SAINT MARY'S UNIVERSITY

SCHOOL OF GRADUATE STUDIES

THE EFFECTS OF QUALITY MANAGEMENT ON PROJECT PERFORMANCE: THE CASE OF SELECTED BUILDING CONSTRUCTION COMPANIES IN ADDIS ABABA

BY

TSION TAKELE HAILE

JULY 2023

ADDIS ABABA, ETHIOPIA

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APPROVAL SHEET

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DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of MARU S. (Ph.D.). All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

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ENDORSEMENT

This thesis has been submitted to Saint Mary's University, School of Graduate Studies with my approval as a university advisor.

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Signature

July 2023

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LIST OF ACRONYMS AND ABBREVIATIONS

CUL	Organizational Culture.
EIA	Ethiopian Investment Agency -
LEAD	Autocratic Leadership Style
NGOs	Non-Government Organizations
PM BOK Guide	Project Management Book Guide
PROJ	Project Success
R&D	Research and Development
SEM	Structural Equation Modeling
TMS	Top Management Support
TMW	Teamwork
TRA	Training

ABSTRACT

The adoption and application of Total Quality Management is likely to enhance the performance of a business. The relationship between TQM and organizational performance, and marketing performance in many industries has thus been the subject of extensive research. The impact of TQM on project performance, however, is not well understood in the context of Ethiopian construction enterprises. The main objective of this study was, thus, to investigate the connection between total quality management and project performance in selected building construction enterprises in Addis Ababa. The Baldridge Criteria was served as the basis for a total quality management model, and the project performance dimensions were created using a literature assessment of prior research. 236 valid replies to questionnaires with Grade -1 (BC-1) building construction companies were used to compile the data. SPSS 21.0, the Statistical Package for Social Science, was used to analyze their associations. The correlation between total quality management and project performance was examined using Pearson's correlations and a multiple regression analysis. The results of the findings revealed that all the five total quality management variables had positive direct effect on project performance a. Specifically, top management support had the highest effect on project success. Corporate culture and leadership had also positive contribution to the performance of the projects. Nonetheless, training and teamwork had relatively the least effect. It can be concluded that total quality management techniques were somewhat connected with the success of the selected building construction companies' projects. Thus, in collaboration with HR managers, project managers are advised to continuously monitor and improve the effective utilization of human and material resources for the betterment of the project accomplishment.

Keywords: Leadership Style, Building Construction, Organizational Culture, Project Success

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Quality management is the act of controlling all procedures and duties necessary to uphold a desired standard of excellence. In building construction projects, quality management is a critical component to preventing defects in the finished product results in initiating the need for replacements, flaws, accidents, or any other form of anomalies that have a negative impact on the outcome and the client's experience (Zeng, Phan and Matsui, 2019). The concept of quality management originated from the manufacturing industry and has received widespread praise for its noteworthy performance, such as increased productivity, decreased product cost, and improved reliability. As a result of the successful TQM implementation of in the manufacturing industry, it has become a source of innovation for other industries to adopt and implement this concept, including the construction industry.

Any country's prosperity and growth depend on its building industry. But the construction sector has always struggled to achieve acceptable standards of quality. Construction is really frequently perceived as having lower quality standards than other industries, such manufacturing and services (Oduor 2015). Construction-related issues such delays, cost overruns, reworks, modifications, claims, and disputes are now very prevalent. Many clients have voiced their displeasure with the caliber of work completed in their projects (Femi 2015). Each year, the construction sector wastes a substantial amount of both human and material resources as a result of ineffective or lack of quality control methods. Thus, the industry has been under tremendous pressure to improve construction quality for long period of time (Harrington, 2012).

The Ethiopian construction industry is a major economic growth driver for the nation. According to the report, the contribution of construction to gross domestic products (GDP) equates to 9.4% of total output. This would give the industry a market value of around $26 billion with an estimated projection of 8% annual growth rate on average till 2026 (National Bank of Ethiopia, 2022). Construction projects are the fast growing and highest recipient of both public and private investments. A massive public and private investments in infrastructure, commercial and residential building projects are undergoing results in turning the country into one of the continent's highest performing economies

(African Economic Outlook Report, 2021). The rapid urbanization has created a need for improved infrastructure systems and quality building products within a promised delivery period.

Nonetheless, the industry is characterized by more than 65% of delay in project schedule due to failing to meet the required standards (rework, cracking, leakage, etc.) results in loosing around $100 million every year due to avoidable delays (Ministry of Construction, 2022). All these quality problems have raised the safety and standards quality of concerns the high grade level building construction companies. Thus, it is important to gain some insights on the role of quality management in enhancing the performance of the construction industry in Ethiopia.

Previous studies conducted in the construction industry are related to quality management implementation, challenges and prospects of the implementation, and critical success factors that affect total quality management (Metri, 2015; Lau and Tang 2019; Kakkad and Ahuja, 2014). Another study had proposed a self-assessment quality management system by adopting quality management constructs for the construction industry (Lam, Lam and Wang 219). There is a lack of studies on the link between quality management and the performances of project environments as mentioned by Leong (2019) in his review of the quality management systems in the construction industry. The researchers also stated one of the areas of quality management system.

In literature review conducted by Tamirat (2021) has shown a number of studies have been conducted on the effect of quality management and firm performance. Moreover, among the possible measures discussed in the literature operational performance (Zewdinesh, 2021), quality performance (Tadewos, 2019), financial and market performance (Wendowessen, 2018) and customer satisfaction (Yeshi, 2019) were the most cited, meaning, gained more interest from the researchers. However, studies examining the effect on project performance in the construction industry are scarce. In this regard, the author claims that it remains unclear in the literature whether it is a management method, philosophy, strategy, or theory for managing projects of the construction companies.

With the current research gap, clear directions for demonstrating managers how to adopt quality management are unrealistic and may lead to confusion. Managers, researchers, and quality management practitioners are constantly interested in it and its performance relationship, and they know which quality management strategies to use in order to achieve effective implementations. The main reason to conduct this study is, thus, to determine which quality management practices are essentially to a successful project performance in the Ethiopia construction industry.

Statement of the Problem

The ever-growing client demand and the complexity of the construction industry has expanded in both intensity and diversity, causing many construction companies in Ethiopia to struggle to sustain project performance, particularly to exceed their customers' expectation (Tingey, 2019). The quality of construction facilities and activities are still the root cause of many difficulties in the country like excessive fragmentation, low productivity, poor quality, etc. (Teo, 2013). Ineffective management of construction project performance resulted not only from technical but also from managerial concerns. As a result, consistent improvement in project performance is exceedingly difficult to achieve in, and the industry is currently battling to achieve quality objectives over a longer period of time.

As a management philosophy, quality management is that aim to harness an organization's human and material resources in the most effective way to achieve the organization's objectives (Oakland, 2019). The guiding principles theory of quality management serve as the foundation for continuous improvement and sustainability in any organization that adopts it. Its ultimate goal is to meet the needs and satisfy internal and external customers while also enhancing organizational performance through expediting projects as planned (Lam, Chan, and Chan, 2019). According to Teo (2014), these quality-oriented managements are one of the best ways to increase a firm's overall competitiveness of the organizations by increasing customer happiness, product quality, and market share.

Studies have been done to look into quality management in terms of operational, financial, and market performance, as well as customer satisfaction (Ebrahimi and Sadeghi, 2013). Talib (2019) and Rahman (2019) have featured quality management research projects in the Indonesian construction industry. Alhassan (2016) investigated the use of quality management in Malaysia's construction sector. Harrington (2017) investigated the application of quality management in Qatar's construction industry. Bakar (2020) looked at Oman's construction firms' entire quality management procedures. However, all of these studies are restricted to particular regions, and Ethiopia, which is a developing nation, differs greatly from these affluent countries in terms of both traits and behaviors. Notably, none of the studies specifically examined the relationship between the effectiveness of quality management and project outcomes for construction businesses.

In Ethiopian context, few studies have been conducted on the construction industry. Wendowesson (2018) studied on challenges and prospects of quality management in the construction industry. In

Addis Ababa, Tamirat (2021) investigated the elements influencing small and microbusiness quality management. Zewdinesh (2021) researched the construction industry's quality management system. As Tadewos (2019) pointed out, there has been little progress in the empirical study of quality management, particularly in the building sector. There is no evidence to imply that empirical or statistical studies have been conducted to investigate the connection between top construction firms' quality management methods and project performance in Addis Ababa.

This study focuses on explaining the empirical evidence for the relationship between quality management and project performance in the building construction project environment. As it was discovered that there is a gap in the existing quality management literature in the context of the Ethiopian construction industry, there is a need and an urgency for further research. This study not only aims to determine whether a connection exists, but also offers a more in-depth look at how any connections might be able to help construction organizations improve their project performance through the application of quality management.

Research Questions

1. What are the existing total quality management practices of selected building construction companies in Addis Ababa?

2. What is the relationship between total quality management and project performance of selected building construction companies in Addis Ababa?

3. Which total quality management practices have greater influence on project performance of selected building construction companies in Addis Ababa?

Objectives of the Study

General Objective

The main objective of the study is to investigate the effect of total quality management on project performance of selected building construction companies in Addis Ababa?

Specific Objectives

1. To identify the existing total quality management practices of selected building construction companies in Addis Ababa.

2. To examine the relationship between total quality management practices and project performance of selected building construction companies in Addis Ababa.

3. To investigate which total quality management practices have greater influence on project performance of selected building construction companies in Addis Ababa.

Significance of the Study

In the end, the output of this study would have the following contribution. It may positively contribute to the applied knowledge for academicians as it sheds light on how the implementation of quality management results in a better project performance in the Ethiopian construction industry. While the majority of total quality management initiatives and practices are carried out in developing countries, this study evaluates the concept of quality and its relationship with project performance in Ethiopian construction organizations, which is under-developed country. This research will increase the level of awareness of and the implementation of quality management in the construction industry and consequently improve the overall construction image. In addition, the findings of this research may act as an incentive to increase the adoption and implementation of quality management as a quality management system in managing construction projects. The findings of this study could substantially and significantly benefit academicians in assessing the quality management practices within the context of other construction companies and how its application differs from other industries.

Scope of the Study

This study was conducted on Grade-1 building construction companies in Addis Ababa. Addis Ababa city is the place where all the selected building construction companies' head offices and most of their projects were located. Conceptually, the project performance is explained as a function of quality

management practices. It was intended for identifying the total quality management practices of the company, its relationship, and contribution to the project performance. However, intentionally excluded several factors that affect the performance of the organization such as financial, technological, and other business environmental factors as they are out of the scope of this study. Meanwhile, methodologically it is also limited by conducting quantitative research approach to analyze the relationship among the variables by collecting quantitative data.

