MOSHI CO-OPERATIVE UNIVERSITY

ASSESSMENT OF EFFECTIVENESS OF FORCE ACCOUNT ON THE IMPLEMENTATION OF CONSTRUCTION PROJECTS IN MOSHI DISTRICT COUNCIL

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BY

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I, **SAPIENCIA CYPRIAN MUGARULA**, declare that this Dissertation is my own original work and that it has not been presented and will not be presented to any other higher learning institution for a similar or any other academic award.

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CERTIFICATION

The undersigned certify that they have read and hereby recommend for acceptance by the Moshi Co-operative University a Dissertation titled "Effectiveness of Force Account on the Implementation of Construction Projects in Moshi District Council" in fulfilment of the requirements for the award of Master Degree in Project Planning and Management of Moshi Co-operative University.

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TABLE OF CONTENT

LIST OF TABLES

LIST OF FIGURES

LIST OF ABBREVIATIONS

CC	: Construction Committee
FA	: Force Account
FAM	: Force Account Mechanism
GPSA	: Government Procurement Services Agency
LGA	: Local Government Authority
MRA	: Multiple Regression Analysis
PC	; Procurement Committee
PE	: Procuring Entity
PPA	: Public Procurement Act
PPP	: Public Private Partnership
PPRA	: Public Procurement Regulatory Authority
RC	: Receiving and Inspection Committee
SDG	: Sustainable Development Goals
SFMC	; School Facility Management Committee
SPSS	: Statistical Package for Social Science
UNDP	: United Nation Development Program
URT	: United Republic of Tanzania
US	: United States
VFM	: Value for Money
VIF	: Variance Inflation Factor

ABSTRACT

Using force accounts is crucial in Local Government since for a long time there has been outcry of high cost of construction, delayed completion and low quality, due to contractors as result the Government has been emphasising the use of force account method. Hence this study assessed the effectiveness of force accounts in construction of projects in Moshi District Council. Specifically, the study examine force account personnel factors on quality output in the implementation of construction projects in Moshi District council, determine the influence of force account practices on value for money in the implementation of construction projects in Moshi District Council, examine the influence of force account financial management on timely completion in the implementation of construction projects in Moshi District council. This study was conducted through a descriptive research design. Both qualitative and quantitative approaches were employed through descriptive research design with a sample of 120 respondents obtained through simple random and purposive sampling techniques. The results were analysed through descriptive analysis and inferential statistics by using SPSS version 22.0. Findings indicated that force account personnel factors contributed to positive quality output as the results revealed that more than 80% of respondents agreed and the regression output indicated positive and significant relationship (0.135) between personnel factors and force account implementation at with p- value < 0.05. Findings further indicated that force account practices were positive and significant (p-value < 0.05) influencing value for money force account financial management variable had a coefficient of .748. The t-value for timely completion was 16.312, and the significance level was .000 <0.05 implying a positive relationship. In a nutshell, force accounts have a significant positive impact on project implementation, as evidenced by a low significance level (Sig.) of 0.000 procurement practice has variable effectiveness in the implementation of construction projects. It is concluded that construction under project account is crucial for the development of public infrastructures in Moshi District Council. Hence, it is recommended that force account guidelines should be reviewed by creating a specific force account department with enough proper technical personnel and working tools.

CHAPTER ONE

1.0 INTRODUCTION

1.1 Chapter Overview

This part provides an overall description of the study by providing information on background of the study, information of problem statement, objectives of the study, research questions and scope of the study and significance of the study.

1.2 Background to the Study

Globally, economic escalation has affected many lives including procurement processes in the construction industry. The term force account is also known as direct labour, and it is one of the procurement methods which has been used in different industries especially in the government sectors where they need to speed up the construction processes and minimise the costs of constructions (Coleman and Tipter, 2016). When using this procurement method, it helps to work with transparency of the cost and responsibilities.

In European countries and North America, procurement methods were based on documentation policies. This is the same to the Japanese who are well known of the construction activities and have been able to apply the system so as to promote efficiency (Haughey 2019). According to Napier (2016), the force account which is recognized as the procurement method has been useful since it allows construction work to be done according to the actual cost, which is manufacture price or market price based on material and equipment that are used in the construction process.

In Malaysia, despite the use of budget management techniques in the construction industry, more than 90% of the Malaysian project faces a budget overload (Memon, et al, 2011).

In India, Nepal and Korea, force account was termed as labour contractor which was reported to be the effective because it was the one which is most in touch with the workers and to whom the workers look for help and guidance, not only in finding work and acquiring skills, but also in providing loans in times of emergency (Wells, 2015).

In Africa, force account was mainly applied in Egypt where it was used in construction of bridges. Nyangwar and Datche (2017) reported that in the 1980s, donors such as the World Bank funded the Sub-Saharan African countries such as Lesotho, Malawi,

Mozambique, Kenya, Tanzania and Zambia where they adopted force account methods in the construction activities.

In the late 1980s, the system was recognized to produce bad results; Though Tanzania was considered to be the pioneer in the force account while countries such as Zambia and Malawi were seen to make good progress in the transformation. Mozambique did not lag behind whereby in 1983 about 100% of the work was done by force account, the same as Lesotho used force account in the road maintenance.

Studies diverge on the effectiveness of force accounts towards the implementation and performance of construction projects. There are studies which point out that force accounts lead to effective performance in the due time and costs. For example, a study conducted in Uganda by Tekka (2017) found that force account method has been effective in the implementation of many and diverse roads construction projects as well as in upgrading and expansion of Entebbe International Airport. In Uganda, Mbabazi *et al*. (2016) conducted a study on the adoption of a force accounting mechanism in road maintenance works and found that, to some extent, force account reduces corruption and has a significant impact on the quality price relationship.

Other scholars have done research and found some challenges that hinder the implementation of force accounts. Andreski *et al.,* (2006), in his report analysed some of the challenges facing force account implementation as; inadequate management of equipment, requiring low standards of planning, supervision, execution and staffing, poor quality control, weak reporting systems and erratic funding.

The government of the United Republic of Tanzania adopted and declared development vision 2025. To achieve the vision in a broader perspective, the government introduced various sectoral development programs which resulted in several projects implemented through public procurement. Since 2015, the government has emphasised cost-effectiveness and the best value for money in construction projects. With this, the force account mechanism was viewed as the best approach to meet this objective (PPRA, 2019).

From the year 2016, the force account method has been used by public bodies in construction, reconstruction, demolition, repair or renovation of public buildings,

Matto, M.C. (2021). Though the force account method is not a new approach in the academic literature, it is coined as an emergent procurement model (Mbabazi and Mugurusi, 2019). From a procurement point of view, the organisation decides on “make versus buy”, “in-sourcing versus out-sourcing”, and “contracting-in versus contracting-out”. Hence, the notions “make”, “in-sourcing”, “in-house”, and “contracting-in” are related to the force account approach.

Despite reported exultant, there are lots of questions on execution and sustainability of projects implemented under force account due to its theoretical and empirical limitations. Previous and current studies have reported innumerable restraints of force account approach that need to be taken on board before embarking on the projects. With this, the following studies have reported that:

- “The force account model exposes the government to the greatest degree of high risk since it cannot pass the risk on to Any other entity besides itself” Satyanarayana (2012) cited in Mbabazi and Mugurusi (2019, p. 167).
- “For effective delivery of government building projects there is a need of [identifying] procedure for an effective application of force account” (Shengeza, 2017, p. 154).
- “Force account is still a mystery in both theory and practice” (Mbabazi and Mugurusi, 2019, p. 166).
- “There is a dilemma on whether public bodies and other stakeholders at large understand clearly the concept, procedures and challenges of force account” (France, 2019, p. 123).
- “Unlike a private firm that must deliver before it is paid, allocations to force account units are often not tied to output” (Mbabazi and Mugurusi, 2019, p. 167).

