sectors (intervening effect). The project life cycle consists of conceptualization, planning, execution and completion (Dvir et al., 2003). The types of project structure include functional, functional matrix, balanced matrix, project matrix and project team.

Hughes (1986) conducted a survey to identify the factors that affect project performance. He concluded that projects fail because of the improper focus of the management system, by rewarding the wrong actions and the limited communication of goals. However, to understand failure does not guarantee success in the future. Replicating the critical success factors in new

projects has been suggested as the more effective approach to improve project performance (Hawk 2006). Dvir et al. (1998) suggested that project success factors are not universal for all projects. Different types of projects are affected by different sets of success factors. Thus, a project-specific approach is appropriate for subsequent research into the practice and theory of project management (Hyvari 2005).

Belassi and Tukel (1996) grouped critical success factors into four areas: external environment; project manager and team members; organization; and the project. The identification of critical factors would lead to the better evaluation of projects. Critical factors are linked to their effects which lead to project success or failure. The identification of this cause–effect relationship would improve project performance (Karlsen et al., 2006).

Schultz et al. (1987) classified critical success factors as strategic or tactical. Strategic factors consist of factors such as ‘project mission’, ‘top management support’ and ‘project scheduling’, whereas tactical factors relate to ‘client consultation’ and ‘personnel selection and training’. These two groups of factors affect project performance at different phases of implementation (Belout & Gauvreau, 2004).

Pinto and Slevin (1987) discovered ten critical success factors, including project mission, top management support, project schedule/plan, client consultation, personnel, technical tasks, client acceptance, monitoring and feedback, communication and trouble shooting.

This research only identified the critical success factors, but did not measure the strength of their relationship with project performance. Morris and Hough (1987) and Cooke-Davies (2002) suggested a range of critical success factors relevant to performance, including project team and management competencies relevant to large, complex projects, but also to projects in general.

2.3. Conceptual framework of the study

Based on the overall review of related literature and theories, the researcher proposed the following diagram that shows the conceptual framework of independent and dependent variables.

Independent variables

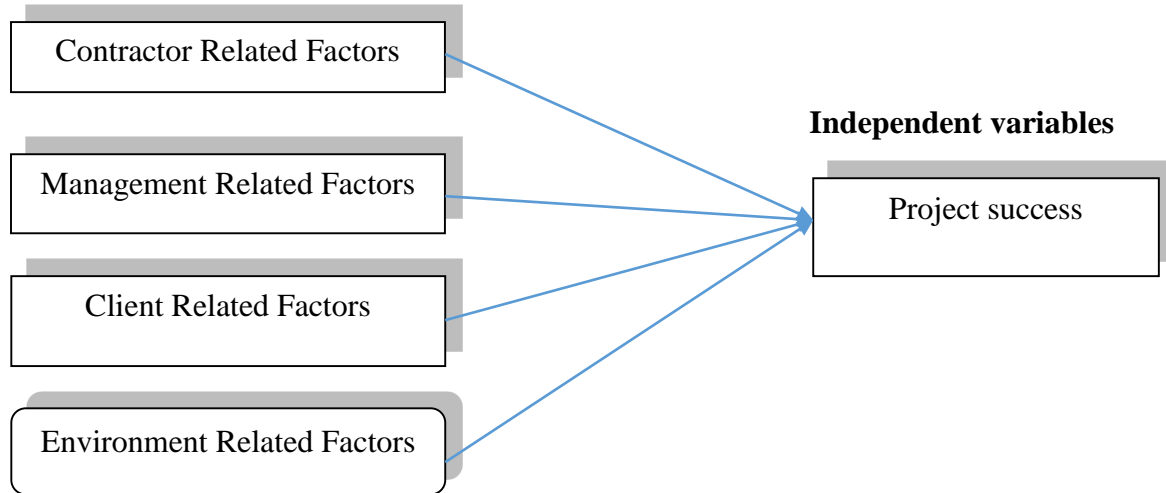


Figure 1: Conceptual framework of the study

Source: Adapted from Hailu (2018)

A successful project is a project that has been completed within the specified time span, the allocated cost and the stated quality as well as quantity. In general, a project, irrespective of its size or magnitude, must be completed under three constraints “Cost, Time and Scope” often referred to as the “Triple Constraints of Project Management” (Sanvido, 2012). Thus, completion of construction projects within the specified triple constraints and quality are signs of successful project management. The most common factors of construction project success are: (1) Contractor related factors like responsiveness, managing uncertainties, empowering project managers and etc; (2) Managerial skills like technical, conceptual, interpersonal, and decisional skills of the project leader; (3) Staff competence as measured by understanding role, working within job description, performance evaluation, training well, working in a team spirit and the like; and finally but not least, a construction project success can be affected by (4) Client consultation which constitutes sharing the clients the very purpose of the project, getting their opinion as an input, informing them the progress and etc.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Description of study area

Adama city is positioned at a crossroad in southeast of Addis Ababa at a distance of 99 km and 84.7 kilometers via old and express road respectively along all-weather road that leads from Addis Ababa to the sea port of Djibouti. According to the information gathered from Adama city land management and development office, Adama city stretches astronomically from $8^{\circ} 27' 00''$ to $8^{\circ} 37' 00''$ North latitude and $39^{\circ} 12' 00''$ to $39^{\circ} 27' 00''$ East longitude at an average altitude of 1700 m above mean sea level (Adama City Planning and Economic Development Office). As the city rests in the Rift valley crosses the country from north to south, Adama city falls into Woina dega which is hot and dry climate throughout much of the year with sparse rainfall in the winter and milder condition in the summer. The mean maximum temperature is height from March to May and the mean minimum temperature is lowest from October to November. The city experience bi-modal rainfall. The city receives the highest maximum rainfall from July to September. For the sake of current study, Bu'ura Boru preprimary school project under construction is considered. The project has planned to construct preprimary schools under 18 kebeles out of which five have been completed and handed over to the clients (i.e. Geda, gurmu, Oda, Bedhatu and Chaffe kebeles). And the rests are under construction progress except Dedecha Arara kebele wich did not yet started at all.

3.2. Research design

The selection and application of a research design is dictated by the problem at hand. Based on its purpose, the study applied descriptive type of research design using the survey method of data collection because it helps to describe the state of the construction projects as they exist at present. Moreover, survey method is believed to be appropriate for this study since it is commonly applied to a research designed to collect data from a specific population, or a sample from that population. Besides, the study employed explanatory research design as well. Mugenda and Mugenda (2003) explained an explanatory research design as the one that collects data in order to test hypothesis or to answer research questions concerning the current status of the subject under study. Such a

research design is an attempt to collect data from member of a specific population in order to determine the current status of the population with respect to one or more variables. So, this was used to correlate the independent variables which are presumed as the success factors of construction projects with the dependent variable which is the projects' success in particular to Bu'ura Boru preprimary construction projects in Adama City.

3.3. Research approach

In general, the selection and application of a research approach is dictated by the research design being applied. Accordingly, in order to carry out this research and achieve the objectives, a mixed research approach (both qualitative and quantitative) was used since it combines quantitative and qualitative data collection and analysis in one study. Exclusively, these approaches could answer different questions; so combining them can provide with more in-depth findings.

3.4. Sampling design

3.4.1. Target population

According to Phillips et al., (2013), the study population is the group we are interested in studying. Target population of the study includes managers, fulltime workers, and daily laborers employed under the project and clients. The total population of the respondents currently working at the construction projects sites were 372, out of which 108 were fulltime construction workers that consists 12 site managers and 264 are daily laborers. Besides, there are teams composed of four members at each kebele level to follow up the project progress and then report to the city municipality, whereas; the teams are accountable to the team established with 5 persons at sub-city and 1 person at city level who are directly concerned with monitoring the overall operation of the projects. Finally, one team leader from the teams found at kebele level and a community elder from each kebele were also part of the targeted population since they were believed to represent the clients as they were part of the consultation processes. Thus, target population of the study was 402.

3.4.2. Sampling frame

Table 1: List of Bu’ura Boru Preprimary school projects under construction on sites.

Sub-city	Kebeles	No. of classes under construction	No. of technical workers	No. of daily laborers
Dembela	Degaga	26	17	40
	Irrecha	6	10	23
	Melka	14	13	29
Boku	Migira	6	8	20
	Boku shenen	8	10	27
	Barrecha	8	7	25
Dabe	Angatu	4	6	14
	Dabe Soloke	4	6	14
Bole	Dhaka Adi	4	6	14
	Goro	4	5	14
Lugo	Gara Lugo	6	7	16
	Bika	14	13	28
Total		104	108	264

Source: Project owner, 2022

3.4.3. Sampling technique

Sampling technique is the process or methods of selecting a suitable sample for the purpose of determining parameters or characteristics of the whole population. To carry out a study, one might bear in mind what size the sample should be, and whether the size is statistically justified and lastly, what method of sampling is to be used (Adams et al, 2017).