Limitations of the Study

As an academic survey, this thesis has a number of limitations. Among the majors, it tried to overcome the issue of limited use of variables (merely focusing on total quality management practices) and low sample which is prevalent in most previous studies. This survey also fails short of using many other extraneous factors explaining project performance score as the scope was limited only to the quality management related factor's perspective by keeping other factors aside. Nonetheless, there are a number of factors like client's priority, nature of the project, project manager's competence and nature of the site that could affect project performance of building construction. Same vein, the inclusion of other construction fields like road construction projects would have also given the bigger picture of the study. Thus, consideration of all these factors in the course of investigating building construction companies is mandatory which should be investigated in the future.

Definitions of Key Terms

Total Quality Management – Total quality management is a management approach of an organization, centred on quality, based on the participation of all its members, aiming at long-term success through customer satisfaction, by bringing benefits to all members of the organization and to the society. (Lam, Chan, and Chan, 2019)

Project: A temporary endeavour undertaken to create a unique product or service. (PMI, 2016)

Performance – Performance is a task or operation seen in terms of how successfully it is performed. (Oakland, 2019).

Construction – Either new construction, alteration, repair and/or demolition. (Teo (2014)

Organization of the Study

This thesis is categorized into five main chapters. The first chapter refers introduction of the study which includes the background, the problem statement, the research objectives, hypotheses, significance, and scope of the study. The second chapter focuses on the literature review. It contains relevant theories, conceptual and empirical discussions leading to the identification of research gaps and the conceptual framework. And the third chapter presents the research design, target population, sampling methods, sample size, data collection instruments to be used as well as the method of data analysis and presentation. The fourth chapter displays the major findings, analysis, and discussion of sample population based on the primary data gathered and the last chapter discussed the summary of major findings, their respective conclusions and possible recommendations are presented.

CHAPTER TWO

REVIEW OF THE RELATED LITERATURE

Review of the related literatures are gathered and structured in this chapter based on the title of this research which states "The effect of quality management on project performance in the case of selected building construction companies in Addis Ababa. As the objective of this research is to understand the effect of quality management in terms of training, teamwork, top management support leadership and organizational culture and on project performance. This specific chapter elaborates the objective of this topic. Theoretical reviews regarding these variables are discussed. In addition, empirical studies from prior researches on the research's area of interest are also reviewed. Finally, the conceptual framework of the study is set based on the research gap.

2.1. Theoretical Literature Review

2.1.1. Concepts of Project

Project is defined as "a temporary endeavor undertaken to create a unique product or service." (Project Management Institute, 2015). The prevailing view of a project is the transformation of inputs to outputs and captures the key assumptions associated with that view. A project is a collaborative enterprise that is carefully planned to achieve a particular aim. Projects are temporary rather than permanent systems constituted by teams within or across organizations to accomplish particular tasks under time constraints. The classical theories of projects have a set of precepts, assumptions, and even some implied principles that break down or inadequately serve the world of large complex projects. These attributes are associated with a so-called neo-classical perspective outlined (Farrington, 2016).

The current theory of projects contains first, and foremost, projects are viewed as temporary endeavors. This guideline ranges across the prevailing theory of projects as dealing with the transformation of inputs into outputs as well as extensions of this theory that view operations as focused on flow value generation. In the prevailing theory of projects, total transformation can be decomposed into manageable tasks, while extensions for operations as the flow would refine this notion to say that transformation flows are distinct from task operations (Boonstra, 2015).

Optimally executing each task and an optimal sequence optimizes overall project execution according to prevailing theory while flow theory would somewhat modify this to say optimal task execution must include optimal process flows to optimize overall project execution. In this important extension

to the prevailing theory of projects, lining up a series of tasks is not adequate entirely. The influencing vectors are dispersed, distinct, and equally important (Lepak, 2010). Thus, it is useful to see any project as a temporary endeavor. It deals with the transformation of inputs into outputs as well as flow value generation.

2.1.2. Project Management

Koskela (2012) stated the present doctrine of project management suffers from serious deficiencies in its theoretical base and the theoretical base has been implicit in his book titled the underlying theory of project management is obsolete. He claimed that it was replaced by the Project Management Body of Knowledge (PMBOK) as described in the PMBOK Guide of the Project Management Institute (PMI), they conclude that anomalies that occur in the application of these underlying project management theories are regarded as "strong enough for the claim that a paradigmatic transformation of the discipline of project management is needed.

Carson (2019) described various functions of an explicit theory of project management in terms of several roles of a theory as providing a prediction of behavior, a basis on which tools can be built, can, when shared, provide a common language, pinpoints the sources for progress, leads to learning in practice, innovative practices can be transferred to other settings and it is a condensed piece of knowledge. Further, it is stated that a theory of project management should be prescriptive: it should reveal how action contributes to the goals set for it.

Haughey (2010) concluded that it is possible to find statements from the PM BOK Guide (-) that approximate the definition of a theory or from which a theory can be deduced and start the search for an underlying theory of project management with the concept of the project. PM BOK Guide reveals that "activities and tasks are the units of analysis" while scope management is defined through the work breakdown structure (Haughey, 2010). This is also the case regarding a method of project management that is well known in the building industry in Holland as the "GOTIQ-method". GOTIQ is the acronym for Gains, Organization, Time, Information, and Quality; the so-called "aspects of control" within the method. There a project is defined as an activity between improvisation and routine (Lam, 2018). Further, Koskela (2012) stated that the underlying theory of a project is that a project can be defined as transformation; transformation of inputs and outputs.

A comparison of the idea of transformation of inputs and outputs with the description of the essence of the GOTIQ-method – phasing, controlling, and deciding- leads to the same conclusion. Kerzner

(2013) expressed that this "project management seems to be based on three theories of management: management-as planning, the dispatching model, and the thermostat model. With action as the keyword in the definition of the project and as the main subject of the three theories of management, one can summarize classical (project) management as the management of action or the use of a closed system (Boonstra, 2015). Thus, it can be concluded that the Project Management Body of Knowledge is designated a valuable project management theory. It is strong enough for the claim that a paradigmatic transformation of the discipline of project management. As Kerzner (2013) expressed earlier, project management is founded on planning, the dispatching model, and the thermostat model.

2.1.3. Project Performance

One of the main schools in project management is the success or critical success factors, aimed at assessing managerial or TQM practices that lead to either success or failure in project management and examine the reasons for successes and failures. The success of a project is related to the ability to achieve the proposed goals (Turner, 2013).

Project goals have traditionally been depicted in the form of a triangle representing time, cost, and quality (Pinto, 2017); which is illustrative because it clearly represents how a change in any of these factors impacts the two others. Nevertheless, some authors (Davis, 2017; Jha, 2016; Turner, 2014) have argued that the triangle is only a simple depiction of the complex interactions between the goals of most projects, and the feelings of stakeholders involved. In this sense, Agarwal (2016) suggests that customer satisfaction with the project is also a critical aspect of success. Rodríguez (2016) stated that the classification of project performance is a multidimensional construct that depends on many factors; however, it should be considered mainly the client/user perspectives, and the firm's project policies.

Given the existence of these different factors, when analyzing development project managers in an Ethiopian non-governmental organization, Aga (2016) noted that team-building and the effect of transformational leadership contributed to project performance. When investigating Spanish firms, Cobo-Benita (2016) found that relationships within partnerships with national and international companies favored success in projects performance.

A problem that many companies have with project management is that project performance is often defined very strictly (Turner, 2014). If a project is on time and on budget it is considered a success, even though project criteria should also include the company's strategic objectives (Shenhar, 2017).

Given this scenario, Shenhar (2017) developed the diamond model, a multidimensional model to measure project performance. The diamond model, in addition to considering the traditional dimensions of success (efficiency, cost, time, etc.), also considers four other dimensions: impact on customer, on-time completion, business success, and preparation for future.

2.1.4. Quality In Construction

The concept of quality is covered from the viewpoint of the construction sector. Theoretical literature which supports total quality management were also revied briefly. Next, the dimensions of quality management and project performance are covered in this section. The review also includes the connection between each total quality management (TQM) practice and project performance.

2.1.4.1. Quality

In accordance with Almusharraf (2015), quality is taken as the degree to which a set of inherent characteristics fulfils requirements. However, the phrase is used extensively in a variety of circumstances, and depending on what they expect from the product, different people have varying perspectives on quality. No standard definition of quality exists. Fitness for use, compliance to specifications, paid value, support services, and psychological criteria are some examples of commonly accepted definitions of quality (Reid and Sanders, 2011).

Günaydn (2015) claims that the construction sector operationalizes quality as meeting the needs of several stakeholders, including the owner, design professionals, contractor, and regulatory bodies. For instance, satisfying design requirements of time and budget allowance; fulfilling contractors' requirements such as provision of detailed contract plans; writing specifications and other related documents related to the construction process; and fulfilling regulatory agencies' requirements.

There are two categories of quality in the construction sector: process quality and product quality (Reid and Sanders, 2011). Product quality refers to the attributes of the actual physical product, such as the caliber of the tools, technologies, and building materials used in its development. Process quality refers to the requirements of the production process that result in a product that is acceptable or flawed. It describes how a project is organized and run during the stages of construction where planning, design, construction, and operation and maintenance take place. In the construction sector, both types of quality are crucial since both process and product quality ultimately decide how well a product performs.

2.1.4.2. Total Quality Management

Through a coordinated effort, TQM aims to raise quality performance at all organizational levels. The goal of TQM, often known as "customer-defined quality," is to satisfy the quality expectations of customers. A precise definition of quality, however, is challenging to come up with because various people have varied ideas about what constitutes good quality. TQM is described as a strategy to enhancing the efficiency and adaptability of company operations (Oakland, 2014). In essence, it is a method for planning and involving the entire business, including every department, every activity, and every individual at every level.

Over time, quality has taken on several meanings. It changed from a reactive strategy, where quality issues are only fixed after they arise, to a proactive strategy, where quality is embedded into the design of the product or process. Statistical control methods using charts originated from the original conception of quality, which focused on inspection and variance correction. The introduction of total devotion encompassing every level of the firm, from management to personnel, delivering quality followed. Quality began to take on a strategic significance. Today, all businesses must focus on quality improvement to survive. Successful businesses recognize that sustaining consumers is crucial and that quality gives them a competitive advantage. When the whole quality objective became meeting or exceeding customer expectations, the customer-driven quality approach emerged.

2.1.4.3. Total Quality Management Practices

TQM has been characterized in a variety of ways by numerous scholars, yet they all usually complement one another. The quantity and importance of TQM components varies from author to author. As a result, there is controversy around the literature's design for TQM (Dahlgaard-Park 2011). When different TQM dimensions existed, issues emerged. Instead of adopting a created model that has been tried and tested by earlier authors, several researchers have decided to create their own models. Because of this, it is difficult to come to an agreement on a set of standard TQM practices that define the various TQM frameworks (Belassi, 2016). In this study, Baldridge Criteria model was applied which comprises seven criteria for performance excellence categories. Among them training, teamwork, leadership, top management support, and organizational culture were taken as TQM dimensions. For construction projects, team collaboration, provision of the required training, and creating effective leadership with appropriate organizational culture within the organization are

required. Clearly, these TQM practices for a given project helps to facilitate and implement the strategies for its successful completion.