It is not clear whether the force account projects executed in Tanzania take into account the identified aspects. Failure to consider such aspects the procuring entity may face numerous challenges during implementation and after completion of the project.

In Tanzania, The PPA of 2011 and PPR 2013, the law under which procurement activities are governed, defines force account method as construction by the procuring entity itself or use of public or semi-public agencies or departments concerned, where

procuring entity or the public or semi-public agency uses its own personnel and equipment or hired labour (PPR, 2013), therefore under force account the entity (PE) does not use contractors for execution of works projects. The public procurement regulations 2013

Provides the justifications for using of force account method as; when construction contractor/service providers are unlikely to bid at reasonable prices because of the location of and risks associated with the project, work to be carried out without the disruption of on-going operations, emergency, possession on adequate and qualified technical personnel and construction works is the part of routine activity of the entity.

Despite the use of force account in the implementation of public projects in Tanzania, still there are many challenges in project implementation during the target period, based on the expected budget allocated and also caused by changes in the project design, delays in information, mismanagement of the project and late payments to contractors (Kikwasi, 2013). Overspending occurs due to cost overruns, delaying the implementation of projects on time (Memon and Rahman, 2014).

1.3 Statement of the Problem

It has been observed that force account assures efficiency gains where the entity is able to execute works much faster, enhancement of internal capacity of the procuring entity since works are executed and supervised by the procuring entity staff and cost savings compared to other methods (PPDA, 2018).

In Tanzanian force account have been applied specifically in the renovation and remodelling also by constructing new building or infrastructure, the Tanzanian Government have been able to set a budget for supporting their constructional activities so as to advise its sectors to use Force Account Procurement method as the way of reducing cost and managing time of construction activities such as constructing of schools, hospitals, employees offices and residence. The Public Procurement Act, (2011) stated that, Force Account is the construction by which the procuring entity or public or semi-public agency uses its own personnel and equipment or hired labour.

Moreover, since 2015, the government has been emphasising on cost-effectiveness and the best value for money in construction projects. With this, the force account

mechanism was viewed as the best approach to meet cost-effectiveness and the best value for money in construction projects objectives (PPRA, 2019).

However, in some cases, the implementation of force accounts has been found to be with weaknesses which may hinder its effectiveness. Such weaknesses include low level of compliance with laws and regulations, insufficiency of trained and qualified personnel and inadequate resources for force account implementation has been observed.

Under force account, statistics shows that in the financial year 2021/2022 and 2022/2023 Kilimanjaro Region in its seven Councils have received a total of TZS.38.8 billion to implement 524 projects, whereby in Moshi District council, TZS.2.3 billion was put in place to implement 52 projects which are secondary schools structures. However, as Shengeza (2017) highlighted, pitfalls have been observed in the implementation of the force account method especially for the renovation and remodelling of government building projects in Tanzania. The study identified various pitfalls including an absence of standard regulations, problems related to technical specifications, variations due to inadequate planning, labour costs and lack of technical skills.

On the other hand, while studies (Shengeza, 2017; Mayani, 2019; Tekka, 2019) have mostly focused on the challenges of force account, there is limited literature on the effectiveness of force account in the implementation of construction projects with a focus on quality output, value for money and timely completion in Moshi District construction projects. Hence, the current study was geared towards filling the identified gap by assessing the effectiveness of force accounts on the implementation of construction projects in Moshi District council.

1.4. Objectives of the Study

1.4.1 General objective

The general objective of this study was to assess the effectiveness of force accounts on the implementation of construction projects in Moshi District Council.

1.4.2 Specific objectives

Specifically, this study sought to:

i. Examine force account personnel factors on quality output in the implementation of construction projects in Moshi District council.
ii. Determine the influence of force account practices on value for money in the implementation of construction projects in Moshi District Council.
iii. Examine the influence of force account financial management on timely completion in the implementation of construction projects in Moshi District council.

1.5 Research Questions

i. What is the influence of force account personnel on quality output in the implementation of construction projects in Moshi District Council?
ii. What is the influence of force account practices on value for money in the implementation of construction projects in Moshi District Council?
iii. What is the influence of force account financial management practices on timely completion in the implementation of construction projects in Moshi District council?

1.6 Significance of the Study

The study will be useful in the following ways:

First, the findings of the study will help the Government, particularly Moshi District Council Management, decide whether to continue using force accounts in construction of buildings or opt for other methods of procurement. Second, the results will be helpful in the line of achieving SDG No.1 No poverty and SDG No. 8 Promote sustained, inclusive and sustainable Economic growth, full and productive employment, and decent work for all.

Third, the study will be useful to the policy makers, vision 2025, emphases the competence and competitiveness this will be achieved when the government provides a conducive environment for actors to effectively harness domestic resources in order to attain adequate and reliable infrastructural development in understanding the existing loopholes, in terms of legislation perspective, that overlay the time overrun

and cost overrun in construction project's procurement procedures as well as the entire public procurement.

This will help policy makers to take necessary steps in updating the policy. Finally, the study is useful to researchers who want to conduct studies on the issues pertaining to force accounts in the construction industry. This study acts as the source of secondary information or literature to the future researchers.

1.7 Scope of the Study

The study focused on assessing the effectiveness of force accounts in the implementation of construction projects in Moshi District Council. The study was limited to local contractors, user departments, suppliers of construction materials, procuring entities, and project teams. The objectives included; determining the influence of quality output, value for money and timely completion on the implementation of construction projects in Moshi District Council.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Chapter Overview

This chapter deals with the study of different published materials which have been conducted on different knowledge areas by evaluating, comparing different studies from different authors. The conducted study contains definitions of key terms used in the study, theories that are related to the study followed by empirical review of the study and finally the conceptual framework which carries variables from the study.

2.2 Definitions of the Key Terms

2.2.1 Force account

The Public Procurement Regulations, 2013 defines force account as a construction by the procuring entity itself or use of public or semi-public agencies or departments concerned, where the procuring entity or the public or semi-public agency uses its own personnel and equipment or hired labour (URT, 2013). This study thus conceptualised force account as the construction by the procuring entity itself or use of public or semi-public agencies.

2.2.2 Project

According to this study, a project is an investment activity that involves a current down payment in the hope that in the future there will be a flow of benefits with certain specific missions to achieve specific objectives for the benefit of a greater majority of the public. Further, it was progressively elaborated that projects are activities that cannot continue indefinitely and must have a defined goal and time (Teece, 2014). This study thus conceptualised as an investment activity that involves a current down payment in the hope that in the future there will be a flow of benefits with certain specific missions

2.2.3 Public project implementation

According to Barasa (2014) defines a public project as one wherein such a funding entails using public price range by a government body mandated to carry out positive particular missions to achieve specific targets for the benefit of the more public majority. This study thus conceptualised Public Project Implementation as using public

price range by a government body mandated to carry out positive particular missions to achieve specific targets for the benefit of the more public majority.

2.3 Theoretical Review

This study was guided by Resource-Based View (RBV) as detailed below.

2.3.1 Resource Based View

The central focus of this theory was on the essence of firm resources and how organisations can make use of such resources to create competitive benefit in the given industry. The firms have the specific and unique resources that can utilise to have an advantageous position in delivering high levels of efficiency in the market (Kraaijenbrink *et al.*, 2010). According to Wernerfelt (1984) provided, firms in any industry have either tangible or intangible assets to utilise for creating competitive position.