From the total of 264 daily laborers, 202 of them were either illiterate or had primary level education and hence intentionally excluded from the study. So, regarding the daily laborers, clients and coordinating teams, purposive sampling technique was applied and as such, only the remaining 62 daily laborers with relatively good academic background having beyond primary school level even if uncertified, one community elder and a team leader from each of the kebeles as well as 5 persons from education bureau at sub-city level and one person at municipality level, the total of which 92 were selected. Whereas, the census method was used to collect necessary data from the permanent employees of the project as their number was compatible with the predetermined sample size of 200.

3.4.4. Sample size

The total sample size of both customers and staff was determined by using the following sample size determination formula developed by (Taro Yamane's 1973) formula.

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

Where:

n = required sample size

N = the study population

e = the level of precision

1 = designate the probability of the event occurring

Therefore, using the above formula our sample size was determined as per the below:

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

$$n = \frac{402}{1 + 402(0.05)^2} = \underline{200}$$

Thus, the total number of the respondents (sample size) of the research was 200.

3.5. Data types and sources

A combination of primary and secondary data sources was used in order to get both quantitative and qualitative data help to conduct the study. To address the objectives, primary data was used. Primary data were collected from reports of the project progresses and research participants in the study area like project managers, other permanent employees, daily laborers, clients (represented by community elders) and team leaders at different levels. While secondary data were gathered from the stock of literature such as books, journals, articles, newspapers, internet sources other media outlets (Verschuren & Hans, 1999).

3.6. Data collection tools

In survey research, the required information would be obtained through the use of the self-administered questionnaires which can be done through mail; internet or web-based, and through personally paper and pen using and interviews including personal, and telephone interviews. Hence traditionally, questionnaires and personal interview were considered the most powerful tools of survey research (Dillman, 2011). However, the recent advances in computer technology; cultural changes, which require less interaction between people; improvement in the computer-related skills of people; and the advent of new methods of self-administering surveys has made self-administered questionnaires the dominant method of data collection (Dillman, 2011).

The present research utilized self-administered questionnaires to collect data from the relevant respondents. More specifically, the researcher used traditional paper and pencil mechanism to gather data due to various potential advantages of the self-administered questionnaires such as relatively inexpensive to administer, provide access to geographically dispersed samples and offer respondents the opportunity to think about their answers, to look up records or to consult with others (Fowler Jr, 2013 and William Zikmund, 2003). Another, potential advantage of self-administered questionnaires was that they could induce respondents to divulge sensitive and socially undesirable information, which they might be reluctant to reveal in face to face interviews (Fowler Jr, 2013; Zikmund & Bodur, 2003; and Babbie, 2007).

3.7. Data analysis tools

The data collected through questionnaire were analyzed using data analysis instruments. Then the data were codified and recorded in to SPSS (Statistical package for social science) according to the variables selected and the questions asked. The data analyses have been performed using

descriptive and inferential statistics for independent and dependent variables. The demographic profiles of target respondents were analyzed using descriptive analysis such as frequency, percentage, tables and bar charts, central tendencies like mean and standard deviation (SD) to measure the variability of collected data. In inferential statistical analysis, correlation and multiple linear regression tools were utilized. The use of these statistical tools and methods are described below:

Correlation (r) is used to describe the strength and direction of relationship between two variables. All variables will be measured as an interval level, Pearson correlation was used. Correlation “r” output always lies between -1.0 and +1.0 and if r is positive, there exists a positive relationship between the variables. If it is negative, the relationship between the variables is negative. While computing a correlation, the significance level shall be set at 95% confidence level with error term ϵ value of 0.05. Regression analysis is one of the important methods in which the statistical technique is used to build a mathematical model to relate dependent variable to independent variable. Multiple linear regressions, also known simply as multiple regression, is a statistical technique that uses several independent variables to predict the dependent variable. The goal of multiple linear regression is to model the linear relationship between the explanatory (independent) variables and response (dependent) variable.

The following model is proposed for the purpose of running multiple linear regressions:

$$Y=b_0+b_1X_1+b_2X_2+b_3X_3+b_4X_4+e$$

Where, Y = dependent variable, x = explanatory variables, b_0 = constant term, $b_{1...4}$ =slope coefficients for each explanatory variable, e = the model’s error term

$$\text{In this study: } PS = b_0 + b_1\text{CORF} + b_2\text{MRS} + b_3\text{CLRF} + b_4\text{ERF} + \epsilon$$

Where, PS= Project success, CORF=Contractor related factors, MRF=managerial factors, CLRF=Client related factors, ERF=Environment related factors; and ϵ =error terms.

3.8. Data quality assurance

3.8.1. Validity

Validity is that the extent, to which data accurately reflects what they are meant to reflect, that is the instrument measures what is supposed to measure. Data need not only to be reliable but also true and accurate. If a measurement is valid, it is also reliable (Joppe, 2000). The content validity of the questionnaire was assessed against the conceptual framework of the study. In this research content, the researcher's advisor and other consultants have checked it in order to increase the content validity in addition to a pilot study conducted by the researcher in advance.

3.8.2. Reliability

Reliability refers to the consistency, stability, or dependability of the data. In statistical terms, reliability is based on the idea that individual or sets of items should produce results consistent with the overall questionnaire. There are two ways of assessing internal consistency reliability; using coefficient alpha and split half reliability. Cronbach alpha measures the extent to which item responses obtained at the same time correlate highly with each other and the widely accepted social science cut off is that alpha should be at least 0.60 or higher for a set of items to be considered a scale (Field, 2006). As can be seen on Table 3.2, all the variables were even greater than 0.70 showing the variables were consistent. Moreover, the calculated coefficient alpha for this study was found to be 0.844 for all 42 variables, indicating the variables were internally consistent.

Table 3.2: Reliability Statistics

No	Variable	Cronbach's Alpha	N of Items
1	Contractor related factors	.853	7
2	Project Manager related factors	.952	16
3	Client Related factors	.818	5
4	Environment related Factors	.752	10
5	Perceived project success	.846	4
	Total	.844	42

(Source: survey, 2022)

3.9. Ethical Consideration

As the researcher must consider ethical issues before start doing the study, this study will guarantee confidentiality and secrecy to the whole participants. The researcher followed appropriate way of data collection without violating cultures and values of respondents/informants. One of these ethical considerations was that the researcher obtained permissions from several individuals and groups before collecting the data. To this effect, letter of support was issued from Harambee University. Following this, the issued permission letter was provided to the targeted offices in order to open their door for the study. Then, informants were fully informed about the research so that they would participate or have the right to withdraw from the study at any time without being penalized. The researcher also informed the respondents that the information obtained would not be disclosed to any other third person and that name and other identifying information would not be used in the study. The researcher safeguarded all information related to the participants. Their privacy, identity and confidentiality were maintained by assigning them code.

CHAPTER FOUR

RESULTS AND DISCUSSION

In this chapter, the analysis and interpretation of the data were presented and discussed dividing in to three sub-parts on the bases of basic research questions. The first sub-part of this chapter presents about demographic characteristics of respondents, the second sub-part provides descriptive statistic of the study variables whereas the third one come up with the inferential analysis of the study.

4.1. Response Rate

A total of 205 questionnaires were administered to all respondents of the study as selected from permanent employees of the projects including project managers, daily laborers, coordinating teams at both kebele and municipality levels, and community elders of the concerned kebeles on behalf of the project beneficiaries. Five of them were distributed for reservation and luckily remained uncollected while after all the fatigues, the 200 questionnaires were completely filled and returned. Besides, as all of them have been filled complete and returned, no one questionnaire had been discarded hence all were used for analysis of the study at 100% response rate. According to Mugenda and Mugenda (2003), the statistically significant response rate for analysis should be at least 50%. Thus, the response rate could be considered accurate and more than adequate for this study. The data were analyzed using the SPSS V. 23 and presented below.