2.1.4.3.1. Training

Training is a planned effort by an organization to facilitate learning in behaviors related to a job. Investment in training and development is important to the organization and employees' long-term success (Wexley, 2014). For human resource development, training programs can build relevant skills in areas such as strategic management, financial management, business development, and marketing. Ainin (2011) suggested that training increases the level of knowledge, individual performance, and consequently organizational performance. Firms with higher percentage of trained employees are likely to perceive training to be useful and the occurrence of human resources management practices that either encourages employees to undertake training.

Training and development are effective for enhancing cross-functional Research and Development (R&D) cooperation; even over-training can be positive and can improve employee learning (Lewis, 2014). In the context of project management, it is important that managers receive training to develop interpersonal and technical skills (Ramazani, 2015), which usually increases the motivation of project teams (Lin, 2017). Dandage (2018) verified that the lack of formal training to employees is one of the top priority barriers that affect effective implementation of risk management in projects.

2.1.4.3.2. Teamwork

Employees are required to work in teams, make joint decisions, and undertake common initiatives in order to meet the objectives of their team and organization. Self-managed teams can affect firm growth in two ways: Firstly, a surplus of junior managers in a firm may create and support dynamics of firm growth. The growth stage is perhaps the most dynamic stage of a firm's life cycle. As the business expands, new levels of management are added. Decision-making becomes more decentralized, middle managers gain authority and self-managed teams proliferate as the firm adds more and more projects and customers (Miller and Friesen, 2014).

Teamwork and decentralization of decision making promotes employee participation and create a sense of attachment, thus indirectly affecting firm performance. Several studies identified self-managed teams and decentralization as important high-performance HRM practices (Singer, 2021; Duvall, 2020; Randle, 2010).

Effective communication is usually a positive factor for management processes, because the greater the open communication, the shorter the social distance and cooperation in organizational relationships. According to He (2016), for better organizational performance, it is important that managers plan not only the formal communication mechanisms, but also the non-formal (Pinto, 2016). Good communication is related to provision of adequate networking and required data to all key actors in project implementation. Effective communication tends to encourage teamwork, increase motivation and ensure the involvement of all key stakeholders, which favors the probability of projects achieving their goals within the assigned time and resources (Clarke, 1999). Hagen (2013) found a significant positive relationship between open communication and organization outcomes in Six Sigma projects.

By analyzing construction firms, Wu (2017) noted that it is important to enhance the willingness to communicate and to efficiently enhance the formal communication among various project teams during project implementation. Musah (2017) observed that one of the main sources of conflict in projects is the communication breakdown. Information technology is an important mechanism that can improve knowledge transfer in project environments, since this technology could increase the openness of communication and make knowledge transfer easier, which may overcome the difficulties of geographical distance (Ren, 2018).

2.1.4.3.3. Top Management Support

Top management support serves as referent group; set pay and promotion policies in organizations (Baird, 2017). It can involve aspects such as sufficient resource allocation and project management confidence to support in crisis and should be transmitted to all stakeholders. Pinto (2017) verified that ethical behavior and employee satisfaction in organizations depends on top management support. Feng and Zhao (2014) noted that top management support enhances relationships both with customers and with suppliers, improving operational performance.

In the project management field, some studies call attention to the importance of top management support as a factor that tends to improve project performance. The support of top management has a decisive influence on the success or failure of projects (Brem and Wolfram, 2017; Young and Poon, 2013). When top management support a project, a positive signal is transmitted to those involved with the project development, which therefore positively affects their performance. Furthermore, the perceived organizational support tends to contribute to a better project managers' job satisfaction.

2.1.4.3.4. Organizational Culture

Organizational culture can be defined as a set of assumptions that unite the norms and values, social ideals, or beliefs that are shared by the members of an organization (Schein, 2013). In this sense, organizational culture can influence employee behavior and formal systems of control, guiding the way in which employees think, act, and respond to improvement and innovation actions. Lee (2016) suggests that a strong culture, in which standards and values are widely shared and deeply retained throughout the organization, improves the organization's performance because employees are committed to common goals.

According to Sørensen (2012), the benefits of a strong organizational culture are the result of performance standards and strongly shared values, which may imply better alignment between business and member goals as well as bigger efforts of employees. In this sense, human resources practices have positive effects on organizational performance when striving for employee engagement. Culture is also known to support innovation by generating a creative organizational climate and influences organizational performance. Büschgens (2013) identified that the way in which a company directs its organizational culture can broaden its innovative posture, since innovative organizations may develop a culture of flexibility and external orientation.

Additionally, Uzkurt (2013) noted that it is important for firms to encourage an innovative organizational culture by instituting mechanisms that boost the absorption of new ideas. He verified that organizational cultures capable of change tend to favor the performance of new product development projects.

2.1.4.3.5. Leadership

The strong determination shown by a leader to ensure all individuals in a group are inspired and encouraged to exert maximum effort to attain organizational set objectives and goals is known as leadership (Northhouse, 2016). Tactics displayed by a leader as a means of providing direction, planning, implementing and motivating the team are recognized as leadership responsibilities. Consequently, what has been suggested above indicates that the key component of a successful organization is leadership. Besides, leadership encompasses communicating and guiding team members, empowering, encouraging and inspiring them to earnestly work towards accomplishing organizational desired set goals.

For employees to provide their best for the success of an organization, it calls for leadership qualities that strategically focusses and implements behavioural tactics that build employee commitment (Chowdhury, 2014). Further indicated that it is widely agreed that effective leadership is not easy to come by, it is a multifaceted and is known to be dependent on particular elements such as, difficulty of tasks, extend at which the leader gives authority and the maturity and competence of employees. However, Chen and Sriphorn (2016) added that complexity of leadership has been intensified by the current pandemic. Hence, the need for leaders who are responsible, innovative and determined to confront unanticipated devastating changes and pursue attaining positive effect in relation to productivity.

The complexity and indefinability of the word leadership may be the reason which makes it difficult to come up with a single definition for the concept. Lassey (2016) noted the complexity of the phenomenon and proclaims that there could be no single meaning of leadership that may cover all circumstances. To reconcile the discrepancies noted on definitions of leadership the Chemers (2017) came up with an umbrella description which is acceptable to the majority of researchers and theorists. He presents a definition that defines leadership as ''a process of influence whereby, an individual can solicit full support from subordinates to meet the set goals or defined duties''. Similarly, Conger and Kanungo, (2018) defined leadership as "people who create direction for team members and gain the commitment of the members and finally motivate them to attain the intended outcome".

However, considering all the above definitions of prior and current literature about leadership, the provided meanings varied, but one common facet noted is that all leaders strive to influence employees to meet targets, set goals and objectives of the organization which in turn enhance productivity. Transformational, laissez-faire and transactional leadership styles are expounded in the succeeding section.

2.1.5. Total Quality Management and Project Performance

Firms have arrived at the conclusion that effective TQM implementation can improve their competitive abilities and provide strategic advantages in the marketplace. Several researchers also reported that TQM implementation has led to improvements in quality, productivity, and competitiveness in only 20-30% of the firms that have implemented it (Chemers, 2017).

A study conducted by (Avolio, 2014) indicated that a 90% improvement rate in employee relations, operating procedures, customer satisfaction, and financial performance is achieved due to TQM

implementation. Some researchers have examined the implementation of total quality management (TQM) and its positive impacts on Clark, 2017project performance (Harper, and Hall, 2015). In the research by Low (2017) outlined the following basic framework for implementing TQM in construction firms namely: customer feedback system, continuous improvement, encourage teamwork, reduce number of suppliers, process management and improvement through productivity study, effective communication system, top management, review organizational culture, produce training plans, establish monitoring process.

The paper by Ahmed (2018) pointed out how construction professionals implement TQM and its tools in their projects in the different stages (design and construction). From the results and conclusions from each case study included in this paper, it's clearly now that TQM is not a fad and how much benefits that TQM can bring to the construction business. The reason that the construction industry has arrived late to TQM is that the construction professionals unaware of the TQM principles and techniques. To bring these benefits to the construction industry, more efforts must be made to spread the culture of TQM among the construction professionals.

2.2.   Empirical Review

There are numerous empirical literatures regarding the relationship among TQM practices and project performance.

The relationship between training and project performance

Dimba (2019) investigated the nature of the effect of strategic human resource management practices on project performance. The study sought to determine whether the effect of human resource management practices on project performance is direct or indirect through employee motivation. It also examined whether management commitment moderate the relationship between strategic human resource practices and employee motivation as well. Fifty multinational manufacturing companies in Kenya were sampled. One HR manager, two-line managers, and three employees from each organization were chosen for the survey. The results revealed that training and development schemes are the highest contributor to project performance.

In another study, Gray, and Shasky (2017), using multiple regression analysis examined the impact of strategic HRM practices on the performance of State Government agencies' projects. The results show that when organizations employ such personnel practices as internal career ladders, formal

training systems, results-oriented performance appraisal, employment security, employee voice, and performance-based compensation, they can achieve their organizational goals and objectives.

Bana (2016) studied the effect of TQM practices affecting the project performance of public projects in Norway. A quantitative research approach was applied through gathering primary data from a sample of 158 project managers. The study adopted the measures developed by Hofstede and Husted (2015), using regression analysis, the results indicate that the variables of strategic human resource management practices namely employee resourcing, training, performance appraisal and compensation were positively and significantly correlated with project performance. Based on these facts, the following hypothesis is proposed as:

H1 – Training has a positive and significant effect on project performance.

The relationship between teamwork and project performance

Anunda (2016) conducted on factors influencing the performance of projects implemented by NGOs and concluded that effective project implementation is repeatable and requires a great deal of work to understand it for achieving cost effectiveness and competitive position. They identify communication planning effort, project team commitment, project manager technical capabilities and scope and work definition as the important TQM practices.

Metalign and Maru (2017) conducted a study on determinants of Project performance in NGOs in the case of PACT Ethiopia. They investigated the determinants of project performance in an international non-governmental organization in Ethiopia. It adopted a cross sectional research design and collected both quantitative and qualitative data from a total of 36 projects that were implemented between 2004 and 2016. The results revealed that two-third of Pacts projects was successfully completed, 22% and 11% were found to be moderately successful and challenged projects respectively. A range of independent variables were regressed against the dependent variable (project performance) using the ordered logit model. The result concludes that comprehensiveness of the work plan, project team commitment and monitoring and evaluation were found to be statistically significant.