The resource-based view holds that the success of an organisation depends most on the competitive advantage that a firm has created through its resources since the organisation resources are important determinants for creating competitive advantage. The organisation can involve the use of resources such as financial resources, technology, human beings, and social relationships (Mweru and Maina, 2015). According to Makadok (2001) for firms to have sustainability in a competitive environment should ensure its resources are rare, non-tradable and valuable.

In the construction industry the firm might decide to use its unique human resource through the use of their competence on creating an innovation that others cannot create in a given period, also the use of firm financial resources may be in use to facilitate projects completion while others wait for the planned budget. This tendency creates a more favourable environment to have efficient operations (Goh and Loosemore, 2017).

The theory is relevant to study because in order for an organisation to perform in-house operations efficiently, it should possess sufficient resources. That means, an organisation should not be dependent on other organisations' resources. This theory was considered in this study because; the study involved assessing the influence of force accounts in achieving value for money in construction projects. Force account requires that an organisation should possess its own resources which include funds, manpower and equipment to run force accounts in implementing construction projects.

Funds are key in order to procure construction materials, pay labourers and facilitate supervision of the projects while manpower is important purposely for smooth running and implementation of the project. Manpower is required to provide technical assistance and give directions as per the project specifications.

Nonetheless equipment is essential to facilitate the execution and implementation of the construction project. According to this theory an organisation should perform in house function if it has sufficient resources to support the internal activities. Hence the force account that requires availability of in-house resources in implementing projects is supported with resource dependence theory as it depends on internal resources rather than contracting out.

2.4 Empirical Literature Review

In this section, researchers reviewed different studies that have been conducted in the related field or related to the same study. The study reviewed relevant studies based on the specific objectives.

2.4.1 Effectiveness of force account personnel factor on quality output of construction projects

Obodoh *et al.* (2019) explored the factors that positively influence quality in building construction works, the effect on not adhering and the benefit of adhering to quality standards for building construction projects in Enugu estate. The study methodology used was review of existing literature and field surveys. Descriptive analysis tools were used for the analysis. The study findings indicated that a quality management plan in construction was applied as the tool that guided construction professionals in the execution of construction projects in terms of quality.

Henseler *et al.* (2015) conducted the study on the new criterion for assessing discriminant validity in variance-based structural equation modelling. Simulation study was used to show the approaches to detect the discriminant validity. The study discussed that constructional works are conducted with the understanding that the client needs to pay the contractor based on the actual cost of labour, equipment and materials with an additional percentage of overheads and make-up for profit.

The study by Paul (2020) assessed factors affecting quality output in the procurement process in the public sector: a case of Arusha city council. This study employed the explanatory research design and used the survey strategy. Also, the study used the concurrent mixed method triangulation which engages a single study that deployed quantitative and qualitative data that are collected at the same time. Cross tabulation with Chi Square Test, and Fisher Exact Test were used to analyse quantitative data and content analysis was engaged for the qualitative data. The study found that procurement planning, Adoption of the E-Procurement system, supplier relationship management, professional experienced staff, effective communication and procurement cost estimation are very important elements of the procurement practices that contribute to the effectiveness of the procurement process at ACC.

Japhary (2017) reported on the application of procedures for force accounting for government buildings projects in Tanzania. Case study design was applied in the study for renovation and remodelling of three teachers' colleges and five secondary schools in different areas. From the findings it was observed that in order to apply effectively the force account method then the supervisors and the consultancy should have collaboration with the procuring entity and executing team. In order to avoid confusion then effective application of force account and clear documents needs to be prepared during conditional survey. Finally, the study suggested that the construction team involved in the construction project should concentrate on the quality of the project so as to achieve value for money on well detailed documents prepared before and after renovation.

2.4.2 Force account practices and value for money in construction projects

Olusola, (2017) conducted a study on achieving value for money in construction projects. The study supported that value-for-money valuation for a project should be conducted before a project is commenced and after the project is completed to determine whether or not value for money has really been provided. Olusola also put out means by which VFM can be achieved on a project site, these comprises comprehensive risk analysis and proper risk allocation, determination for earlier project completion, limitation in project cost increase, encouragement of innovation in project development, satisfactory accounting of maintenance cost, correct assessment of the cost of the project, and development of a thorough specification.

A study on delivering best value in highways major maintenance schemes conducted by Ansell *et al.* (2009) ranked the requirements for providing best value to the buyer as; free from defects on completion; completed/delivered on time; completed/delivered within budget; fit for purpose; low construction costs; good looking/attractive to look at; short construction period; accompanied by valuable guarantees; satisfactory life of repair; low maintenance cost; minimal disruption to the public; and safety.

Tekka (2019) carried out the study on the performance determinants of force account methods in the construction industry. The study adopts factor analysis and questionnaire survey in describing the identified performance of force account methods. From the findings it was recognized that force account methods had a positive significant effect in increasing project competitiveness in the construction firms. Force account methods were also proven to be useful to the local builders and it had led to satisfaction to the clients and society stakeholders through the construction of quality social economic infrastructure. Lastly, force account methods were said to reduce the working opportunity to both foreign and local firms; these had resulted in an increase in competition in the marketing opportunity.

The study by Mayani (2019), assessed the influence of force accounts in achieving Value for Money (VFM) in construction of Health Centres 'buildings at Bariadi Town Council. The study found that there was a relatively significant influence of organisation personnel based on professional experienced staff and project management on VFM in construction of public buildings. VFM was explained by 29.2% and 25.3% by organisational personnel and project management respectively with significant contribution on VFM i.e. P-value 0.000 and 0.001 respectively.

2.4.3 Force account financial management on timely completion of construction projects

Welde and Dahl (2019) conducted the study on cost performance in road construction projects Norway. The study used quantitative analysis; interviews were used to collect information from their preventative in different projects; seven hundred roads were involved in the study. The study highlights that large projects consist of different contracts and these contracts seem to account for the biggest costs in projects although the goal of the project is to finalise the project within the agreed performance targets.

Further the study reveals that the contractual basis has been inadequate and that the management of the project and the cost has been imperfect. Further the study concludes that increase in contracts leads to different causes and leads to insufficient assumptions or deficiencies in the description of the works therefore the road agency needs to adopt the procurement methods of construction so as to reduce the unnecessary costs that may occur.

Peter *et al.* (2016) aimed at understanding the cause of cost overruns in transportation infrastructure projects. The study adopted a pluralistic probabilistic approach to cost overrun. The study reports that the interdependence that exists between causes that lead to cost overruns, materials have largely been ignored when considering the likelihood and impact of their occurrence. Further the study suggests that there is a great need of the government to use direct labour methods for effective mitigation and containment strategies that will ensure future transportation infrastructure projects meet the expected cost.

Doloi (2013) aimed at investigating the extent to which the original contractual amount differs from the final cost in construction contracts. The study asserted that cost overruns in projects are a challenge in many countries. It was mentioned that contract volume is an important source of uncertainty and overruns in projects. The way the contract is designed and how the contracting processes take place make the project management more difficult. Finally, the study suggests that using the lowest price as an award criterion can give the bidders an incentive to place bids that are unprofitable without additional payment.