4.2. Demographic Characteristics of Respondents

4.2.1. Age

The below Fig. 4.1 reveals the age information of the respondents and it shows that most of the respondents were in the age group of 18-35 which accounts about 80% of the total participants; whereas the age group of 36-45 accounts only 11% and the remaining 9% was occupied by respondents who are above 45 years old. Based on this fact, one can assert that majority of the workforce at Bu'ura Boru Pre-primary schools' buildings construction projects of Adama city were economically active population and this may seem a good opportunity for expediting the successful completion of the projects.

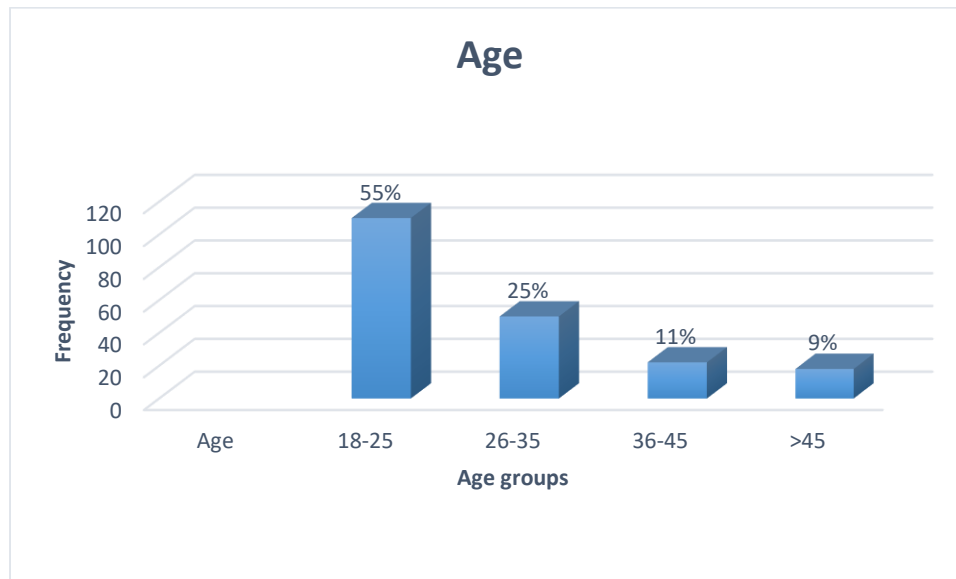


Fig. 4.1: Age of the respondents (*Source: Field survey, 2022*)

4.2.2 Gender

In the below Fig. 4.2, from a total of 200 respondents 59.5% or 119 of them are female and 40.5% or 81 of them are male respondents. This indicates the majority of the employees working in the projects were ladies. This shows that the gender composition at the work place was non-discriminatory at least on the basis of employees' biological difference which make the working environment conducive and contributing its part for the project success.

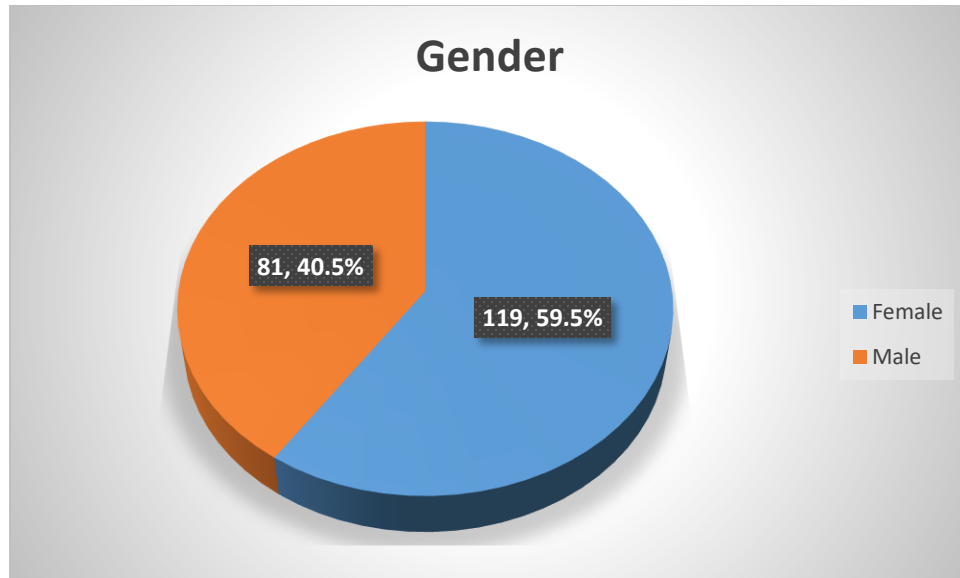


Fig. 4.2: Gender of the respondents (*Source: Field survey, 2022*)

4.2.3 Related work experience

As can be seen from Fig. 4.3, the team of projects under study were well experienced in that more than half of them have been working in the industry for 4 to 10 years and there were also these working for more than 10 years. Thus, the project managers are privileged with the prevailed experienced labor force that would serve for the projects' success, if properly utilized.

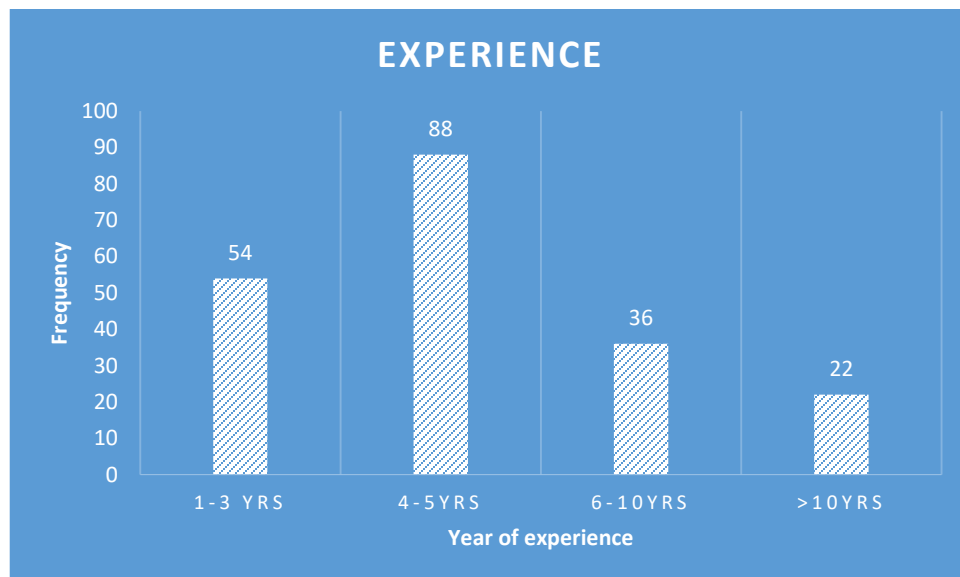


Fig. 4.1: Experience of the respondents (*Source: Field survey, 2022*)

4.2.4 Education level

As per the below Table 4.2, the academic level of majority of the respondents that accounted for 75% of the total respondents was found below diploma followed by diploma holders by 14.5%; whereas the remaining 12% and 8% were acquired by degree and masters holders, respectively. From this, one can simply understand that most of the employees working at the projects' sites of Bu'ura Boru Pre-primary schools' buildings construction projects of Adama city were not professionals rather they rely on the experiences they advanced in the industry.

Table 4.1: Education level of the respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
< diploma	151	75.5	32	75.5
Diploma	29	14.5	14.5	90
Degree	12	6	6	96
Masters	8	4	47.5	100.0
Total	200	100.0	100.0	

(Source: Field survey, 2022)

4.3. Descriptive Statistics of the Study Variables

The cumulative mean for success factors under each of the four factor groups was computed to identify the significance level of the group as perceived by the respondents. Then, computing the relative importance and the ranking of the success factors in each group was done to identify which of the factors are ranked the highest three and rarely the lowest factor in the respective group and discussions on each group of factors are provided.

This descriptive statistics was used to examine the mean and standard deviation of the responses of respondents. The mean scores of each success factor group and that of each item under these groups were calculated. The Likert scale contains 42 questions that used to ask the respondents their perception about the four factors of construction projects' success. The responses were rated on a five point Likert scale: 1-Strongly Disagree, 2-Disagree, 3-Moderate, 4- Agree and 5- Strongly Agree.

The respondents were asked to indicate the extent to which they agree with the following statements on the influence of the success factors on the projects' success. Below the results of the findings along with their discussions for each factor group and the overall ranking are presented. The mean and standard deviations generated from SPSS are illustrated below in table 4.2.