Duncan and Susan (2017) sought to establish the determinants of project performance in NGOs in Kenya. Further, the study sought to establish the influence of top management support, project culture, and project scheduling and project team commitment on project performance in NGOs in Kenya. Using correlation analysis and multiple regression analysis, the study found that top

management support has a significant influence on project performance in non-governmental organizations in Kenya. The study also established that project culture has a significant influence on project performance in non-governmental organizations in Kenya. The study revealed that project scheduling has a significant influence on the influence on project performance in non-governmental organizations. The study also found that project team commitment has a significant influence on the influence on project performance in non-governmental organizations. Based on these facts, the following hypothesis is proposed as:

H2 – Teamwork has a positive and significant effect on project performance.

The relationship between top management support and project performance

Mohammad's (2017) research identified the direct relationship between top management commitment on project performance. The survey was conducted on a total of 285 employees of road construction companies in Nigeria. This study concluded that senior managers' involvement, understanding and customer focus are essential antecedents of project performance. He also concludes that leadership and human resources management are among strong predictors of project performance.

On construction-related researches, Low (2014) conducted a study on TQM practices on project performance in the case of Argentina. A population of 217 project team members involved in public mega projects in Bones Aires were contacted to collect primary data via self-administered questionnaires. The results of the findings commented top management commitment as one of the elements that would reflect project performance measures in construction firms. He found that top management commitment is the most critical factor for successful of project implementation.

Haupt (2017) studied the effect of TQM practices on project performance A total of 10 building construction companies were contacted for the survey. The findings of the study posit that management commitment has relatively the highest effect on project performance. It is a significant indicator for establishing employees' management towards their jobs and the level of satisfaction with their consequent jobs for the betterment of the project performance. Managements have started paying more attention to making employees satisfied with their jobs by implementing different HR practices. Based on these facts, the following hypothesis is proposed as:

H3 – Top management support has a positive and significant effect on project performance.

The relationship leadership style and project performance

Dariush. (2014) contends study on the assessment of impact of the leadership style on project performance in MAPSA Company. In conducting the study quantitative survey method was used to gather all relevant information with descriptive methodology, confirmatory fact analysis and structural equation modeling (SEM) and a two-step approach were employed using SPSS 19. The result of the study indicates that, an effective leader could demonstrate both transformational and transactional leadership style, and a transformational leadership has a positive effect on project performance and transactional leadership was found to have less positive effect on project performance. In contrast laissez-fair leadership was found to have a negative effect on project performance.

A work entitled "The Impact of Leadership Styles on project performance of capital projects in Istanbul, Turkey" by Tahir (2017), aimed to study the impacts of leadership style on project performance among construction companies in Istanbul, Turkey's context. The study employed descriptive analysis to investigate the impact of the leadership style on organizational culture. Survey design was used to collect data. The result showed that transactional leadership style did not have any influence on the current public projects' performance.

Andrews (2013) aimed to investigate the impact of leadership style on project performance in 311 organizations with a total sample population of 362. The data analyzed were collected through the use of standards and previously validated questionnaire. A descriptive and inferential statistics methods were engaged to the study. The finding from the study indicates that leadership skills of managers and supervisors are critical factor in creation and reinforcement of organizational norms.

Judge (2017) conducted a meta-analysis of 87 studies measuring transformational, transactional, and laissez faire leadership in different cultural orientation. From the study, the results reveal that the level of significance of transformational was positive but weak then transactional leadership with respect to employee performance, as Pakistan is a country where power distance and uncertainty is high, and thus transactional leadership is more suited in order to achieve targets.

Nogo (2015) conducted research on the effectiveness of autocratic leadership styles on project performance in small scale enterprises in Democratic Congo. The analysis has shown that transformational leadership style exerts positive but insignificant effect on project performance. On the other hand, each behavior of autocratic leadership style has significant positive effect on the

performance of the projects. And the study concludes that autocratic leadership is more appropriate in inducing culture in small scale enterprises than transformational leadership style. Based on these facts, the following hypothesis is proposed as:

H4 –Leadership style has a positive and significant effect on project performance.

The relationship between organizational culture and project performance

In a survey conducted by Bono and Judge (2020) as to whether the organizational culture exhibit higher project performance in manufacturing organizations of different nation. The results established some link between organizational culture and project management. However, the study reported that different types of organizational cultures had different levels of acceptance of performance management.

In Nigeria, Aluko (2004) studied the perceived effect of culture on performance of textile companies. Using both qualitative and quantitative methodologies, the study reported that despite the kind of cultural backgrounds, workers appeared to have affirmative beliefs about work, organizational principles and personal attitudes.

Musioka (2015) found a positive effect of organization culture on organizational performance. He noted the existence of a significant relationship between organization culture and efficiency of service delivery. The study focused on 312 staff of 10 Power Plants and found that organizational values had a more significant effect on organizational performance than other variables. The influence seemed to vary significantly amongst the attributes investigated. Nevertheless, work processes and systems were reported to be having notably high influence on project performance compared to other variables. Based on these facts, the following hypothesis is proposed as:

H5 – Organizational culture has a positive and significant effect on project performance.

2.3. Conceptual Framework

Based on the related literature review, it can be summarized that TQM practices have positive and direct relationship with project performance. TQM practices are manifested by training, teamwork, leadership, top management support and organizational culture. Based on this understanding, the conceptual framework is set in such a way that the five dimensions of TQM practices are considered independent variables, while project performance as the dependent variable. As depicted in Figure 1, TQM practices have direct relationship with project performance. This model is adopted Baldridge

Criteria as cited by by Jong (2018) to measure the influence of time management on project performance.
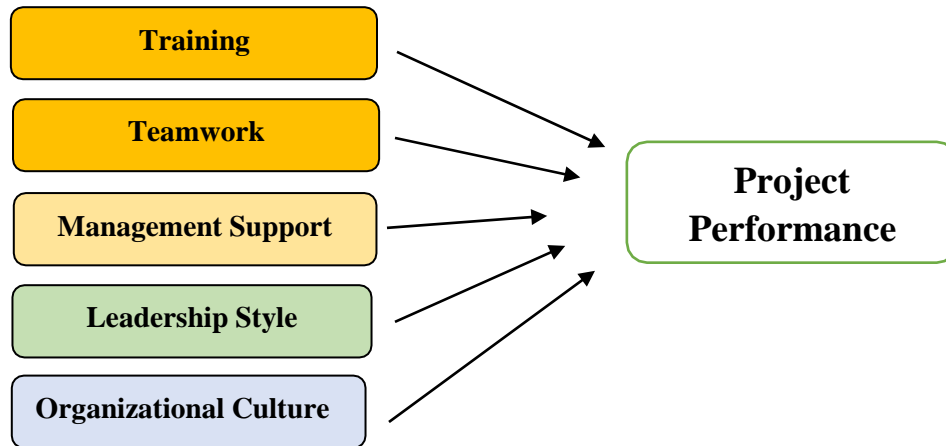
Figure 1: Conceptual Framework of the Study

(Source: Jong, 2018)

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter contains research approach, research design, target population, sample size and sampling technique, data source, data collection instrument, model specification, validity and reliability test along with method of data analysis and ethical consideration are presented.

3.1. Research Approach

According to Creswell (2009), there are three approaches of research; quantitative, qualitative and mixed. Since the purpose of this study was to investigate the effect of TQM practices and on project performance, implying that the relationship among the five dimensions of TQM practices and their influences on project performance. Therefore, among the aforementioned research approaches, quantitative research approach was applied for this study, as Grenner (2018) explains, quantitative research is the best approach to use when testing a theory or explanation. Thus, applying quantitative research approach was considered to be appropriate as quantitative research is a means for testing objective theories by examining the relationship among variables.

3.2. Research Design

Based on purpose, research design is classified into three main categories such as descriptive, exploratory, and explanatory research (Saunders, Lewis and Thornhill, 2014). The goal of exploratory research is to discover ideas and insights; descriptive research is usually concerned with describing a population concerning important variables. Explanatory research is used to establish cause-and-effect relationships between variables. It is a causal analysis concerned with the study of how one or more variables affect changes in another variable. It is, thus, a study of functional relationships existing between two or more variables. Then, this study applied explanatory research design for the reason that it indents to examine the relationship between TQM practices and project performance. For the reason that explanatory research design is used to establish cause-and-effect relationships among the variables to examine their functional relationships (Kothari, 2014).

3.3. Population

According to Hair (2010), target population is said to be a specified group of people or object for which questions can be asked or observed made to develop required data structures and information. Therefore, for this study, the target population targets employees of selected building construction companies engaged in real estate business. According to Ethiopian Ministry of Urban Development

and Construction (2022), there are a total of 72 Grade-1 (BC-1) building construction companies. Among them, top five companies which belonged to the real estate companies are considered. The five selected building construction companies are flintstone, Gift, Noah, Aser and Sunshine construction companies. These companies are rated the top five real estate developers by Ethiopian Investment Agency (2023) based on their accomplishment in 2022 fiscal year. Therefore, the target population comprises the staff of the five companies which counts 1,185 in number (Ethiopian Contractors Association Databases, 2023).

3.4. Sample Size

Sample size refers to the total number of units chosen for analysis in the research investigation. It is also determined by the type of investigation and the intended application of the results (Kumar, 2016). As mentioned above, the sampling frame constitutes a total of 1,185 permanent staff under the employment of the five companies. When the population size is known, the sample size is calculated based on Yamane's (1967) formula for proportionality of sample for known population. Since the exact number of study population is known, Yamane's proportionate sample size determination for known population is applied to determine the sample size. The formula is:

$$n = \frac{N}{(1+(Ne^2)} = \frac{1,185}{(1+(1,185*0.05^2)} = 299$$

Where: N – The total Population; n = Calculated sample size; and e – marginal error. Thus, a sample size of 299 respondents is entitled to participate in this survey. The distribution is depicted as below.

Table 1. Sample Proportion per Company/Stratum

Company	Population	Proportion	Sample Size
Aser	206	0.174	52
Flintstone	283	0.239	71
Gift	119	0.100	30
Noah	122	0.103	31
Sunshine	455	0.384	115
Total	1,185	100%	299

(Source: Construct Companies' HR Database, 2023)

3.5. Sampling Technique

There are two known sampling techniques; probability sampling and non-probability sampling. The non-probability sampling is a method in which sampling units are taken purposely by the researcher whereas under probability sampling each sample unit in the target population has an equal chance to be included in the sample (Bryman, 2013). The former is subjective and depends on the judgment or the justification of the researcher while the latter is all about random of being selection. In the course of selecting a sample of 299 respondents out of the targeted 1,185 study population, the student researcher applies a probability sampling technique called stratified random sampling techniques. Since the subjects in the five companies are stratified by their respective company and their numbers are exactly known, application of stratified random sampling was found more appropriate as the entire list of the targeted staff is readily available.