Endut *et a.l* (2015) carried out the study on the cost and time overruns of projects in Malaysia. The study collected data through survey questionnaires to 150 quantity surveyor consultants. The study revealed that the construction industry in Malaysia is associated with time and cost overruns which affect the amount of physical infrastructural development that can be undertaken. The study suggests that there is a need to investigate further factors responsible for the level of time and cost overruns. Lastly the study recommended that the use of force account method could be useful so as to permit the early start of constructional work in the critical areas also helps to save staff time and overhead costs.

2.5 Research Gap

The force account procurement method has recently gained much attention especially in local government organisations due to its economic implication in construction projects, although there is much attention but still there is scarcity of literature concerning force accounts. Even the little conducted studies that are available place the focus on other issues rather than the implementation of construction projects in Tanzania context.

The main objective of force account method is to enable high level of cost saving through utilisation of organisation resources with the focus of attain value for money but according Public Procurement performance evaluation report seriously inefficiency that result to absence of value for money in reviewed project were found but unfortunately there is very little studies that place concern on assessing the important the implementation of construction projects in Moshi District Council that are needed to be adhered so as to have effective implementation of force account project, so this study filled such gap by assessing the for effectiveness of force account on the implementation of construction project.

2.6 Conceptual Framework

The conceptual framework below illustrates the impact of using the force account to effectively implement community based-projects in Moshi District.

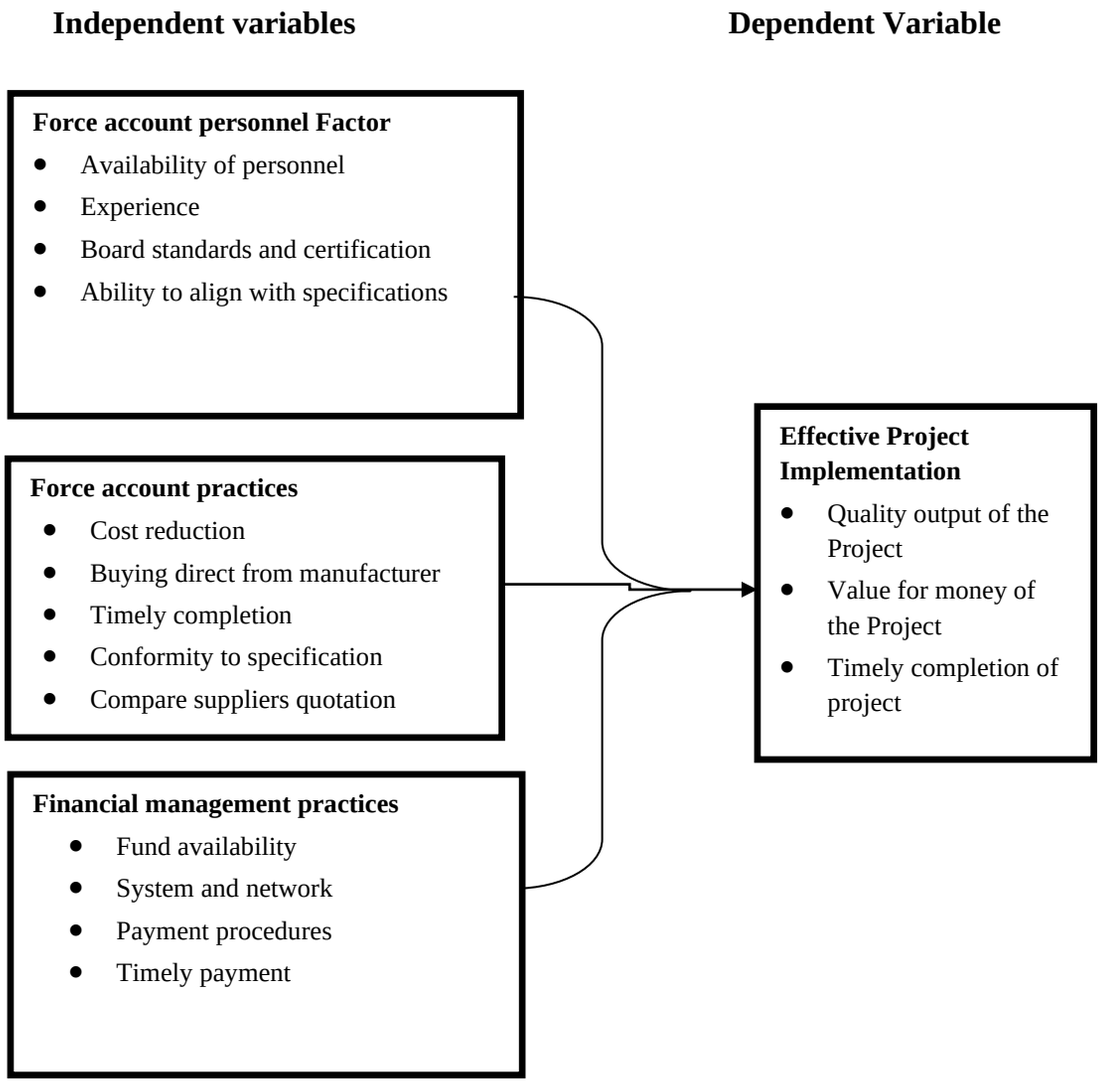

Figure 1: Conceptual framework

Source: Researcher (2023)

The conceptual framework is made up of two variables which are independent variable and dependent variable. Independent variable is the variable that does not rely on other variables and dependent variable is the variable that relies on other variables. The study believes that when force account procurement method is well applied then could easily facilitate project performance but when the force account procurement method is not well applied then could lead to poor project performance. The independent variables include factors of force account personnel which involves, availability of personnel; experience, board standards and certification and ability to align with specifications; the practices force account which cost reduction, buying direct from manufacturer, timely completion, conformity to specification and compare suppliers

quotation; and, the practices of financial management that involves fund availability, system and network , payment procedures and timely payment. The conceptual framework indicates that these independent variables, when taken into account appropriately, lead project performance.

Dependent variable is composed of project performance with variables of time, cost and quality. When time is well managed and cost of construction is affordable then there is a possibility of having quality construction which results in good project performance whilst when time is not well managed and cost of construction is not well affordable then there is a possibility of obtaining poor quality construction which results in poor project performance.

Therefore the conceptual framework believes that factors are well considered then would lead to good performance. Tekka (2019) confirmed that force account is useful to construction and it leads to good satisfaction to the clients and other stakeholders. Therefore the study believes that to have good performance in a project the procurement officer and project manager are needed to select the best methods of procurement so as to save cost, time and provide quality output which is a force account.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Chapter Overview

This chapter deals with the methodologies which explain technical procedures used in performing the research study in an appropriate way to the stakeholders, the chapter explains research geographical coverage, how the study approached, designed, how data was collected, analysed as well as discuss validity and reliability of the study findings.

3.2 Research Design

This study was conducted through a descriptive research design. According to Mugenda & Mugenda (2013) a descriptive is an attempt to collect data from members of a population in order to determine the current status of that population with respect to one or more variables. Skinner (2013) stated that descriptive research is suitable since it considers issues such as economy of the population, rapid turnaround in data collection and it is suitable for extensive research.

3.3 Geographical Coverage

The study was undertaken in Kilimanjaro Region specifically in Moshi District Council where force accounting was practised in construction of local government projects. The study focused on government Secondary schools structures constructed in the financial year 2021/2022 and 2022 /2023. The rationale for choosing this study area was that, apart from the TZS 2.3 billion that was versed on the account of Moshi District Council for 52 projects in constructions, piloted results indicated that almost a half (23) of the projects were not completed on time as planned. In addition to that, all those were under force account. Another reason for choosing Moshi District Council was that that district has many projects (103) that are being undertaken under force account compared to projects found in other parts of Kilimanjaro Region.