Table 4.2: Evaluation of Mean

Mean	Evaluation	Degree of Agreement
1.00 – 2.00	Very weak	Strongly Disagree
2.01 – 3.00	Weak	Disagree
3.01 – 4.00	Strong	Agree
4.01 – 5.00	Very strong	Strongly Agree

I. Descriptive Statistics of Contractor Related Factors

The contractors and subcontractors are among the main stakeholders in any construction industry who are responsible to do the activities of the actual construction works. These parties start their main duties when the project reaches the construction stage. The variables included under the contractor related factors were: contractor experience, site management, supervision and involvement of subcontracting, contractor's cash flow, effectiveness of cost control system, and speed of information flow.

The overall rating for this group was a cumulative average of (M=4.24) which is in small magnitude higher than the very strong agreement level (4) as per the five level Likert scale. The factor with the highest mean score value was that contractors make frequent supervision was strongly agreed with (m=4.44), followed by the same level of the respondents' agreement with (m=4.43) for a construct stating the contractors had a proper site management, and thirdly, the respondents had again strongly agreed with (m=4.42) that the projects' contractors were advanced in a long time experience of the same sector. The table below (Table 4.3) provides the details of the results found.

Thus, the projects under study were going good on the side of the contractors as the constructors were closely supervising and properly managing the projects' sites and they were highly experienced among others, which may highly contribute for successful completion of the projects.

Table 4.3: Descriptive Statistics of Contractor Related Factors (N=200).

Contractor Related Factors	Mean		Std. Deviation
	Statistic	Std. Error	
The contractor supervises the project frequent enough.	4.44	.060	.855
The contractor's site management way is effective.	4.43	.077	1.090
The contractor has a long time experience over such a project.	4.42	.047	.661
The contractor's cash flow is good for expediting the project.	3.95	.052	.740
The contractor has an effective cost controlling mechanism.	4.01	.115	1.632
There is effective communication flow among team members.	4.23	.053	.753
The contractor empowers others and welcome their decisions.	4.21	.061	.954
Total	4.24		0.955

(Source: Field survey, 2022)

According to the survey result on five- point scale in Table 4.3, the respondents pointed out that the contractor related factors were more or less good. As it can be implied from the table, out of the total respondents, majority of the respondents (M=4.24; and SD=0.955) said that Bu'ura Boru Pre-primary school construction projects of Adama city were free of contractors' problem. This shows that the contractors were capable enough for achieving the projects' success as far as other success factors would be fulfilled.

II. Descriptive Statics of Project Management Related Factors

The project manager is another major stakeholder in all types of projects and in particular in construction project, and thus the competence of the project manager is a major factor affecting project planning, scheduling, and communications activities of the project operations. The factors under this group include the skills and characteristics of project managers, their commitment, competence, experience, and authority.

Table 4.4: Descriptive Statics of Project Management Related Factors (N=200).

Project Manager related factors	Mean		Std. Devn
	Statis tic	Std. Error	Statistic
The PM team agreed and accepted the contractor's authority.	4.28	.073	1.033
The PM possessed adequate technical/conceptual skills.	3.97	.061	.859
The PM possessed adequate interpersonal (communication) skills.	3.91	.082	1.153
The project leader possessed adequate leadership skills.	4.33	.062	.875
The PM maintained a high profile (is visible and involved).	4.21	.074	1.048
The PM motivates team members and maintain a team spirit.	3.85	.084	1.191
The project manager has a negotiation skill.	3.98	.075	1.058
The project manager has skills of conflict resolution	3.85	.105	1.489
The project manager has a team building skill	3.90	.096	1.358
The project manager is endowed with daily decision making	4.37	.100	1.409
The project leader possessed adequate technical/conceptual skills.	4.09	.066	.928
The project manager is committed to meet quality, cost & time.	4.80	.068	.960
The project manager has a long time experience.	3.62	.073	1.033
The project manager evaluates the progress in terms of plan.	4.08	.052	.732
The project manager is adaptable to changes in the project plan.	3.82	.080	1.125
The project manager is competent enough.	3.79	.069	.971
Aggregate (M)	3.91		1.134

(Source: Field survey, 2022)

The overall rating for this group was aggregate mean of (M=3.91; and SD=1.134) which was in small magnitude lower than the very strongly agreed level (4) according to the five level Likert

scale. Going through the individual factors, the first ranking from among the factors was that the project managers had commitment to meet quality, cost, & time' was strongly agreed with $m=4.80$, followed by the fact that the project managers had authority to take day-to-day decisions which was also strongly agreed with $m=4.37$, and thirdly, the leadership skills of the project manager was believed adequate with $m=4.33$ as the table 4.4 above provides the details of the results found.

Generally, according to the above Table 4.4, Management system of the projects was measured by sixteen items for which, the mean score values were calculated and almost all items have high standard deviation and majority of the respondents have strongly agreed that there was an effective management system on the side of the project managers of Bu'ura Boru Pre-primary schools of Adama city construction projects.

III. Descriptive statics of Client Related Factors

The owner of the project is one among the different parties that participate in the schools' buildings construction projects. Usually this party is the source of the budget for a project. As thus, it has an important role in determining the success of projects. The table below (Table 4.5) summarizes the response results of the factors that are identified as owner related factors. The cumulative mean of the responses was ($M=3.64$; and $SD=1.131$) which is moderate agreement level according to the five scale Likert scale. Regarding the specific constructs of factor related to clients, the prime factor with the highest mean value with ($m=4.64$) was that it was strongly agreed the clients had precisely defined the projects' scope and objectives; followed by the respondents' moderate agreement that the clients have a high emphasis on the quickness of the construction projects with ($m=3.58$) and thirdly, the clients are kept informed of the projects' progress was agreed with ($m=3.29$); whereas, it was understood that the clients were not releasing the necessary funds on due time as this was disagreed with ($m=2.98$).

Table 4.5: Descriptive statics of Client Related Factors (N = 200).

Client Related Factors	Mean	Std. Devn	
	Statistic	Std. Error	
The clients quickly release necessary funds as they are the source.	2.98	.069	.979
The clients were kept informed of the project's progress.	3.29	.083	1.180
Value of the projects was discussed with the projects' users.	3.04	.082	1.155
The clients have emphasis on quickness of the constructions.	3.58	.087	1.225
The clients have precisely defined the projects' scope & objectives.	4.64	.081	1.139
Aggregate (M)	3.64		1.131

(Source: Field survey, 2022)

IV. Descriptive Statics of Environment Related Factors

In this study, environmental factors related to external influences on the construction projects' process, and these include the social, political, technical, etc. systems in the surrounding environment of the projects. The attributes used to measure this factor include economic environment, social environment, political environment, physical environment, technology availability, human skill availability, weather conditions, and level of fraudulent practices.

The overall rating for this group factors was cumulatively (M=3.80; and SD=1.010), which was in small magnitude less than the very significant level (4) according to the five level Likert scale. The first statement with the highest mean score from among the factors was found to be the existence of commitment of all team members to the projects' success with (m=4.33); followed by the availability of sufficient human skill needed for successful completion of the projects with (m=4.20); and thirdly, existence of the fraudulent practices, corruption, favoritism and lack of ethics with (m=3.94) despite they were supervised by top managers of the project including the contractors. Contrarily, the existence of stable economic trend was the most doubted construct of an environment related factors group as it was dis agreed with (m=2.80).

Table 4.6: Descriptive Statics of Environment Related Factors (N = 200)

Environment Related Factors	Mean	Std. Devn
	Statistic	Std. Error
There was sufficient human power to complete the project.	4.20	.080
The project is going through expected economic fluctuation.	2.80	.052
Team members work with motivation in a team spirit.	3.77	.066
All members of the team are committed towards the project.	4.33	.083
The project is valued by the surrounding community.	3.90	.079
A stable political environment exist around the project site.	3.80	.074
There is a practices of corruption, favoritism, lack of ethics.	3.83	.076
The project has got necessary administrative approval.	3.94	.075
The prevailing weather condition is suitable for the project.	3.75	.065
The project is enriched with necessary technologies.	3.65	.061
Aggregate (M)	3.80	1.010

(Source: Field survey, 2022)

V. Descriptive Statics of Perceived Project success

According to Zewdu & Aregaw (2015), the degree of success of any project is measured with reference to triple constraints of the projects that consists their time, cost and scope (quantity) including the ability of the projects to deliver value to customers or users on completion. As per the below table 4.7, two of the four items in the projects' success were strongly agreed whereas one of the remaining two items was moderately agreed and the other weakly agreed by the respondents. As such, the highest mean value represents that the buildings under construction will be capable of serving the intended purpose in terms of their quality with (m=4.62); followed by the fact that they will meet all specifications and the projects' scope described by the clients with (m=4.01). However, the possibility to complete the projects within the allocated budget and

established time frame was relatively lesser as they were being challenged by the rare availability of construction materials and their highly inflated cost at stake with (m=2.58) and (m=3.50), respectively.