3.6. Source of Data collection

The source of data for this study is largely dominated by primary data. According to Kothari (2014), the primary data are those which are collected a fresh and for the first time, and thus happen to be original in character. Data that have been observed, experienced or recorded close to the event are the nearest one can get to the truth, and are called primary. The data used for the analysis of this research was collected from the primary source - individual staff of the five selected construction companies. Secondary sources for literature review are used but no secondary data is utilized for the analysis.

3.7. Data Collection Instrument

There are different primary data collection instruments. Among them, self-administered questionnaire was used to collect the primary data in order to obtain opportunity to probe or ask questions, control the respondent response. This was achieved through designing the questions well, increase the reliability and credibility of the research data, and makes a judgment of what most people think through asking the sample respondent. This questionnaire is, thus, adopted from the questionnaire developed by Santos, Barriga and Jugend (2014). It comprises two parts, of which the first part comprises general information about the respondents; second part includes the study variables:

- TQM practices - measured by managing Training (4 statements), Teamwork (4), Top management support (4) and organizational culture (4), and Leadership (5 statements).
- Project performance - subjectively measured by accomplishment of projects within budget, time and standard (5 statements).

The variables are attitudinal and were measured using a Likert scale with five response categories (strongly disagree (1), disagree (2), neutral (3), agree (4), and strongly agree (5). The Likert scale method was preferred to make questions interesting to respondents and thereby enhance their cooperation, ultimately to ensure maximum response rate (Robson, 2012).

3.8. Validity Test

Validity is the most critical criterion and indicates the degree to which an instrument measures what it is supposed to measure (Kothari, 2004). The relevant and suitable interpretation of the data obtained from the measuring device as a result of the analysis determines validity. Despite researchers must decide for themselves which validity to be tested in line with their needs and purposes. However, if the researcher does not develop a new scale and uses one that has been previously created and tested for Validity and Reliability in the local language of the country in which the original research was conducted, it is sufficient to test the content and construct validity (Whiston, 2012).

Thus, pilot test was conducted at Dugda BC-1Construction Company in Addis Ababa. Dugda was selected as the company is similar with the case companies under study in terms of its size and types of projects they have currently engaged. A total of 26 out of 30 staff took part in the pilot study by filling questionnaires that were personally administered by the student researcher. After, the respondents had completed filling the questionnaires, each item was discussed with them. This was aimed at establishing whether each item had been correctly worded and therefore free from misinterpretation when administered to the respondents in the main study. The results obtained from the main study indicated that the instrument was free from ambiguity and misinterpretation. On top of consulting the research advisor of this thesis, the student researcher also consulted construction project experts engineering and operation departments who indicated that the scale was fit for soliciting the required information from the field.

3.9. Reliability Test

Reliability is another important test of sound measurement. Reliability estimates the consistency of the measurements or more simply, the degree of uniformity of the results obtained from repeated measurements. A measuring instrument is reliable if it provides consistent results. For this purpose, the quality of data was measured, evaluated and guaranteed using appropriate techniques. Cronbach's Alpha test is one of the known methods for testing internal consistency of an instrument.

Table 2. Results of Reliability Test

Variables	Cronbach's Alpha Coefficients	No. of Items
Training	.706	4
Teamwork	.703	4
Leadership	.704	4
Management Support	.707	4
Organizational Culture	.726	4
Project performance	.811	5
Total Reliability	**.769**	**30**

(Source: Own Survey, 2023)

The distributed questionnaire was analyzed for internal validity by Cronbach's alpha test which was found significant at $\alpha \leq 0.05$. Referring the results in table 2, the values of Cronbach's Alpha for each field of the questionnaire and the entire questionnaire of this study were in the range of 0.703 and 0.811. According to Sekaran (2010), reliability less than 0.6 are considered to be poor, those in the 0.7 range, acceptable, and those above 0.8 are good. The closer the reliability coefficient gets to 1.0, the better. Thus, the measuring instrument of this study can be taken as reliable instrument.

3.10. Method of Data Analysis and Presentation

Both descriptive and inferential statistics were used to analyze the quantitative data gained through structured questionnaire. Descriptive statistics was used to describe the usefulness of the data set while the inferential analysis for examining the relationships between the variables. In order to describe the data, preliminary descriptive statistics such as frequency, percentages, and mean scores were computed. Inferential Statistics was also carried out to explain the project performance through TQM practices. Inferential analysis is mainly meant for hypothesis testing and regression analysis.

Multiple linear regression analysis is a statistical method to deal with the formulation of a mathematical model depicting relationships amongst variables which can be used to predict the value of a dependent variable, given the value of the independent (Kothari, 2004). Regarding the model specification, in this study, TQM practices namely training, teamwork leadership, top management support and organizational culture are considered as independent variables. While project performance is a dependent variable. To do so, the models is formulated among the study variables to address the objectives of the study. The relationships are formulated as:

$$PERF = \beta_0 + \beta_1 TRN + \beta_2 TMW + \beta_3 LED + \beta_4 MGS + \beta_5 CUL + e$$

Where:

PERF – Project performance; LED – Leadership; TRN – Training; TMW – Teamwork; MGS – Top Management Support; CUL – Organizational Culture.

Before conducting the multiple regression analysis, correlation test was conducted to quantitatively describe the strength of the association among the variables. According to Hair (2016), the Pearson correlation coefficient measures the degree of linear association between two categorical variables. It varies from -1.00 to +1.00, with 0 representing absolutely no association b/n the two variables. Then, assumption for regression model tests (multi-collinearity, homoscedasticity, linearity and normality) were also carried out to affirm the fitness of the data for multiple linear regression model. Regression analysis was conducted to examine the effect of TQM practices on project performance in terms of coefficient of determination (R^2 value), the regression coefficient and the p-values (ANOVA Test) for the significance of each relationship.

3.11. Ethical Considerations

In order to keep the confidentiality of the data given by respondents, the respondents were not required to write their names and be assured that their responses were treated with strict confidentiality. The purpose of the study has already been disclosed in the introductory part of the questionnaire. Furthermore, the researcher tried to avoid misleading or deceptive statements in the questionnaire. Lastly, the links of questionnaires were sent only to voluntary participants after having their full consents, those who were not willing wouldn't contacted.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATIONS

This chapter displays the major findings, analysis, and discussion of the sample population based on the primary data gathered from permanent employees who have been actively working in the five companies for more than a year. The data obtained from the respondents were summarized and the analysis was made using both descriptive and inferential statistics. The former is adopted for the description of general information of the respondents and a summary of their perception of the study variables. The summarized data of the study variables were then analyzed by using inferential statistics with the help of SPSS version 21.0 application software.

4.1. Response Rate

Table 3. Results of the Response Rate

Questionnaires	Frequency	Percentage (%)
Total distributed	299	100.0%
Returned questionnaires	260	87.0%
Unreturned questionnaires	39	13.0%
Response errors	24	8.0%
Total valid and usable	236	78.9%

Source: Own Survey, 2023

The response rate is one of the important aspects that indicates the quality of the survey (Croswell, 2012). With regards to respondents' responses in this survey, a total of 260 out of the 299 distributed questionnaires were returned which accounted for a response rate of 87.0%. This indicates that, according to Saunders (2010), surveys with higher response rates (near 60% or 70%) have more accurate measurements than the ones with lower response rates. Thus, higher response rates are always preferable compared to lower ones. The returned questionnaires were checked further for errors and as a result, 24(8.0%) incomplete questionnaires (missing data) were identified and discarded. Finally, a total of 236 valid and usable responses were used for the final analysis.

4.2. Socio-demographic Information of the Respondents

Socio-demographic factors are very important indicators of performance in any organization and the basis for research questionnaire turnout. Accordingly, the following demographic characteristics and general information about the respondents were summarized and described in the Table 4.

Table 4: General Information about the Respondents

Sex of the Respondents					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	123	52.1	52.1	52.1
	Female	113	47.9	47.9	100.0
	Total	236	100.0	100.0	

Source: SPSS output, 2023

With regards to the first demographic distribution of gender of the respondents, 123(52.1%) of them were male and 113(47.9%) of them were female. This shows that the majority of the respondents were male employees, which is expected more male staff in a labor-intensive companies like building construction companies.

Table 5: Age of the Respondents

Age of the Respondents					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	21 – 30 years	107	45.3	45.3	45.3
	31 – 40 years	76	32.2	32.2	77.5
	41 – 50 years	34	14.4	14.4	91.9
	51 – 60 years	19	8.1	8.1	100.0
	Total	236	100.0	100.0	

Source: SPSS output, 2023

As the results shown in table 5, when it comes to the age of the respondents, 107(45.3%) of them aged between 21-30 years old, followed by 76(32.2%) and 34(14.4%) within 31-40 years and 41-50 years old respectively. The rest 19(8.1%) were within the range of 51-60 years old. This implies that, despite about three fourth of the respondents participated in this survey were young customers below 40 years old, the survey constituted customers from all age group which can be taken an opportunity to get different perception from different age groups.

Table 6: Educational Level of the Respondents

		Frequency	Percent	Valid Percent	Cumulative %
Educational Level of the Respondents					
Valid	High School	9	3.8	3.8	3.8
	Diploma	11	4.7	4.7	8.5
	Degree	175	74.2	74.2	82.6
	Masters and above	41	17.4	17.4	100.0
	Total	236	100.0	100.0	

Source: SPSS output, 2023

Referring table 6, with respect to the educational status of the respondents, 9(3.8%) of them were high school certified; 11(4.7%) were diploma holders while 175(74.2%) had first degree and the remaining 41(17.4%) were the holder of master/second degree and above. Thus, this result implies that the majority of the respondents were overcome a better education level and as a result they might evaluate the TQM practices and management's leadership style that could affect the success of the projects.

Table 7: Department of the Respondents

		Frequency	Percent	Valid Percent	Cumulative %
Department of the Respondents					
Valid	Logistics & Supply	36	15.3	15.3	15.3
	Op. & supporting staff	110	46.6	46.6	61.9
	Sales and marketing	24	10.2	10.2	72.0
	HR & Admin	18	7.6	7.6	79.7
	Engineering staff	48	20.3	20.3	100.0
	Total	236	100.0	100.0	

Source: SPSS output, 2023

Regarding the respondents' department, the results in table 7 shows that 48(30.3%) were from engineering staff, 110(46.6%) from operation (builders) and supporting staff, 24(10.2%) were from sales & marketing, The rest 18(7.6%) were from HR & Admin, 36(15.3%) from logistic & supply departments. This implies that the majority of the respondents were from operation and supporting department. Since the companies engages in the construction industry, it is expected that the companies would have more of construction workers and civil engineers. But staff from every department was participated which can be taken as a good opportunity to have more and detail information regarding the overall project performance of the companies.