3.4 Survey Population

The study involved local builders, local Government officers, and 3 committee’s and suppliers of materials in Moshi District Council. The unit of analysis involved construction personnel, procurement officers and Project stakeholders (Occupants) dealing with public office construction projects from Moshi District Council

3.4.1 Research approaches

The proposed study used both qualitative and quantitative approaches. The qualitative strategy dealt with people's perception and ideas based on the given topic but the quantitative strategy is the type of approach that involves factual data and studying the relationship between the facts. The study employed a quantitative research approach to get to the roots of the research problem. This was because the researcher aimed to establish a study with a higher degree of objectivity than subjectivity. The quantitative approach was used to obtain quantifiable information that enabled researchers to establish the relationship between procurement procedures and performance in cost, time and quality. Although much of the information was quantitative, the study took the path of qualitative research in order to collect qualitative information that supplemented quantitative information.

3.5 Sample Size and Sampling Technique

3.5.1 Sample size

According to Sweeney and Williams (2002) a sample is a small group of respondents drawn from a population that the researcher is interested in obtaining information about. Since the population is large and unknown, the maximum sample size was derived from the following formula according to Smith (2003).

$$n = \frac{(Z\alpha/2)^2 P(1-P)}{\lambda^2}$$

Where: n = Sample Size;

$(Z\alpha/2)^2$ = Z-Value;

P = percentage of project team (construction personnel, procurement officers and Project stakeholders (Occupants) dealing with public office construction projects from Moshi District Council

λ = Maximum error, by using a confidence interval of 95% for the estimated population maximum error of 5%.

$Z\alpha/2 = 1.96$;

$P = 0.1$;

$\lambda = 5\% = 0.05$

$$n = \frac{(1.96)\ 0.085(1-0.085)}{(0.05)^2}$$

$$= 119.5 \approx$$

n

3.5.2 Sampling technique

The study used both probability and non-probability; in non-probability sampling the study used convenience sampling in obtaining information from the occupants while in probability sampling stratified random sampling was applied in selecting procurement officers and construction personnel within the organisation, since it allowed researchers to collect information from the existing respondents.

3.6 Data Collection

3.6.1 Data collection methods

The study adopted a survey method technique for the data collection. In collecting primary information, the researcher used questionnaires and interviews while secondary information involved documentary review. The tool for the data collection was a questionnaire and interview guide.

3.6.1.1 Questionnaire

The study used structured questionnaires. Self-administered approach was used to take questionnaires to the respondents and each respondent received the same copy of the questionnaire. Questionnaire had two sections in which the first section captured particulars of respondents; such as age, level of education and experience in the organisation or study area. The second part captured data for the study specific objectives/hypothesis. Questionnaires were used in the quantitative data collection. These questionnaires were used since respondents were readily available and not so much occupied by administrative activities. According to Phellas *et al.* (2011), questionnaires might be used when respondents are easily attainable, dispersed over a wide area, interviewing each respondent would be excessive. The researcher designed a set of questions to generate the data necessary for accomplishing a research project's objectives (Kothari, 2004). The questionnaires were administered to the staff from various departments, procurement, receiving and inspection and construction committees. The questionnaire was also distributed to the heads of schools and ward development committee members of the district councils, where each respondent was

given a time to fill and later on the researcher collected back the questionnaires. A five-point Likert-scale of 1 to 5 was adopted to assess the degree of significance of each course.

3.6.1.2 Interview

Interview refers to the act of conducting conversation between two parties whereby the party which asks a set of questions is called interviewer and the other part which answers the questions is called interviewee. The study used both structured and unstructured interview to set the discussion, this is because it gave respondents a chance to explain their ideas concerning procurement procedures and the constructional management practice in their projects.

The researcher used interviews where interviewers administered (face to face) interviews to respondents to ensure the efficient collection of information (Phellas *et al*., 2011). The study used an interview method in order to get more information on construction of buildings by force account and make more elaboration on the questions. The interview guide was administered face to face to the School Facility Management Committee (SFMC), Heads of Schools (HS), Construction Committees (CC) and Procurement Committees (PC), receiving and inspection committee (RC) because these respondents had potential information on construction of buildings by force account as they were directly engaged in construction of government school buildings. The researcher prepared open-ended questions that were administered to 39 respondents in the councils so that to get more elaboration and clarifications on the subject matter. This method was used because the researcher needed more clarification on construction of buildings through force accounts in schools.

3.6.3 Documentary review

This study made use of previous research conducted on related fields, journal articles and provided government reports such as (annual reports, books, codes and policies and audit reports). Also, the study adopted media references particularly newspapers to collect secondary information. The obtained secondary information was used as the basis for interpretation and inference for primary information.

3.7 Data Processing and Analysis

Data were analysed based on research objectives and questions in order to acquire important knowledge about the study. Data were first codified and divided into similar topics. Descriptive statistics in the form of percentages and frequencies were used to report qualitative and quantitative data. The results of the data analysis were summarised using the frequency tables. Microsoft Excel and Statistical Package for Social Sciences (SPSS) version 22.0 software was used for data analysis. Scientific statistical methods for data analysis included testing the meaning of the variables using regression models as shown below:

Objective 1: On examining the extent force account personnel factor facilitated quality output on construction projects in Moshi District Council. The study used linear regression with the following model:

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

Y= Quality output for implementing construction projects.

X1 = Qualified personnelX2 = Experience

X3= Board standards and certification

X4 =Ability to align with specification

Objective 2: Examining the extent to which force account practice has facilitated the attainment of value for money in the implementation of construction projects in Moshi District Council. The study was guided by the following model specification of matrix notation as follows:

$$\gamma = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon\varepsilon$$

$$\gamma = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon\varepsilon$$

Where

Y= Value for money in the construction project

X1= Cost reduction

X2=Buying direct from manufacturer

X3= Conformity specifications

X4= Compare suppliers quotation

Objective 3: On analysing force account financial management on timely completion of construction project in Moshi District Council, linear regression was used as presented by the following model:

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

$$\boldsymbol{\gamma = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon}$$

Y= Timely completion of construction project

X1 = Fund availability

X2 = Systems and networks

X3 = Payment procedures

X4 = Timely payment

e = Error term

β0, β1, β2, β3, β4, are the coefficients of the variables in regression equations

3.8 Ethical Issues

Research ethics are morals or principles that are used in conducting scientific research. The study sought the research permit to conduct research from Moshi Co-operative University. The research employed voluntary participation of respondents since it did not force respondents in giving information. All information provided by the respondent was treated with utmost confidentiality.

CHAPTER FOUR

4.0 FINDINGS AND DISCUSSION

4.1 Chapter Overview

This section provides data analysis interpretation and discussion of the study. The presented results are those obtained from the questionnaire and interview. The study findings are organised into four parts; the first part contains demographic characteristics of the respondents, the second part contains the organisation profile of the respondent, the third part contains study objectives and the fourth part contains the hypothesis of the study. The study collected information from the respondents who were well aware of force accounts.

4.2 Validity and reliability

Kothari, (2006) Validity refers to the extent to which results can be accurately interpreted and generalised to the population. Validity of the study was ascertained by focusing on the specific objective of the study. Also, the study adopted pilot study to ensure transparency of the questionnaire. Puzzling and responsive questions are detached in order to make respondents calm and ready to give information that reflects the concept of the study. Reliability is the degree to which evaluation of tools generates stable and consistent results (Kothari, 2006). Cronbach alpha was applied to test internal consistency and divergence corrected. The results are as shown in Table 1. The pilot results indicated that the categories had a Cronbach Alpha of above 0.7 and thus was reliable.