Generally, the possibility to successfully completing the underway Bu'ura Boru Pre-primary Schools buildings construction projects of Adama city is not fully optimistic as it lies within the middle range of the respondents' agreement with an aggregate mean of (M=3.68).

Table 4.7: Descriptive Statics of Perceived Project Success (N=200)

Project success	Mean		Std. Devn
	Statistic	Std. Error	Statistic
The buildings will be completed on the scheduled time.	3.50	.064	0.912
The buildings meet all specifications including quantity.	4.01	.078	1.100
The projects will be completed on allocated budget.	2.58	.085	1.196
The buildings will serve the intended purpose and their quality will satisfy the clients' need.	4.62	.098	1.384
Aggregate (M)	3.68		1.154

(Source: Field survey, 2022)

4.4. Inferential Analyses of Variables

4.4.1. Correlation Analysis

To inspect the relationship between the dependent and independent variables and to examine the direction and strength of the relationship between them the researcher employed correlational statistic measurement. The researcher used Spearman's rho correlation coefficient through the use of SPSS statistical package. According to Richard (1990), if the correlation coefficient $r \leq 0.3$, low, $0.3 < r < 0.7$, moderate; and $r \geq 0.7$, strong.

The researcher has denoted the study variables as follows: Project success - PS, Contractor Related Factors - CORF, Project Manager Related Factors – MRF, Client Related Factors - CLRF and Environment Related Factors – ERF.

Table 4.8: Correlation analysis

Correlations		PS	CORF	MRF	CLRF	ERF	
Spearman's rho	PS	Correlation Coefficient	1.000	.805**	.640**	.635**	.708**
		Sig. (1-tailed)	.	.184	.000	.000	.000
	CORF	Correlation Coefficient	.805**	1.000	.161*	-.092	.434**
		Sig. (1-tailed)	.184	.	.011	.097	.000
	MRF	Correlation Coefficient	.640**	.161*	1.000	.377**	.475**
		Sig. (1-tailed)	.000	.011	.	.000	.000
	CLRF	Correlation Coefficient	.635**	.092	.377**	1.000	.638**
		Sig. (1-tailed)	.000	.097	.000	.	.000
	ERF	Correlation Coefficient	.708**	.434**	.475**	.638**	1.000
		Sig. (1-tailed)	.000	.000	.000	.000	.

** . Correlation is significant at the 0.01 level (1-tailed).

* . Correlation is significant at the 0.05 level (1-tailed).

(Source: Field survey, 2022)

As it can be revealed in the above table 4.8, a Spearman's rho correlation coefficient was computed to assess the relationship between dependent variable and determinant factors that affect the dependent variable. As it can be shown from it, there was a significant association (which is $p < 0.01$) between the dependent and independent variables.

The outcome represents that the contractor related factors and project success were strongly correlated, $r(200) = .80$, $p < .01$). This implies that when the better the contractor related factors are fulfilled, the more the construction project under study would be completed successfully.

The computed correlation coefficient between project management related factors and project success ensures that the relationship between the two variables was positive and significant is $r(200) = .64$, $p < .01$). This indicates that the management related factors were related to successful

completion of the projects. If projects are managed properly and effectively, they would have a high probability of being completed successfully.

The relationship between client related factors and project success was positive, moderate and statistically significant $r(200) = .635, p < .01$). This implies that when the client related factors of the project enhances, the project would be completed successfully. But, it implies that fulfilling client related factors alone doesn't bring a project's success unless supported by other factors.

The environment related factors and project's success were also strongly correlated which is $r(200) = .708, p < .01$). This ensures that the relationship between the two variables was positive, strong and statistically significant. This indicated that if the environment related factors become good, so the projects would be successfully completed.

Generally, from the correlation analysis it is observed that all the independent variables (contractor related factors, management related factors, client related factors and environment related factors) are significantly associated with the dependent variable- project success. All the independent variables have a positive relationship with project success. And except client related factors that has moderate relationship, contractor related factors, management related factors and environment related factors have a strong relationship with the dependent variable-project's success.

The correlations between all the determining factors and project success were significant on a significance level of $p < 0.05$. This means that there are only 5 in 100 chances that one of these correlations appears by coincidence (Pallant, 2005).

The next paragraphs deals with testing the hypotheses proposed in the first chapter of this study. To this end, hypotheses one through four were tested using linear regression as expressed in chapter three after making sure the model fulfills all the assumptions related with linear regression.

4.4.2. Regression Analysis

Regression analysis is a reliable method of classifying which predictor variable has an impact on the outcome variable. It also allows determining which factors matter most, which factors can be ignored, and how these factors influence each other. In this study, there were more than one predictor variables and hence a standard linear regression analysis was conducted to examine the hypotheses H_1, H_2, H_3 and H_4 as well as to assess the ability of the predictor variables/constructs in predicting the dependent variable- project's success.

Test of Assumptions

Before applying the regression analysis, some tests were conducted to make sure that the assumptions related to the analysis have been met and to check the appropriateness of the data as follows:

i) Linearity Test

Linearity means that the predictor variables in the regression have a straight-line relationship with the outcome variable. Linearity test aims to determine the relationship between independent variables and the dependent variable is linear or not. One of the assumptions of multiple regression models is that there should be a linear relationship between the predictor variables and the outcome variable. To determine whether the relationship between the dependent variable (project's success) and the independent variables (contractor related factors, management related factors, client related factors and environment related factors) is linear: plots of the regression residuals through SPSS software had been used.

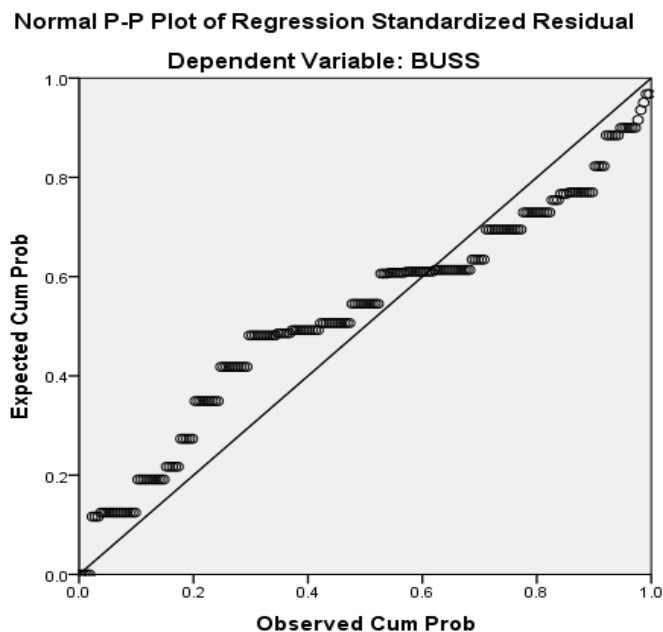


Fig. 4.5: Normal Point Plot of Standardized Residual

(Source: Field survey, 2022)

As it can be seen from the figure 4.3, the little circles follow the normality line and as well we can assume normality as long as there are no drastic deviations. Therefore, this result suggests that the relationship we are trying to predict is linear.

ii) Multi-co-linearity Test

Table 4.9: Correlation matrix between explanatory variables

CORRELATIONS		CORF	MRF	CLRF	ERF
CORF	Pearson Correlation	1	.082	-.210**	-.430**
	Sig. (1-tailed)		.123	.001	.000
	Sum of Squares and Cross-products	13.366	1.815	6.878	21.906
	Covariance	.067	.009	.035	.110
MRF	Pearson Correlation	.082	1	.285**	.261**
	Sig. (1-tailed)	.123		.000	.000
	Sum of Squares and Cross-products	1.815	36.445	15.410	21.982
	Covariance	.009	.183	.077	.110
CLRF	Pearson Correlation	.210**	.285**	1	.743**
	Sig. (1-tailed)	.001	.000		.000
	Sum of Squares and Cross-products	6.878	15.410	80.153	92.770
	Covariance	.035	.077	.403	.466
ERF	Pearson Correlation	.430**	.261**	.743**	1
	Sig. (1-tailed)	.000	.000	.000	
	Sum of Squares and Cross-products	21.906	21.982	92.770	194.310
	Covariance	.110	.110	.466	.976

** . Correlation is significant at the 0.01 level (1-tailed).

b. List wise N=200

(Source: Field survey, 2022)

Multi-co-linearity refers to when the predictor variables are highly correlated with each other. The primary concern resulting from multi-co-linearity is that as the degree of co-linearity increases, the regression model estimates of the coefficients become unstable and the standard errors for the coefficients become widely inflated. In the multi-co-linearity analysis, our first step is to explore the correlation matrix. While reviewing these results, it must be checked to see that if any of the variables included has a high correlation about 0.8 or higher with any other variable. As Hair (2006) argued that correlation coefficient below 0.8 may not cause serious multi-co-linearity problem.

iii) Normality Test

One of the assumptions for multiple regression analysis to be reliable is that the data must be approximately normally distributed. The normal distribution peaks in the middle is symmetrical about the mean.