Table 8: Position of the Respondents

Position of the Respondents					
		Frequency	Percent	Valid Percent	Cumulative %
Valid	Manager	35	14.8	14.8	14.8
	Supervisor	65	27.5	27.5	42.4
	Senior (> 3 years)	102	43.2	43.2	85.6
	Junior	23	9.7	9.7	95.3
	Others (coordinators)	11	4.7	4.7	100.0
	Total	236	100.0	100.0	

Source: SPSS output, 2023

Regarding the current position of the respondents in their respective companies, as shown in table 8, staffs at junior, senior and supervisory level accounted for 23(9.7%), 65(27.5%) and 102(43.2%) respectively. While managerial and coordinator level staffs represented the rest 35(14.8%) and 11(4.7%) respectively. This has an implication that majority of the respondents were in higher managerial level staff and this phenomenon is also expected from project-based organizations.

Table 9: Position of the Respondents

Position of the Respondents					
		Frequency	Percent	Valid Percent	Cumulative %
Valid	1- 5 years	132	55.9	55.9	55.9
	6 – 10 years	76	32.2	32.2	88.1
	Above 10 years	28	11.9	11.9	100.0
	Total	236	100.0	100.0	
	1- 5 years	132	55.9	55.9	55.9

Source: SPSS output, 2023

Finally, the results in table 9 also illustrates that more than half, 132(55.9%) of the respondents have 1-5 years of service while 76(32.2%) from 6-10 years and the rest 28(11.9%) have served for more than 10 years. Majority of the respondents had less service in their companies which reconcile with senior and junior staff who stayed in the company with relatively few numbers of years (less than 10 years) are more in number.

4.3. Description of the Study Variables

The descriptive analysis is used to look at the data collected and described that information. The descriptive analysis presented the mean and the standard deviation of the independent, mediator and dependent variable from respondents' perception. Mean value provides the idea about the central tendency of the values of a variable. While, standard deviation gives the idea about the dispersion of

the values of a variable from its mean value. According to Best (1987), the scale is set in such a way that respondents strongly disagreed if the mean scored value is in the range of 1.00 – 1.80; disagreed within 1.81 – 2.60; neither agreed nor disagreed within 2.81 - 3.40; agreed if it is in the range of 3.41 – 4.20; while strongly agreed when it falls within 4.21 – 5.00. In addition, standard deviation shows the variability of an observed response.

4.3.1. Training

Table 10. Description of Staff Training

Description	N	Mean	Std.
The trainings given in the company are helpful to develop staff's skills.	236	4.24	1.418
Good quality training is given to the staff.	236	3.76	1.759
Training is given based on need assessment to enable staff to do a better job.	236	3.39	1.801
There are appropriate training guidance procedures in the company	236	3.58	1.892
Average Mean	**236**	**3.74**	**1.129**

Source: Own Survey, 2023

Table 10 demonstrates that the majority of respondents strongly agreed that the trainings which have been given in this company are helpful to develop staff's skills (mean 4.24, std. 1.418). And also believed that quality training is given to the employees (mean 3.76, std. 1.759). However, they slightly agreed with the presence of appropriate training guidance procedures in the companies (mean 3.58, std. 1.892); but they had doubts on whether training is given based on need assessment to enable staff to do a better job (mean 3.39, std. 1.801). The overall perception of the respondents towards the training conducted the case real estate companies was positive (average mean 3.74 with std. 1.129) despite there is high variation of perception in the group (as the standard deviation was found above the threshold value, std. > 1.000). These imply that the quality, relevance, appropriateness of the trainings along with setting proper guidelines affect the performance of the construction projects.

4.3.2. Teamwork

As far as the teamwork of the project teams is concerned, the results in table 11 illustrates that, except the respondents' agreement on the encouragement of employees across different functions of the companies (mean 4.00, std. 1.549), the respondents slightly agreed with the idea that employees work like they are part of a team (mean 3.49, std. 1.545), the teamwork is used to get work done over

exercising hierarchical superiority (mean 3.44, std. 1.729), and organization of tasks to enable each staff can see the relationship between the job and the goals of the organization (mean 3.66, std. 1.799).

Table 11. Description of Staff Teamwork

Description	N	Mean	Std.
Staff across functions of the company are actively encouraged by the management.	236	4.00	1.549
Employees work like they are part of a team.	236	3.49	1.545
In the company, the teamwork is used to get work done, rather than hierarchy.	236	3.44	1.729
Management organizes tasks so as to enable each staff can see the relationship between his/her job and the goals of the organization	236	3.66	1.799
Average Mean	**236**	**3.65**	**1.207**

Source: Own Survey, 2023

in general, the overall perception of the respondents towards the teamwork of project teams was also weak positive as the average mean value was found 3.65 with std. 1.207. This implies that the collaboration of each project team in terms of encouragement, individual commitment, being less hierarchical and tasks alignment with organizational goals affect the overall performance of the construction projects.

4.3.3. Leadership

Table 12. Description of Autocratic Leadership Style

Description	N	Mean	Std.
Decisions are always made by managers for subordinates.	236	4.08	1.530
Managers are determined to push projects forward to get results.	236	4.28	1.393
My duties are limited by the managements.	236	3.58	1.683
Managements set high standards expecting others to do the same.	236	3.78	1.556
Often, performance requirements are designed as per the leaders needs.	236	3.64	1.525
Average Mean	**236**	**3.87**	**1.086**

Source: Own Survey, 2023

Referring the results in Table 12, the respondents were strongly agreed with the idea that the managers are determined to push projects forward to get results (mean 4.28, std. 1.530). They also agreed that managers are always decision makers for their respective subordinates (mean 4.08, std. 1.393);

supervisors/managers set high standards expecting others to do the same (mean 3.78, std. 1.556); and often performance requirements are designed per the leaders needs (mean 3.64, std. 1.525). Nonetheless, they showed their slight agreement on the idea that staff duties are limited by the managements (mean = 3.58, Std. 1.683). Overall, the leadership of the managements was perceived positive (average mean 3.87 with std. 1.136). But they had different stands in this regard as the standard deviation is above the threshold value (Std. = 1.000). This implies that the leadership style of the managers tends mostly to autocratic leadership. For the fact that taking the decision-making position, pushing tasks to be done, limiting staff activities, setting high standards and performance output requirement as per the manager's interest affect the perception of the respondents. Meaning, following leadership influence their project performance.

4.3.4. Organizational Culture

Table 13. Description of Organizational Culture

Description	N	Mean	Std.
The organization's vision, strategy and policy are openly discussed.	236	3.64	1.717
The company pays attention to human resource development, staff morale, etc.	236	3.24	1.613
There is an open organizational culture or trust in the company.	236	2.69	1.709
The company pays attention to efficiency to achieve the intended goals.	236	3.54	1.583
Average Mean	**236**	**3.28**	**1.227**

Source: Own Survey, 2023

Regarding the respondents' perception towards the respective organizational culture of the companies, as shown in table 13, the respondents slightly agreed with the organizations' vision, strategy and policy are openly discussed (mean 3.64, std. 1.717) and paid attention to efficiency to achieve the intended goals (mean 3.54, std. 1.583). However, they nether agreed nor disagreed whether the managements paid due attention to their human resource development, staff morale, etc. (mean 3.24, std. 1.613) as well as there was an open organizational culture or trust in the company (mean 2.69, std. 1.709). In this regard, the overall respondents' perception towards organizational culture is perceived neutral implying that whether the respondents had less information regarding the organizational culture of their respective companies or they had extreme stand on the issue.

4.3.5. Management Support

Table 14. Description of Management Support

Description	N	Mean	Std.
The management exerts extra effort to address the project goal clearly	236	3.71	1.486
Supervisors exert extra effort to attain the project goals/ objectives	236	3.78	1.641
The management supply all the required resources demanded by the project.	236	3.57	1.584
The management works on facilitating conducive work environment to employees to accomplish their duties and responsibilities smoothly.	236	3.54	1.542
Average Mean	**236**	**3.65**	**1.141**

Source: Own Survey, 2023

The results in Table 14 revealed that majority of the respondents believed that the management exerted extra effort to address the project goal clearly (mean 3.71, std. 1.486) and supervisors also exerted extra effort to attain the project goals/ objectives (mean 3.78, std. = 1.641). Similarly, they also agreed the management supplied all the required resources (mean 3.57, std. 1.584), and worked on facilitating conducive work environment (mean 3.54, std. 1.542). Overall, the management support was perceived positive as the grand mean value scored 3.65 with Std. .1.141. The deviation indicates the respondents had highly varied stand on the attributes stated in table 13 as the standard deviation is above the threshold (Std. = 1.000). This implies that addressing the project goals to the teams, striving to attain goals, working in teams, supplying the required resources and facilitating to have conducive work environment influence the respondents' perception towards the project performance.

4.3.6. Project performance

Table 15. Description of Project performance

Description	N	Mean	Std.
Projects are often accomplished within the allotted or planned time.	236	3.47	1.357
The standard/quality requirement of the project is achieved as planned.	236	4.17	1.086
Project risks (rework, crack, leakage, etc.) are minimized to some extent.	236	4.19	.916
Projects are often accomplished within budget.	236	3.50	1.385
The companies enable to achieve its project's goals as planned.	236	3.48	.769
Average Mean	**236**	**3.77**	**.851**

Source: Own Survey, 2023

Referring Table 15, the respondents were asked about their perception regarding the project performance of the real estate building construction. The results revealed that the respondents agreed that project risks are minimized, i.e., rework, material wastage, design alteration, etc. were abled to minimize to some extent (mean 4.19, std. .916) as well as the quality of work was achieved according to its specification (mean 4.17, std. 1.086). Same vein, they slightly agreed that the companies abled to achieve their project's goals (mean 3.48, std. .769); the projects were often accomplished within budget (mean = 3.50, std. 1.385); and the projects were accomplished within the allotted or planned time (mean 3.47, std. 1.357). The overall success of the real estate building construction projects was perceived positively as the grand mean scored value was found 3.77 with Std. .851. In this regard, the respondents had less variation among the study participants on the success of the projects. This implies that the construction companies of the real estate companies achieved their goals but still incurs budget and time constraints.

4.4. Inferential Analysis

Inferential analysis is used to generalize about the population parameters based on results obtained from sample. That means, it measures the reliability of conclusions about a population that is based on information gathered from a sample of the population (Saunders, 2010). Since inferential analysis doesn't sample everyone in a population, the results often contain some level of uncertainty. To addressed the objectives of the study, the inferential statistics encompassed correlational test, assumption for the regression model test, and regression analysis of the collected data.

4.4.1. Correlation Test

The correlational test was meant for checking the strength and direction of the relationship among the variables. Correlation analysis deal with relationships among variables and helps to gain insight into the direction and strength of relation between the variables. In this case, the study sought to examine the relationship among TQM practices (training, teamwork, leadership, management support and organizational culture) and project performance of selected real estate construction companies. There are different correlational tests like Pearson, Spearman, etc., but for this study, Pearson correlation test is used for the reason that Pearson correlation test is more appropriate for raw data collected through survey questionnaire.