Table 1: Reliability Test

Categories	Cronbach Alpha
Personnel Factor	
Availability of personnel	0.787
Experience	0.906
Board standards and certification	0.842
Ability to align with specification	0.918
Procurement practices	
Cost reduction	0.754
Buying direct from manufacturer	0.777
Conformity to specifications	0.777
Compare suppliers quotation	0.95
Financial management practices	
Fund availability	0.725
Systems and networks	0.808
Payment procedures	0.883
Timely payment	0.762
Effective Project Implementation	
Quality output of the Project	0.752
Value for money of the Project	0.749
Timely completion of project	0.925

4.3 Response Rate

A total of 112 questionnaires were completely filled and returned for analysis out of 120 supplied questionnaires that were distributed to all surveyed respondents. This made the study to have a satisfactory response rate of 93.33%. The response rate of this study qualified to be more satisfactory as it exceeds the accepted minimum required response rate in social science studies whereby response rate above 50% found to be adequate for making valid conclusions and even (Fincham, 2018) stated that 60% response rate is much better response rate for any research study. High response rate of this study was due to the researcher 's high level of commitment in making follow-up and also the interest in the study results also facilitated a high response rate. The distribution of response rate was presented in Table 2. Count however it was noted that the levels of awareness of the respondent vary from one another.

Table 2: Response rate

Department	Expected Respondents	Actual response	Non respondents	% of actual response
Local builders	20	16	4	32.14%
Suppliers	19	17	2	24.11%
School Facility Management Committee (SFMC	51	50	1	26.79%
LGA Officers	30	29	1	16.96%
Total	120	112	8	93.33%

Source: Field data (2023)

4.4 Demographic Characteristics of Respondents

The demographic characteristic contains information that was obtained from the respondents which included age and level of education. The demographic information, specifically age and level of education, provided valuable context for understanding the respondents' perspectives on the effectiveness of force accounts in implementing construction projects in Moshi District Council. Age could be an indicator of experience, potentially affecting how one views financial management and project execution. Similarly, the level of education might correlate with the respondent's ability to comprehend and interact with financial systems, payment procedures, and other aspects under study. Collecting these demographic details allows for a robust analysis, enabling the researcher to identify whether opinions vary significantly among different age groups or education levels. This segmentation could be particularly

useful for pinpointing specific areas for improvement or for tailoring training and resources more effectively.

4.4.1 Age of the respondents

The study involved respondents who were aged between 21 to 60 years old. Table 4.3 presents the age of respondent whereby; 11(9.8) of the respondents were aged between 21 to 30 years, 34(30.4%) were aged between 31 to 40 years, 46(41.2%) were aged between 41 to 50 years, 21(18.6%) were aged 51 to 60 years.

Table 3: Descriptive Statistics of the age of respondent

Variables	Frequency	Percent
21-30 years	11	9.8
31-40 years	34	30.4
41-50 years	46	41.2
51-60 years	21	18.6
Total	112	100.0

Source: Field data (2023)

The results imply that the majority age group of respondents was mature enough to provide rich information on effectiveness of using Force accounts to construct project implementation. The age distribution of respondents in the study suggests a higher concentration of participants in the middle-age brackets, particularly those aged between 31 to 50 years. This could imply that the views collected are predominantly influenced by individuals who are likely to have substantial experience in the construction industry. Younger respondents (21-30 years) are underrepresented, as are those in the older age bracket of 51-60 years. Therefore, the findings might be more reflective of established practices and attitudes rather than capturing the full spectrum of generational perspectives.

4.4.2 Education level

This part explains the education level of the respondent; the study involved respondents who had a certificate, diploma, bachelor degree and postgraduate degree. Table 4 presents that; there were 7(6.3%) respondents who had certificate level of education while 10 (8.9%) of the respondents had Diploma Degree level of education, 67(55.8%) of respondents had Bachelor level of education while 28(25%) had Masters' degree.

Table 4: Descriptive Statistics on education Level of respondents

Variables	Frequency	Percent
Certificate	7	6.3
Diploma	10	8.9
Bachelor	67	55.8
Master's degree	28	25
Total	**112**	**100.0**

Source: Field data (2023)

The results imply that the majority 95 (80.8%) of respondents were highly educated and therefore could provide genuine information of the effectiveness of force accounts in the implementation of construction projects. With these statistics, it can be said that the study collected information from knowledgeable people. These were people who were able to read questions, think critically and give objective answers. Education levels and working experience are integral part of project implementers. According to URT (2015), education allows people to face the challenges that exist around the world that are most likely to influence community participation in sustainability projects. It is important that 100% of the respondents were able to read and write. At the very least, they have the knowledge to discuss where things went wrong and the reasons for the project status, funding, approaches and guidelines used on Force Account to implement projects in their areas. The use of Force accounts requires the use of your worker, your work structures and your additional / financial resources. The availability of a high number of employees with degrees is attributed to the government tendency of providing opportunity to university graduates in public service offerings.

4.5 The influence of force account personnel factors on quality outputs of the project

The first objective was to determine the effect of force account personnel on quality output in the implementation of construction projects in Moshi District Council. The objective was analysed using descriptive and regression analysis.

4.5.1 Descriptive statistics on personnel factors on the implementation of construction projects

The respondents were asked statements on personnel factor effects on force account facilitation in the implementation of construction projects. This was done asking them

to indicate their level of agreement or disagreement where 5= strongly agree, 4= agree, 3= neutral, 2= disagree and 1= strongly disagree. This is as shown in Table 5.

Table 5: Descriptive statistics for personnel factor

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	S.D
Availability of personnel are consistently available for construction projects in Moshi District Council.	8.0%	8.0%	37.5%	34.8%	11.6%	3.34	1.05
There is a sufficient number of qualified staff to meet the project needs in Moshi District council.	9.8%	8.9%	30.4%	38.4%	12.5%	3.35	1.12
The personnel involved have prior experience in similar construction projects.	10.7%	4.5%	36.6%	37.5%	10.7%	3.33	1.09
Experience is commonly considered when staffing projects in Moshi District Council.	8.0%	10.7%	31.2%	36.6%	13.4%	3.37	1.10
The staff working on construction projects in Moshi District Council generally have relevant ability to align with specification	5.4%	12.5%	30.4%	45.5%	6.2%	3.35	0.97
The personnel assigned to construction projects are well-educated in their respective fields.	11.6%	8.0%	34.8%	33.9%	11.6%	3.26	1.14
Projects in Moshi District Council are commonly executed according to Boards' standards and certification	10.7%	8.9%	35.7%	32.1%	12.5%	3.27	1.13
The construction projects in Moshi District regularly meet the required standards and specifications.	8.0%	8.0%	35.7%	41.1%	7.1%	3.31	1.01

Source: Field data (2023)

Under the first statement, the majority of respondents are either neutral (37.5%) or agree (34.8%) that qualified personnel are consistently available for construction projects in Moshi District Council. The mean score is 3.32 with a standard deviation of 1.05, suggesting that the general opinion leans toward agreement but with some variability in the responses. The findings indicate that there is a relatively positive

perception of the availability of qualified personnel for construction projects in Moshi District Council. However, the presence of a sizable neutral response and the standard deviation value point to some level of uncertainty or variability in this perception. This suggests that the availability of qualified personnel is generally considered sufficient.