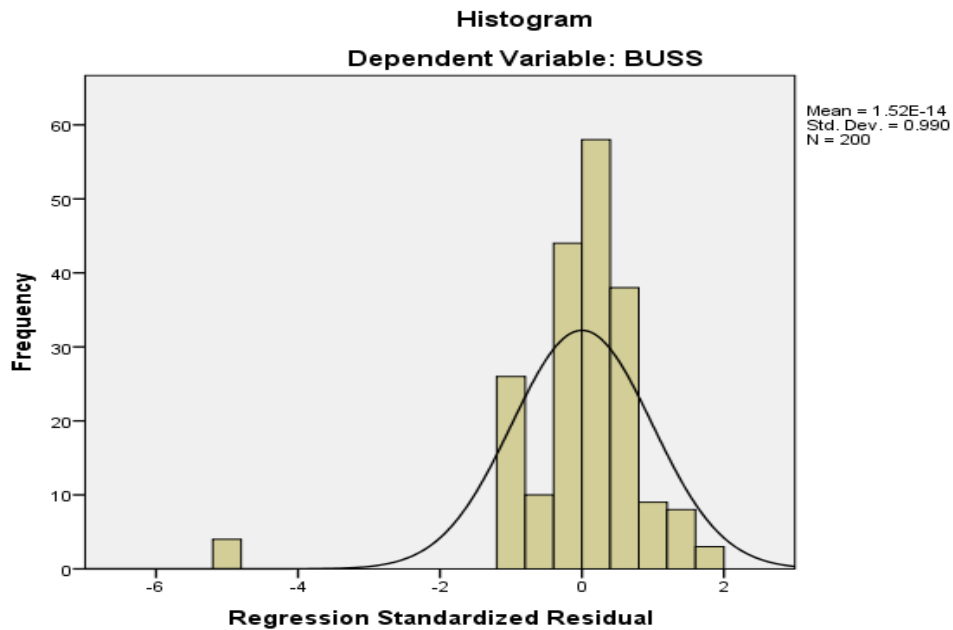


Fig. 4.6: Normality test

(Source: Field survey, 2022)

Frequency Distribution of Standardized Residual

As it can be seen in the figure 4.3, the histogram is bell shaped and many of the residuals are fairly close to the curve. This implies that the residuals are normally distributed. Thus, no violations of the assumption as normally distributed.

All the above three tests confirmed that the assumptions of the linear regression analysis was not violated. So, the researcher applied multiple regression analysis in the study.

Interpreting the R square

Table 4.10: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.849 ^a	.720	.715	.42787	.720	125.515	4	195	.000

a. Predictors: (Constant), CORF, MRF, CLRF, ERF

b. Dependent Variable: PS

(Source: Field survey, 2022)

Table 4.10 presented the regression model in which the R square is found. The regression result shows that 71.5 % of the variance in the project success, in other words, 72.0 % of project's success depends on the four independent variables (CORF, MRF, CLRF and ERF).

Table 4.11: ANOVA

ANOVA						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	91.914	4	22.978	125.515	.000 ^b
	Residual	35.699	195	.183		
	Total	127.613	199			

a. Dependent Variable: PS

b. Predictors: (Constant), CORF, MRF, CLRF, ERF

(Source: Field survey, 2022)

From the table, the sig. value column indicates that the regression model has a less than 0.01 likelihood (probability) of giving a wrong prediction. Hence the regression model has a confidence level of 99% which confirms that our regression model was appropriate and the results are reliable. This means that the explanatory variables: (contractor related factors, management related factors, client related factors and environment related factors) have great contribution to improve the projects' success.

Table 4.12: Regression analysis of overall factor groups Coefficients

		Coefficients								
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	.057	.440		.130	.897	-.811	.926		
	CORF	.820	.135	.265	6.091	.000	.554	1.085	.756	1.323
	MRF	.491	.076	.262	6.481	.000	.640	.342	.876	1.142
	CLRF	.168	.073	.133	2.295	.023	.024	.312	.428	2.337
	ERF	.704	.051	.869	13.767	.000	.603	.805	.360	2.777

a. Dependent Variable: PS

(Source: Field survey, 2022)

The regression results indicated the effect of the four factor groups on the successful completion of the projects. As portrayed from the above table in the β coefficient column, all the explanatory variables have a positive relationship with the projects' success. The standard beta coefficients (β) gave a measure of the contribution of each variable to the dependent variable. Contractor related factor significantly predicted project success scores, $\beta = -.26$, $t(200) = 6.09$, $p < .05$. On the other hand, when the level of the contractor related factor increases by 1, the level of project success

also increases by 0.820. Project management related factor also significantly predicted project success scores, $\beta = -.26$, $t(200) = 6.48$, $p < .05$. On the other hand, when the level of management related factor increases by 1, the level of project success also increases by 0.491. Similarly, client related factors significantly predicted project success scores, $\beta = -.13$, $t(200) = 2.29$, $p < .05$. On the other hand, when the level of client related factors increases by 1, the level of project success also increases by 0.168; and finally, environment related factors significantly predicted project success scores, $\beta = -.86$, $t(200) = 13.76$, $p < .05$; On the other hand, when the level of environment related factors increases by 1, the level of project success also increases by 0.704.

In the study, it has been observed that the four group factors significantly influence project success. This means that these four determinant factors have great contribution to improve successful project completion. So, from this analysis, it can be concluded that all hypotheses (H_1 , H_2 , and H_3 & H_4) were supported by the results.

Based on the standardized beta, contractor related factor has the highest value ($\beta = .820$) implies that it has the highest impact on project success. Similarly, environment related factors ($\beta = .704$), management related factors ($\beta = .491$) and client related factors ($\beta = .168$) are the second, third and fourth variables according to the level of their influence on the projects' success.

The conclusion are consistent with other research findings. For example, there is a positive and significant relationship between contractor related factors and projects' success in the Bu'ura Boru Pre-primary schools' buildings construction projects of Adama city and the result is supported by Frefer (2018), hence the hypothesis (H_1) is accepted. The hypothesis (H_2) was also accepted stating management related factors also have a positive impact on the projects' success and the result supported the finding of Srimathi (2017). Besides, client related factors have a positive impact on the projects' success as the bottom source for the emergence of any project is the client itself, which was broadly used for this study by including both owners and users of the project and the result confirmed the finding of Kylindri (2012). Therefore, hypothesis (H_3) was accepted. Finally, (H_4) was accepted as well since the study result stated that the environment related factors have the second most effect on project success and this is in favor of the study conducted by Cooke (2002).

4.5.3 Hypothesis Testing and Interpretation of Results

Table 4.13: Summary of the overall outcome of the Research Hypotheses

Hypothesis	Confidence interval 0.05	Result	Analysis techniques
H1: There is a significant positive relationship between contractor related factors and project success.	.000	Accepted	Linear regression
H2: There is a positive relationship between project management and project success.	.000	Accepted	Linear regression
H3: There is a positive relationship between client consultation and project success.	.023	Accepted	Linear regression
H4: There is a significant positive relationship between staff competence and project success.	.000	Accepted	Linear regression

(Source: Field survey, 2022)

Based on the tables and justifications provided in the preceding paragraphs, project management has a positive relationship with the dependent variable project success. The value of the coefficient of contractor related factors was also found to be 0.820 and its significant level also 0.000 which is less than 0.05. This result tells us the value of b is positive and shows that contractor related factors throughout the projects have an influence on successful completion of the projects. Also this result supported the study of Mamaru (2017).