Table 16: Correlation Matrix

	TRN	TMW	LED	MGS	CUL	PERF
Training - TRN	1					
Teamwork - TMW	.498**	1				
Leadership - LED	.400**	.630**	1			
Management Support - MGS	.334**	.278**	.250**	1		
Organizational Culture - CUL	.324**	.425**	.513*	.168**	1	
Project performance - PERF	.541**	.719**	.648**	.365**	.552**	1

Source: SPSS output, 2023

Referring Table 16, the results depict the Pearson r - values for the relationship between independent variables (training, teamwork, leadership, management support and organizational culture) and dependent variable (project performance). In this regard, except management support (which had positive and moderate relationship, $r = .365$), all the other four TQM practices showed positive and strong relationship with project performance. Specifically, teamwork ($r = .719$) and leadership ($r = .648$), organizational culture ($r = .552$) and training ($r = .541$). This implies that there was a positive and statistically significant relationship between TQM practices and project performance. I.e., keeping other factors constant, when the value of TQM practices changes, the value of the project performance changes in a similar fashion.

4.4.2. Assumption for Regression Model Test

Assumption tests for multiple linear regression model were for the fitness of collected data to the model specified. The test of assumptions should be done because violations of the assumptions affect consequent use of multivariate statistical methods (Hair, 2010). There are many assumptions to consider but the researcher focused on the major ones that are easily tested with SPSS.

4.4.2.1. Multicollinearity

In regression, multi-collinearity occurs when independent variables in the regression model are more highly correlated with each other than with the dependent variable. Hair (2010) argued that correlation coefficient below 0.90 may not cause serious multi-collinearity problem. But also, Tabachnick and Fidell (1996) suggests that the correlation coefficient should not be below 0.7 for a better inference from the study.

Table 17: Collinearity Statistics

Coefficients [a]			
Model		Collinearity Statistics	
		Tolerance	VIF
1	Training	.640	1.563
	Teamwork	.724	1.382
	Leadership	.631	1.584
	Management Support	.671	1.490
	Organizational Culture	.663	1.508
a. Dependent Variable: Project performance			

Source: SPSS output, 2023

Correlations were examined by means of the bivariate correlation measure in SPSS and all the coefficients of correlation are below 0.8. Multi-collinearity can also be detected using tolerance value and variance inflator factor (VIF) value. Thus, as revealed from table 17, the multicollinearity does not exist among all the independent variables provided that the tolerance value of all the independent variables is greater than 0.1 and the VIF values of all the independent variables are less than 10.

4.4.2.2. Test of Normality

Table 18: Normality of Distribution Using Descriptive Statistics (Skewness and Kurtosis)

Descriptive Statistics					
	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
Training	236	-.695	.158	-.698	.316
Teamwork	236	-.633	.158	-.654	.316
Leadership	236	-.623	.158	-1.006	.316
Management Support	236	-.602	.158	-.581	.316
Organizational Culture	236	-.326	.158	-.867	.316
Project performance	236	-.026	.158	-1.301	.316
Valid N (listwise)	236				

Source: SPSS output, 2023

Test of normality is another assumption to be tested before running regression. The normal distribution is detected based on skewness and kurtosis statistics. As proposed by George and Mallery (2010), the acceptable range for normality for both statistics is between -2 and +2. Therefore, as

depicted in table 18, all variables 'values of kurtosis and skewness are almost within the acceptable range for normality. In addition to the Skewedness and Kurtosis, the normality probability plots were plotted to assess normality. The P-P plots showed in figure 2 were approximately a straight line instead of a curve.
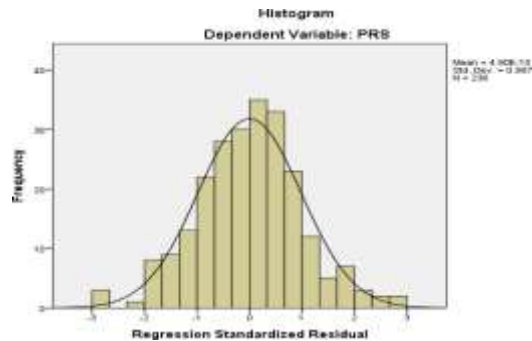

Figure 2: Point Plot and Frequency Distribution of Standardized Residuals

4.4.2.3.   Linearity

Linearity means that the predictor variables in the regression have a straight-line relationship with the outcome variable. The relationship between the two variables should be linear. This means that when one looks at a scatter plot of scores, it should be seen a straight line (roughly), not a curve. The residuals should have a straight-line relationship with predicted dependent variables scores (Pallant, 2005). If the residuals are normally distributed and homoscedastic, no need to worry about linearity.

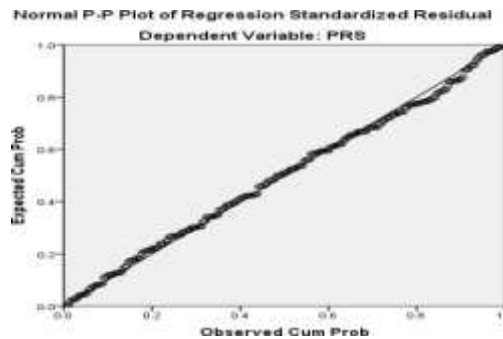**Figure 3. Scatter plot for Linearity Test**

The linearity assumption can easily be checked using scatterplots or residual plots: plots of the residuals vs. either the predicted values of the dependent variable or against (one of) the independent variable(s). The scatter plots of standardized residuals versus the fitted values for the regression models were visually inspected from figure 3.

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4.4.2.4. Homoscedasticity Test –

The assumption of homoscedasticity, meaning "same variance", is central to linear regression models. It describes a situation in which the error term is the same across all values of the independent variables. On the other hand, Heteroscedasticity (the violation of homoscedasticity) is present when the size of the error term differs across values of an independent variable. Residual scatter plots provide a visual examination of the assumption homoscedasticity between the predicted dependent variable scores and the errors of prediction.
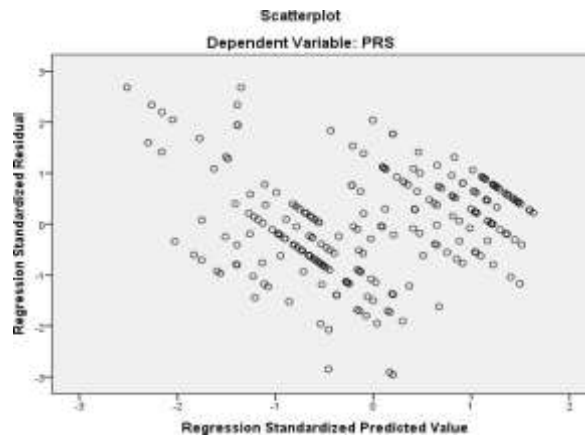
Figure 4: Homoscedasticity Test

4.4.2.5. No Auto-correlation/Independent of Errors

The Field (2005) suggested that for any two observations the residual terms should be uncorrelated (or independent). This eventuality is sometimes described as a lack of autocorrelation. This assumption can be tested with the Durbin–Watson test, which tests for serial correlations between errors. Specifically, it tests whether adjacent residuals are correlated. Referring table 20. The Durbin-Watson test results was found 1.717. The test statistic can vary between 0 and 4 with a value of 2 meaning that the residuals are uncorrelated. Therefore, as in this study the result 1.717 is almost closed to 2, it can be confirmed.

4.4.3. Multiple Linear Regression Analysis

Multiple linear regression is applied to examine the explanatory power of the independent variables (training, teamwork, communication, management support and organizational culture), mediator (autocratic leadership) on dependent variable (project performance).

Table 19. Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Est.	Durbin–Watson Test
1	.794[a]	.630	.622	.52353	1.717

a. Dependent Variable: Project performance

b. Predictors: (Constant), CUL, MGS, LED, TMW, TRN

Table 19 shows the results of the model summary. The value of R indicates the value of the multiple correlation coefficients between the independent and the dependent variable, with a range from 0 to 1, a larger value indicating a larger correlation and 1 representing an equation that perfectly predicts the observed value. Thus, from the model summary (R=.794) indicated that, the linear combination of the five independent TQM practices strongly predicted the project performance. Likewise, the value of the R-Square indicates the proportion of variance that can be explained in the dependent variable by the linear combination of the independent variables. In another word, R^2 (.630) is a measure of how much of the variability in the outcome is accounted for by the predictors. Therefore, as indicated in the above, the linear combination of independent variables (predictors) namely training, teamwork, leadership, management support and organizational culture explain 63.0% of the variance in project performance and the remaining 37.0% is explained by extraneous variables, which have not been included in this regression model.

Table 20: ANOVA Test

ANOVA [a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	107.275	5	21.455	78.278	.000[b]
	Residual	63.040	230	.274		
	Total	170.315	235			
a. Dependent Variable: Project performance						
b. Predictors: (Constant), CUL, MGS, LED, TMW, TRN						

The ANOVA test in table 20 shows the overall significance/ acceptability of the model from a statistical perspective. The output of the ANOVA analysis (F-value = 78.278) shows whether there is a statistically significant difference between the group means. It can be seen that the significance value is 0.000 (i.e., $p = .000$), which is below 0.05. Therefore, there is a statistically significant

relationship between the variables (TQM practices and project performance) which indicates the variation explained by the model is not due to chance. So, it shows that the acceptability of the model.

Table 21: Regression analysis of independent and dependent variable

Coefficients [a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.948	.151		6.293	.000
	Training	.083	.034	.122	2.460	.015
	Teamwork	.104	.033	.147	3.136	.002
	Leadership	.190	.033	.288	5.751	.000
	Management Support	.238	.036	.319	6.699	.000
	Organizational Culture	.177	.034	.255	5.289	.000
a. Dependent Variable: Project Performance						

Source: SPSS output, 2023

The coefficients of the regression analysis as shown in table 21 illustrate the individual effect of TQM practices on project performance. Accordingly, it shows the constant beta value (β) and the p-value of the variables to examine the significance of the hypothesis. The significance level of each variable (P-value) for all independent variables were below 0.05, and their unstandardized coefficients of training, teamwork, leadership, management support and organizational culture are 0.083, 0.104, 0.190, 0.238, and .177 respectively. The p-value of all the independent variables below 0.05 implies that the independent variables have a significant relationship with the dependent variable. Based on these results, the regression equation that predicts project performance based on the linear combination of as training, teamwork, leadership, management support and organizational culture are as follows:

$$PERF = 0.948 + 0.083\,TRN + 0.104\,TMW + 0.190\,LED + 0.238\,MGS + 0.177\,CUL$$

Where:

PERF – Project performance; LED –Leadership Style; TRN – Training; TMW – Teamwork; MGS – Top Management Support; CUL – Organizational Culture; e = error term; β_0 = constant, term; $\beta_{1,2,3,4,5}$ = coefficient terms.