In the second statement, the findings show that opinions are somewhat mixed on whether there is a sufficient number of qualified staff for construction projects in Moshi District. While a combined 51% of respondents agree or strongly agree that there is sufficient qualified staff, a notable 30.4% are neutral, and 18.7% disagree or strongly disagree. The mean score of 3.35 suggests that, on average, respondents are more likely to agree that staffing levels are adequate, although the standard deviation of 1.12 indicates some variability in these views. This suggests that there is a general sense of adequate staffing levels for construction projects in Moshi District Council construction, but the high percentage of neutral responses and the standard deviation indicate that this opinion is not unanimous.

The descriptive statistics for the statement about whether the personnel involved have prior experience in similar construction projects in Moshi District Council reveal had a mean score is 3.33 with a standard deviation of 1.09. While 37.5% of the respondents agree and another 10.7% strongly agree that the personnel have prior experience, a combined 36.6% are neutral on this topic. A smaller segment, comprising 10.7% who strongly disagree and 4.5% who disagree, forms the dissenting opinion. The data indicates that, on average, there is a slight leaning toward the belief that personnel do have relevant experience, but there is also a high level of uncertainty, as indicated by the large neutral category and the standard deviation. This suggests that for force accounting to be more effective in construction projects in Moshi District Council there may be a need for ensuring that personnel with adequate experience are involved, given that expertise is a significant factor in project success.

The table shows that most respondents are in favour of the statement that experience in related works is commonly considered when staffing projects in Moshi District Council. Specifically, 36.6% of respondents agree with this statement, and 13.4% strongly agree, making a total of 50% who agree or strongly agree. On the other side, only 18.7% disagree or strongly disagree, with 8.0% strongly disagreeing and 10.7%

disagreeing. A substantial portion, 31.2%, remains neutral on this matter. The mean score of 3.37 and a standard deviation of 1.10 further suggest that the prevailing sentiment leans toward agreement. The implications of these statistics are significant for assessing the effectiveness of force accounts on the implementation of construction projects in Moshi District Council. Since most respondents agree that experience is commonly considered when staffing, it could imply that the force account method, which involves using in-house staff and resources, may be effective in tapping into existing expertise.

The results show that the majority of respondents agree (45.5%) or are neutral (30.4%) on the statement that staff working on construction projects in Moshi District Council generally have relevant ability to align with specifications. Only a small percentage strongly agree (6.2%) or disagree (12.5%) with the statement, and an even smaller percentage (5.4%) strongly disagree. The mean score is 3.35, with a standard deviation of 0.97, indicating that the general sentiment leans towards agreement but with some variability in responses. This suggests that, overall, the ability to align with specification of staff working on construction projects in the district are perceived to be relevant. However, the variability in responses also indicates that there may be room for improvement in ensuring a universally high level of relevant education among personnel.

Majority of respondents feel neutral to positive about the ability to align with specification to construction projects in Moshi District Council. Specifically, 34.8% of respondents were neutral, while 33.9% agreed and 11.6% strongly agreed that the specification is well-aligned in their respective fields. Conversely, only 11.6% strongly disagreed and 8.0% disagreed with the statement. The mean score stands at 3.26 with a standard deviation of 1.14, indicating a general leaning towards agreement but with some variability in opinions. The implication of these statistics suggests that the ability to align with specification in construction projects are generally viewed as adequate, although there is room for improvement. This could be crucial for assessing the effectiveness of the force account method in construction project implementation in the district, as well - aligned with specification are often essential for successful project outcomes.

The results show the opinions of respondents on whether construction projects in Moshi District Council are executed according to established board standards and certification. Most respondents were either neutral (35.7%) or agreed (32.1%) that this is the case. A smaller portion strongly agreed (12.5%), while the numbers of those who disagreed (8.9%) or strongly disagreed (10.7%) were relatively low. The mean score was 3.27 on a scale of 1 to 5, with a standard deviation of 1.13. This indicates that there is some variation in opinion, but the average leans toward agreement that projects generally meet established standards. The implication is that force account, which is the use of in-house resources for project implementation, appears to be somewhat effective in ensuring that construction projects in Moshi District Council adhere to board standards and certification.

Lastly, the results show that a majority of respondents believe that construction projects in Moshi District Council meet required board standards and certification, with 41.1% agreeing and 7.1% strongly agreeing. However, a significant portion, 35.7%, remains neutral on this matter, and an equal minority of 8.0% either disagrees or strongly disagrees. The mean score for this statement is 3.31 with a standard deviation of 1.01, indicating that the opinion leans more towards agreement but with some variability. The implication of these findings suggests that while most believe that standards and specifications are generally met in Moshi District's Council construction projects, there is still room for improvement, particularly given that a sizable percentage of respondents remain neutral. This neutrality may point to either a lack of information or ambivalence, indicating a need for more transparent quality assurance practices in construction projects.

On average, the respondents' collective level of agreement with the statements provided falls slightly above the midpoint, with an average score of 3.32 on the 5-point scale. This suggests a moderate level of agreement among respondents regarding the effectiveness of force accounts in relation to specification and personnel. The standard deviation (S.D) of 1.07 indicates a degree of variability in the responses, which suggests that while the average leans towards agreement, there are variations in individual opinions. The implication of these findings is that there is a notable level of consensus among respondents that force accounting has some positive impact on

specification and personnel in construction project implementation in Moshi District Council, although it's not a unanimous agreement.

In addition, the respondents were asked how you would describe the effectiveness of force account personnel to facilitate quality output on the implementation of construction projects in Moshi District Council. One respondent indicated that;

> *"…….force account positively impacts personnel factor aspects of construction projects in Moshi District Council. It allows for flexibility in meeting specifications and encourages attention to detail. Personnel benefit from skill development and knowledge transfer..." (28 August, 2023)*

Another respondent indicated that;

> *"……….force account in Moshi District Council construction projects provides flexibility for specification changes and promotes adherence to standards. It also fosters skill development and knowledge sharing among personnel…." (28 August, 2023)*

The responses highlight that force account has a positive impact on construction projects in Moshi District Council, influencing both specification and personnel aspects. Force account practices offer flexibility for adapting to changing specifications, encourage attention to detail, and provide opportunities for skill development and knowledge sharing among construction personnel. Additionally, force account projects promote adherence to industry standards, ensuring that construction work aligns with established specifications. These implications suggest that force accounting is a valuable approach for enhancing the overall effectiveness and quality of construction projects in Moshi District Council.

4.5.2 Inferential statistics for personnel

The assumptions tests conducted included Multicollinearity Test, Test for Heteroscedasticity and Normality Test.

4.5.2.1 Multicollinearity test

Multicollinearity test was conducted to determine if two or more of the predictor (independent) variables in the regression model were highly correlated (Table 2).

Variance inflation factor (VIF) was used to test multicollinearity and VIF of below 10 indicated acceptable limits. If the VIF value of exploratory variables is greater than 10, then variables were regarded as highly collinear.

Table 6: Multicollinearity test using tolerance and VIF

	Collinearity Statistics	
	Tolerance	**VIF**
Availability of Personnel	0.412	2.427
Experience	0.215	4.645
Board standards and certification	0.317	3.160
Ability to align with specification	0.217	4.606

SPSS results (2023)

From the findings above all the variables had tolerance values >0.2 and VIF values <10 as shown in Table 6. This implies that there were no multicollinearity problems in the variables because VIF values were less than 10. These results are consistent with Myres (2015) who indicated that VIF ≥ 10 indicates presence of Multicollinearity. Therefore, there was no multicollinearity among the independent variables.