The second hypothesis testing provided that the coefficient of project management related factors was computed to be 0.491 which indicates that keeping other factors constant, a unit change in management related factors would cause 49.1% increase in the probability of completing the projects successfully. And the relationship of the management related factors (whose t-statistic value was found to be 6.091 at p-value of 0.000) with that of the dependent variable project success was found to be positive and statistically significant, which leads to the acceptance of H₂. This result was also supported by Mamaru (2017).

As shown in the table 4.13, the coefficient of client related factors was computed to be 0.168, which means that a unit change in client related factors has an effect to increase project success by 16.8% assuming all other variables are constant. The calculated t-statistic value of this independent

variable is 2.295 at p-value of 0.023, which proves a positive and significant relationship with the dependent variable, project success. Also this result is in line with Sankar & Bhattacharya (2011).

Statistical significance

In general, values of the regression coefficient b represents the change in the outcome, resulting from a unit change in the predictor and if a predictor is having a significant impact on our ability to predict the outcome, then, this b should be different from 0 (and big, relative to its standard error). And also the t-test tells us whether the b -value is different from 0. If this observed significance is less than 0.05, then scientists agree that the result reflects a genuine effect (Field, 2009). For all the independent variables of this study, the probabilities are less than 0.05 and so we can say that the probability of these t-values or larger occurring, if the values of b in the population were 0, is less than 0.05. Therefore, the b s are different from 0 and we can conclude that the factors of project success under this study make a significant contribution ($p < 0.05$) in predicting the successful completion of the Bu'ura Boru Pre-primary schools' buildings construction projects of Adama city.

The regression model of this study can now be properly written in an equation form as:

$$Y (\text{PS}) = (0.57) \text{ Constant} + (0.820) \text{ CORF} + (0.491) \text{ MRF} + (0.168) \text{ CLRF} + (0.704) \text{ ERF} + 0.05(\epsilon)$$

Where, Y = Projects Success.

a = y intercept

b_1 = the regression coefficient or beta weight of Contractor Related Factors

x_1 = Contractor Related Factors

b_2 = the regression coefficient of Management Related Factors

x_2 = Management Related Factors

b_3 = the regression coefficient of Client Related Factors

x_3 = Client Related Factors

b_4 = the regression coefficient of Environment Related Factors

x_4 = Environment Related Factors; and ϵ = error term.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter deals with the summary of major findings of the study, conclusions drawn and the forwarded recommendations, which may help to alleviate problems related to the Bu'ura Boru Pre-primary schools' buildings construction projects of Adama city and accelerate its completion.

5.1. Summary of major findings

After reviewing a number of literatures including Frefer et al (2018), Srimathi et al (2017), Kylindri et al (2012), and Cooke (2002), four success criteria (cost, time, quality and stakeholders' satisfaction) were identified as measures for success of construction projects management.

And from two selected studies, Els M (2012) and Mamaru et al (2017), the model for the study with a total of 42 success factors compiled in four groups (Contractor Related, Management Related, Client Related, and Environment Related Success Factors) were identified as factors that facilitate the success of the construction projects management.

Primary data on these success factors were collected from contractors, permanent employees, daily workers, clients and community elders. The data collection tool used was a questionnaire having five Likert scales (1-Strongly Disagree, 2-Disagree, 3-Moderate, 4- Agree and 5- Strongly Agree). After validity and reliability tests were conducted on small number of respondents. The questionnaires were distributed to 200 respondents. All questionnaires were returned complete and the responses were analyzed using SPSS software. Based on the content of the questionnaires, the analysis was divided into three categories: demographic characteristics (age, gender, experience, and education level), descriptive statics of the factors groups and finally, inferential analysis was done through correlation and regression and hypotheses were tested.

For each success factors group a cumulative mean was calculated to identify the respondents' agreement level regarding the practical existence of each success factors group according to the Likert scale. Then by identifying the relative availability of the success factors, the description of the top three constructs from each group was made to identify which of the factors are mostly there in the respective group and discussions on each group of factors were provided. As such:

- The overall rating for the Contractor Related Success Factors was a cumulative mean of 4.24 which shows the strong agreement of the respondents about the contractors' potential to successfully deliver the schools' construction projects through their frequent and close supervision, effective site management using the accumulated experience at large.
- The overall rating for the Project Management Related Success Factors was marked by the slightly below strong agreement of the respondents with a cumulative mean of 3.91 according to the five level Likert scale. This was mostly the result of the fact that the project managers had commitment to meet quality, cost, & time, they had authority to take day-to-day decisions concerning the projects and their effective leadership skills.
- The overall rating for the Clients Related Success Factors disclosed the relatively low agreement of the respondents with an aggregate mean of 3.64. This was reflected by their strong agreement that the clients had clearly described the projects' purpose and scope; followed by the respondents' moderate agreement that the clients have a high emphasis on the quickness of the construction projects; and the clients are kept informed of the projects' progress; whereas, it was understood that the clients were not releasing the necessary funds on due time as this was in a small magnitude less than even a moderate level of agreement.
- The overall rating for Environment Related Success Factors was a cumulative average of 3.80 which is in small magnitude less than the strong agreement level of the respondents as per the five level Likert scale. The most agreed construct from among the factors was found to be the existence of commitment of all parties to the project followed by the extensive availability of necessary human resources and existence of fraudulent practices, corruption, favoritism and lack of ethics. Besides, the absence of stable economic trend in general, and scarcity of construction materials as well as unexpected inflation on them in particular was tend to be the most problem observed in this factors' group.
- From the correlation analysis, it was observed that all the independent variables (contractor, environment, client and management related factors, sequentially) are significantly and positively associated with the dependent variable-project success.
- From the regression analysis, it was understood that 72% of the projects' success are determined by the four independent variables under study (CORF, MRF, CLRF and ERF).

5.2. Conclusion

The purpose of this study was to investigate the factors determining successful completion of the Adama city's Bu'ura Boru Pre-primary schools' buildings construction projects under in 12 kebeles. It was in this sense that the data were gathered, analyzed and summarized above. Here is the shortest form of the summarized findings as concluded and presented below.

- ✚ More or less, there were a good practice of all contractor, management, client and environment related factors, which might play roles for the success of the projects.
- ✚ However, it was identified that there was a problem of supplying the budgeted funds on time by the clients, as they were basically subscribed from the local communities.
- ✚ The problem of getting materials required for the constructions was also another problem as a result of country wide supply shortage. As a result of this, the occurrence of unexpected inflation rate was also become another headache to be encountered.
- ✚ The correlation test showed that there were strong positive relationships between all the four success factor groups and the independent variable-project success.
- ✚ The regression analysis indicated that environment related factor has the second highest determining effect on the project success next to contractor related factors.
- ✚ On the other hand, client related factors have relatively moderate impact on project success in relation to that of management related factors.

5.3 Recommendations

On the basis of the study findings, the following recommendations were suggested as vital actions to be considered by all stakeholders in order to fix the problems presumed to hinder the successful completion of the Adama city's Bu'ura Boru Pre-primary schools' buildings construction projects.

- The findings disclosed that there was a practice all factor groups. However, it needs an integrated and joint effort of all the projects' stakeholders in order to overcome the observed impediments and achieve the wanted success. This can be achieved through:
- Working on different fund raising activities that motivates the concerned local community particularly by focusing on creating social awareness about the very purpose of the projects and the benefit they are going to reap from them at their completion. Besides, searching for other sources of funds is better as the users were presumed to be the low income earners.

- The concerned government bodies are required to be informed to work on the sufficient availability of the construction materials. This can be achieved particularly in two ways:
- In short term, the problem of scarcity on this regard will be reduced by prioritizing the underway public construction projects according to their emergency nature; and regulating the market to avoid unfair competition among traders as well as unnecessary hoarding.
- In long term, the government is recommended to give incentives like duty free import for machineries required for the domestic production of these materials as this will motivate investors and then increase its productivity which finally will stabilize the market.

5.4. Implication for future research

So far, the finding of this study identified some determining factors of construction projects and mainly major problems hindering the successful completion of Adama city's Bu'ura Boru Pre-primary schools' buildings construction projects. However, there might be other specific factors and problems not addressed through this research as the used explanatory variables determine only 72% of the success factors. Thus, to identify extra factors of project success and their impact, it is advisable if fellow researchers would conduct further an in-depth and inclusive study on the issue.