From the Multiple Linear Regression equation, the interpretation as follows. The constant 0.948 shows no effect of TQM practices on project performance. It means that, in a condition where all independent variables are zero, project performance as dependent variable is predicted to be 0.948. In condition where other variables are constant, if training, teamwork, leadership, management support and organizational culture are value increase by one unit project performance is predicted to be increased by 0.083, 0.104, 0.190, 0.238, and .177 units respectively. These imply that the five dimensions of the TQM practices are good predictors of project performance. On summary, based on these results, all the five proposed hypotheses (H1 – H5) are supported.

Table 22. Summary of the Research Hypothesis Test Result

	Alternate Hypothesis	**Result**
H1	Training has positive and significant effect on project success.	Supported
H2	Teamwork has positive and significant effect on project success.	Supported
H3	Leadership has positive and significant effect on project success.	Supported
H4	Management support has positive and significant effect on project success.	Supported
H5	Org. culture has positive and significant effect on project success.	Supported

Source: SPSS output, 2023

CHAPTER FIVE

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

In this chapter, the summary of major findings, their respective conclusions and possible recommendations are presented.

5.1. Summary of Major Findings

In this study, mainly investigated the effect of TQM practices and project performance. Based on the data analyses, major findings of the results are summarized as follows:

1st objective – the effect of training on project performance

- Quality trainings were given to the employees (mean 3.76,) and the trainings were helpful for the staff career development (mean 4.24). However, the respondents had doubts on whether training is given based on need assessment to enable staff to do a better job (mean 3.39).

- It was found that there is a positive strong relationship between training and project success (r = .541 at p< .05) but it had the least contribution to project success (B = .083 at p< .05).

2nd Objective – the effect of teamwork on project performance

- Employees are encouraged to be committed by the managers across different functions of the companies (mean 4.00), but they are less committed to work like they are part of a team (mean 3.49) and they consider it as exercising hierarchical superiority (mean 3.44).

- Teamwork had positive and strong relationship with project success (r = .719). Nonetheless, in this case, it had the least effect on project success (B = 0.104) as preceded by training.

3rd Objective – the effect of Leadership on project performance

- The project managers were abled to minimize project risks to some extent by minimizing wastes (mean 4.19) but the projects were often less accomplished within budget (mean = 3.50, std. 1.385) and completed within allotted time (mean 3.47, std. 1.357).

- Leadership showed relatively the positive strongest relationship with project success (r = .648); but it had also relatively modest significant effect on project performance (B = .190).

4th Objectives – the effect of top management support

- The supervisors exert extra effort to attain the project goals/ objectives (mean 3.78) but they have doubts on sufficient supply of materials (mean 3.57), and worked hard on facilitating conducive work environment (mean 3.54).

- It was also found that top management support also had a positive moderate relationship with project success (r = .365) but it had the strongest effect on project success (B = 0.238).

5th Objective – the effect of organizational culture

- The managers are determined to push projects forwarded to get results (mean 4.28) and are always decision makers for their respective subordinates (mean 4.08). Nonetheless, staff duties are slightly limited by the managements (mean = 3.58).

- Organizational culture had also positive strong relationship (r = .552) stronger effect (B = .177) on project success as well.

5.2. Conclusions

TQM practices can either support the execution of the project and expedite its success or make it tougher for the project to achieve its goals. In many projects, TQM practices are planned for and managed through change management. Although many researchers have identified importance of TQM for project performance, there is no consensus with regard to one-size-fit dimensions that explain TQM. This work aims, thus, to assess TQM practices that influence project performance in the context of Ethiopian building construction companies. The main objective of this study was to examine the effect of TQM practices on project performance by conducting a survey on selected building construction companies in Addis Ababa.

The results of the inferential statistics revealed that the five dimensions of TQM practices namely training, teamwork, leadership, top management support and organizational culture had positive and statistically significant effect on the performance of the real estate projects. Specifically, top management support has the highest contribution followed by leadership and organizational culture. Involvement of top managements with the projects was very important and providing all the required resources to support the project plan and implementation created a culture conducive to smoothen and facilitate the project management activities. Having an organizational culture aligned with the principles of leadership management contributes significant role for the success of construction projects by identifying and assuring the adopted HR strategies are effective. Therefore, the most relevant TQM practices in this study are the management support, leadership and organizational culture for the success of the project performance.

On the other hand, among the results, staff trainings and teamwork practices explain the least but significant effect on project performance. Conduction of trainings without proper need assessment and relevance to the nature of the real estate construction industry, as well as grouping construction workers based on their hierarchical position wouldn't results in the required team work and team commitment. It is worth observing that some of the sample respondents were obtained from operational (construction worker like builders) with high school and other educational background which probably bias this result. Therefore, the importance of adequate training for the skill development of the employees involved in the projects, and outsourcing more caliber workforce is the areas that requires managers' attention.

5.3. Recommendations

Based on the major findings and conclusions, the following possible recommendations are suggested:

- Quality trainings are given to the employees without conducting proper need assessment. Failure in providing the relevant training to the right employees are worthless rather than incurring unnecessary organizational and project cost. Therefore, the HR managers are advised to conduct periodic need assessment per the specific project requirements.

- Despite the managers encouraged their staff, they are less committed to work like they are part of a team as well as considered teamwork as exercising hierarchical superiority. Good teamwork results in faster completion of tasks, increased productivity and a healthy work environment. It is recommended that the top managers should improve team spirit and empowers the team by setting clear expectations and provide the right tools for each project.

- Leadership style has insubstantial contribution for the betterment of the project performance through transforming the influence of TQM practices. However, implementing a single leadership style like autocratic leadership all the time doesn't bring the require staff performance. Therefore, the managers are advised to use different leadership styles like transactional or transformational leadership style to crate innovative project team.

- Assuring adequate construction input materials along with crating conducive work environment is one of the major bottlenecks for project success. Construction supplies are the backbone of the building construction projects as they determine the project life cycle as well as the overall project cost. Top managements in collaboration with finance manager should create smooth supply chain relationship with suppliers and subcontractors. Therefore, the top managers should always monitor their stocks and replenish it in time accordingly.

- Organizational culture should be clear for understanding of the employees while appropriate HR strategies set for motivating and satisfying the staff with their work. This can be achieved through communicating their organizational values and beliefs to every employee through effective and appropriate media. Moreover, the managers should offer competitive and attractive renumeration and rewards the to promote the influence of the culture more.

- There are a number of factors that affect project performance like organizational structure, job satisfaction and employees' demographic status such as education. However, only TQM

practices (training, teamwork, leadership, top management support and organizational culture) were considered in this study. Thus, further study is required which includes the aforementioned factors so as to understand the factors affecting project performance more widely.

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Appendices

Appendix – I Survey Questionnaire

SAINT MARY'S UNIVERSITY,

SCHOOL OF GRADUATE STUDIES

Survey Questionnaire

Questionnaire to be filled by Staff of Construction Companies

Dear participant,

My name is Tsion Takele, and I am currently enrolled at Saint Mary's University, School of Graduate Studies. I am conducting my thesis entitled "**THE EFFECT OF TQM PRACTICES ON PROJECT PERFORMANCE: IN THE CASE OF SELECTED BUILDING CONSTRUCTION COMPANIES IN ADDIS ABABA**" as partial fulfillment of a master's degree in business administration. The survey intends to gather data on two concepts namely total quality management and project performance. For this study, the total quality management practices which is explained in terms of training, teamwork, leadership, management support and organizational culture, and project performance. Your honest and sincere responses to this questionnaire will play a great role in examining the relationship among quality management practices and project performance. I assure you that all the responses will be treated confidentially and only be used for academic purposes. Participation is purely voluntary and no need to write your name.

Many thanks for your kind cooperation in advance!!

Tsion Takele Haile

Telephone: 0912 080557

Email – tsitsitsi23@gmail.com

General Information

Your Participation is Voluntary

Do not write your name on the Questionnaire

I. Demographic Profile of Respondents

Direction: The following statements are about your personal information. Please write the necessary information on the blank space provided and, in the optional items, indicate your answer by putting a tick mark (x) in the box.

1. Sex   ☐ Male   ☐ Female

2. Age (Years)   ☐ 21 – 30   ☐ 31 – 40   ☐ 41 – 50   ☐ 51 – 60

3. Education   ☐ High School   ☐ Diploma   ☐ Degree   ☐ Masters +
              ☐ Other, please specify ....

4. Department   ☐ Engineering   ☐ HR & Admin   ☐ Logistics & Supply

                ☐ Finance   ☐ IT   ☐ Others, please specify......

5. Position   ☐ Manager   ☐ Supervisor   ☐ Senior (≥ 3 years)
              ☐ Junior

6. Service   ☐ 1- 5 years   ☐ 6 – 10 years   ☐ Above 10 years

Part II. Questions related to total quality management and project performance.

Please read each statement carefully and show your level of agreement on the statements by putting "X" mark in the boxes using the following 5-scale Likert scales: Strongly agreed (SA)=5, Agreed (A)=4, Neutral (N)=3, Disagreed (DA)=2, and strongly disagreed (SDA)=1.

1. Organizational Factor	Likert Scale				
1.1 Training	1	2	3	4	5
The trainings given in the company are helpful to develop staff's skills.					
Good quality training is given to the staff.					
Training is given based on need assessment to enable staff to do a better job.					
There are appropriate training guidance procedures in the company					
1.2 Teamwork	1	2	3	4	5

	1		2	3	4	5
Staff across functions of the company are actively encouraged by the management.						
Employees work like they are part of a team.						
In the company, the teamwork is used to get work done, rather than hierarchy.						
Management organizes tasks so as to enable each staff can see the relationship between his/her job and the goals of the organization						
1.3 Leadership	**1**		**2**	**3**	**4**	**5**
Decisions are always made by managers for subordinates.						
Managers are determined to push projects forward to get results.						
My duties are limited by the managements.						
Managements set high standards expecting others to do the same.						
Often, performance requirements are designed as per the leaders needs.						
1.4 **Management Support**	**1**		**2**	**3**	**4**	**5**
The management exerts extra effort to address the project goal clearly						
Supervisors exert extra effort to attain the project goals/ objectives						
The management supply all the required resources demanded by the project.						
The management works on facilitating conducive work environment to employees to accomplish their duties and responsibilities smoothly.						
1.5 Organizational Culture	**521.01**		**2**	**3**	**4**	**5**
The organization's vision, strategy and policy are openly discussed.						
The company pays attention to human resource development, staff morale, etc.						
There is an open organizational culture or trust in the company.						
The company pays attention to efficiency to achieve the intended goals.						
2. Project Success	**1**		**2**	**3**	**4**	**5**
Projects are often accomplished within the allotted or planned time.						
The standard/quality requirement of the project is achieved as planned.						
Project risks are minimized, i.e., rework, material wastage, design alteration, etc. to some extent.						
Projects are often accomplished within budget.						
The companies enable to achieve its project's goals as planned.						

Many Thanks for Your Valued Time!!!