References

- Abdul-Rahman, H. 2016. Delay mitigation in the Malaysian construction industry. *Journal of construction engineering and management*, 132 (2), 125–133.
- Amstrong, S.J. and Overton, T., 2013. Estimating non-response bias in mail survey. *Journal of marketing research*, 14, 396–402.
- Avots, I., 2017. Why does project management fail? *California management review*, 12, 77–82.
- Babbie, E. (2007). *The practice of social research*. Belmont, CA: Thomson Learning. Inc.
- Babu, S. S., & Sudhakar. (2015). Critical Success Factors Influencing Performance of Construction Projects. *International Journal of Innovative Research in Science, Engineering and Technology*, 4 (5), 3285-3292.
- Baker, B.N., Murphy, D.C., and Fisher, D., (2015). *Factors Affecting Project Success*. In: D.J. Cleland and W.R. King, eds. *Project management handbook*. New York: Van Nostrand-Reinhold, 902–919.
- Belassi, W. and Tukel, O.I., 1996. A new framework for determining critical success/failure factors in projects. *International journal of project management*, 14 (3), 141–151.
- Belout, A. and Gauvreau, C., 2014. Factors influencing project success: the impact of HRM. *International journal of project management*, 22 (1), 1–11.
- Bollen, K.A., (1989). *Structural equations with latent variables*. New York: John Wiley and Sons.
- Cheng, M.I., Dainty, A., and Moore, D., 2007. Implementing a new performance management system within a project-based organization. *International journal of productivity and performance management*, 56 (1), 60–75.
- Churchill, N.C., (1991). *Market research – methodological foundation*. Chicago, IL: Dryden Press.
- Cooke-Davies, T., (2012). The real success factors on project. *International journal of project management*, 20 (3), 185–190.
- Cooper, R.G. and Kleinschmidt, E.J., (2007). Success factors in product innovation. *Industrial marketing management*, 16 (3), 215–224.
- Didenko, I. (2018). *Success Factors in Construction*. Ukraine: Umeå School of Business.
- Dillman, D. A. (2011). *Mail and Internet surveys: The tailored design method–2007 Update with new Internet, visual, and mixed-mode guide*. John Wiley & Sons.

- Dvir, D., Lipovetsky, S., Shenhar, A., and Tishler, A., (1998). In search of project classification: a non-universal approach to project success factors. *Research policy*, 27, 915–935.
- Dvir, D., Raz, T., and Shenhar, A., (2003). An empirical analysis of the relationship between project planning and project success. *International journal of project management*, 21 (2) 89–95.
- Fowler Jr, F. J. (2013). Measuring project success. *Project management journal*, 13 (1), 9–16.
- Garbharran, H., & Govender, J. (n.d). Critical success factors influencing project. Review articles. Acta Structilia, Structilia.
- Hair, J.F., Anderson, R.E., Tatham, R.L., and Black, W.C., (2016). *Multivariate analysis with readings*. Englewood Cliff, NJ: Prentice-Hall.
- Hansson, J., Backlund, F., and Lycke, L., (2013). Managing commitment: increasing the odds for successful implementation of TQM, TPM or RCM. *International of quality and reliability management*, 20 (9), 993–1008.
- Hawk, D., (2006). Conditions of success: a platform for international construction development. *Construction management and economies*, 24 (7), 735–742.
- Hughes, M.W., (2012). Why projects fail: the effects of ignoring the obvious. *Industrial engineering*, 18, 14–18.
- Hyvari, I., (2005). Project management effectiveness in project-oriented business organizations. *International journal of project management*, 23, 101–112.
- Kerlinger, F. N. (1986). *Foundations of behavioral research, International Ed. New York, NY: Holt, Rinehart and Winston. Inc.*
- Inayat, A., Hani Melhem, F., & Asad Esmaily, M. (2015). Critical Success Factors in an Agency Construction. *ASCE*, 1-7.
- Jacquemin and Bainbridge, (2005). *Perceptions of development partners and evidence on AID effectiveness*. London: DFID.
- Jin, X. and Ling, F., (2006). Key relationship determinants of project performance in China. *Building and environment*, 41 (7), 915–925.
- Karlsen, J., et al., (2006). An empirical study of critical success factors in IT projects. *International journal of management and enterprise development*, 3 (4), 292–311.
- Kerzner, H., (1998). *In search of excellence in project management*. New York: Van Nostrand Reinhold.

- Mahmood, S., & Shahrukh, P. S. (2012). Exploring the Critical Success Factors of Construction Companies of Developing Countries. *Research journals of social science and management*, 8- 16.
- W Creswell, J. (2016). *Research Design.: Qualitative, Quantitative, Mixed Methods Approaches*. University Of Nebraska-Lincoln.
- Yamane, T. (1967). *Statistics: An introductory analysis* (No. HA29 Y2 1967).
- Zewdu, Z. T., & Aregaw, G. T. (2015). Causes of Contractor Cost Overrun in Construction. *International Journal of Business and Economics Research*, 4, 180-191.
- Zikmund, W. G., & Bodur, H. O. (2003). Exploratory research and qualitative analysis. *Business Research Methods*, Thomson South-Western, Mason, OH.

APPENDIX

Questionnaire

HARAMBEE UNIVERSITY
SCHOOL OF POSTGRADUATE STUDIES
MPM PROGRAM

Dear respondents

I am a student of Project Management in Harambee University and I am going to write MA degree thesis on the topic “*Factors determining construction projects’ success: A case of Bu’ura Boru primary schools of Adama city*”. The following questionnaire is constructed to gather data for the study. Your participation in the study by answering the questionnaires is very important. The information is purely to be used for academic purposes. Therefore, you are kindly requested to give genuine response for the questions.

Thank you very much for your kindly response for the request!

Part One: Background Information

1. Your age range: 18 – 30 year 31 - 45 year Above 45 year
2. Education level: Illiterate & Primary Education Certificate holder Diploma holder
Degree holder Masters Holder Above
3. Work experience: 1-3 years 4-5 years 6-10 years Above 10 years
4. Stratum: Fulltime technical worker Daily laborer

Part Two: Detailed information

Instructions: In each of the following statements, choose the best answer and put a (X) mark in one of the boxes in front of each questionnaire item. Please kindly keep in mind that 5 = strongly agree, 4 = agree, 3 = moderate, and 2 = disagree, 1 = strongly disagree.

<i>I</i>	<i>Contractor Related Factors</i>	1	2	3	4	5
1	The contractor supervises the project frequent enough.					
2	The contractor's site management way is effective.					
3	The contractor has a long time experience over such a project.					
4	The contractor's cash flow is good for expediting the project.					
5	The contractor has an effective cost controlling mechanism.					
6	There is effective communication flow among team members.					
7	The contractor empowers others and welcome their decisions.					
<i>II</i>	<i>Management Related Factors</i>					
1	The PM team agreed and accepted the contractor's authority.					
2	The PM possessed adequate technical/conceptual skills.					
3	The PM possessed adequate interpersonal (communication) skills.					
4	The project leader possessed adequate leadership skills.					
5	The PM maintained a high profile (is visible and involved).					
6	The PM motivates team members and maintain a team spirit.					
7	The project manager has a negotiation skill.					
8	The project manager has skills of conflict resolution					
9	The project manager has a team building skill					
10	The project manager is endowed with daily decision making					
11	The project leader possessed adequate technical/conceptual skills.					
12	The project manager is committed to meet quality, cost & time.					
13	The project manager has a long time experience.					
14	The project manager evaluates the progress in terms of plan.					
15	The project manager is adaptable to changes in the project plan.					
16	The project manager is competent enough.					

III	<i>Client Related Factors</i>					
1	The clients quickly release necessary funds as they are the source.					
2	The clients were kept informed of the project's progress.					
3	Value of the projects was discussed with the projects' users.					
4	The clients have emphasis on quickness of the constructions.					
5	The clients have precisely defined the projects' scope & objectives.					
III	<i>Environment Related Factors</i>					
1	There was sufficient human power to complete the project.					
2	The project is going through expected economic fluctuation.					
3	Team members work with motivation in a team spirit.					
4	All members of the team are committed towards the project.					
5	The project is valued by the surrounding community.					
6	A stable political environment exist around the project site.					
7	There is a practices of corruption, favoritism, lack of ethics.					
8	The project has got necessary administrative approval.					
9	The prevailing weather condition is suitable for the project.					
10	The project is enriched with necessary technologies.					
V	<i>Perceived Project Success</i>					
1	The buildings will be completed on the scheduled time.					
2	The buildings meet all specifications including quantity.					
3	The projects will be completed on allocated budget.					
4	The buildings will serve the intended purpose and their quality will satisfy the clients' need.					

Thanks for your cooperation once again!