4.5.2.2 Test for normality

Test for normality determines if the data is well modelled and normally distributed (linear). To test the normality of the variables, Shapiro–Wilk test was used as it has the highest power among all tests for normality. The hypothesis was tested at a critical value at 0.05, where the rule is that reject H_0 if the probability (P) value is less than 0.05 or else do not reject. The dependent variable should be normally distributed because the study was analysed using a multiple regression model where the condition of normality must be satisfied (Quataroli & Julia, 2012). The hypothesis was that;

H_1: The data is normal.

The results for normality are as shown in Table 7.

Table 7: Normality Outputs

	Shapiro-Wilk		
	Statistic	**df**	**Sig.**
Availability of personnel	0.741	112	0.055
Experience	0.835	112	0.052
Board standards Certification	0.723	112	0.068
Ability to Align with specification	0.867	112	0.071
Quality output of the Project	0.922	112	0.077

The results indicated that using the Shapiro-Wilk test of normality, the data is normal since the p-values are above 0.05 for all the variables and thus we do not reject the alternative hypothesis (H_1). Therefore, the variables on availability of personnel, experience, board standards and certification and ability to align with specifications and quality output of the project are normal in distribution and hence subsequent analysis can be carried out.

4.5.2.3 Heteroscedasticity test

A heteroscedasticity test was conducted to examine the potential correlation of error terms across observations in the time series data. In regression analysis, it is essential for the error terms to exhibit a constant variance, which is referred to as homoscedasticity. To assess whether the residuals satisfy this criterion, the Breusch-Pagan test for heteroscedasticity is employed.

Table 8: Heteroscedasticity test

Breusch-Pagan test for heteroscedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (9) = 37.57
Prob>chi^2 = 0.072

In Table 8, the null hypothesis of this test posits that the residuals are homoscedastic. If the p-value exceeds 0.05, it can be inferred that there is a consistent level of variance. The null hypothesis was not rejected at a significance level of 0.05, as the reported p-value was 0.072. Therefore, based on the findings, it can be concluded that the data did not exhibit significant heteroscedasticity.

4.5.3 Regression analysis

Multiple linear regression analysis was used to present the relationship between personnel, experience, board standards and certification, ability to align with specifications and quality output of the project. The average score from the Likert scale for qualified personnel, experience in related works, board standards certification, and ability to align with specification were regressed against the average score for quality output of the project. The results are as presented in Table 9.

Table 9: Regression Outputs for specification and personnel and implementation of construction projects

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.878[a]	.756	.654	12.09686

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Regression	337765.246	4	84441.312	577.045	.000
Residual	15657.745	107	146.334		
Total	353422.991	111			

Coefficients					
	Unstandardized Coefficients		Standardised **Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	3.630	6.485		.560	.577
Availability of personnel	.135	.032	.135	4.258	.000
Experience	.375	.051	.380	7.316	.000
Board standard and certification	.148	.050	.148	2.947	.004
Ability to align with specification	.380	.050	.376	7.652	.000

SPSS results (2023)

The R Square value is 0.756, which suggests that approximately 75.6% of the variance in the dependent variable can be explained by the independent variables in the model. This is a relatively high value and indicates that the model fits the data well. A higher R Square value is generally a good sign, as it means that the variables you have included in your model explain a large proportion of the variance in the outcome variable. The F-statistic is 577.045 with a significance level of 0.000. This means that the overall model is statistically significant and that it's very unlikely that these results are due to random chance. In other words, at least one of the predictor variables is relevant for predicting the outcome variable. The high F-value indicates that there is a strong relationship between the variables included in the model and the dependent variable. The significance level for the F-statistic is 0.000, which is less than the common alpha level of 0.05. This means that the model is statistically significant. This strengthens the validity of the model and suggests that the predictor variables do have a meaningful impact on the dependent variable.

The regression coefficient for availability of personnel is 0.135, and its significance level is 0.000. This suggests that having personnel has a positive and impact on the implementation of construction projects because the $p<0.05$. Because the significance level is extremely low (essentially zero), this relationship is statistically significant.

This implies that the more personnel you have, the better the construction project is likely to be implemented.

The second variable, 'Experience,' has a coefficient (B) of 0.375 and a significance level of 0.000<0.05. This shows that experience in related construction works has a very strong positive impact on project implementation. Given the extremely low significance level, this is also statistically significant ($p<0.05$). Projects are more likely to be effectively implemented if the personnel have previous experience in similar works. Board standards and certification has a coefficient (B) of 0.148 and a significance level of 0.004<0.05. This means that by considering board standards certification it brings better the construction projects implementation. The relationship is statistically significant given the low significance level (Sig.), although its impact is not as strong as that of 'Experience.'

Lastly, Ability to align with specification has a coefficient (B) of 0.380 and a significance level of 0.000<0.05. This variable has a strong positive impact on the implementation of construction projects, similar to 'Experience.' The significance level is extremely low, making this result statistically significant. Following ability to align with specification closely is highly associated with successful project implementation. All the variables are statistically significant and positively associated with the effective implementation of construction projects in the Moshi District. Among these, 'Experience ' and ' board Standards and certification appear to have the strongest impact.

The results are consistent with Obodoh *et al* (2019) findings indicating that a quality management plan in construction was applied as the tool that guided construction professionals in the execution of construction projects in terms of quality. The findings by Paul (2020) indicated that procurement planning, Adoption of the E-Procurement system, supplier relationship management, professional experienced staff, effective communication and procurement cost estimation are very important elements of the procurement practices that contribute to the effectiveness of the procurement process. Japhary (2017) findings it was observed that in order to apply effectively the force account method then the supervisors and the consultancy should have collaboration with the procuring entity and executing team.

4.6 Effectiveness of Force Account Practices on Value for Money during the Implementation of Construction Projects

The second objective was to examine the effectiveness of force account practices on the attainment of value for money and the implementation of construction projects in Moshi District Council. The objective was analysed using descriptive and regression analysis

4.6.1 Descriptive statistics

The respondents were asked statements on force account practices in the implementation of construction projects. This was done asking them to indicate their level of agreement or disagreement where 5= strongly agree, 4= agree, 3= neutral, 2= disagree and 1= strongly disagree. This is as shown in Table 10.

Table 10: Descriptive statistics for procurement procedures

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	S.D
The force account practices are in place and effective in reducing the overall cost of construction projects.	10.7%	8.0%	42.9%	26.8%	11.6%	3.21	1.10
The current procurement practices contribute to cost-saving measures in construction projects.	8.9%	9.8%	35.7%	35.7%	9.8%	3.28	1.07
The force account practices have a positive impact on conformity specification	12.5%	6.2%	41.1%	31.2%	8.9%	3.18	1.10
The established force account practice helps in cost reduction construction projects.	14.3%	9.8%	32.1%	35.7%	8.0%	3.13	1.16
The force account practice ensures buying direct from manufacturer	15.2%	9.8%	36.6%	32.1%	6.2%	3.04	1.13
Force account practice guarantees that the final conformity specification	7.1%	12.5%	40.2%	30.4%	9.8%	3.23	1.03
The force account practice facilitates compare suppliers quotation	9.8%	6.2%	41.1%	30.4%	12.5%	3.29	1.09
The force account practice has an easier way to finalise quotation for construction projects	9.8%	6.2%	36.6%	35.7%	11.6%	3.33	1.09
Average						3.21	1.10

Source: Field data (2023)

Under the statement on the effectiveness of force account practice in reducing the overall cost of construction projects in the Moshi District Council the mean score was 3.21 with a standard deviation of 1.10. A large percentage of respondents (42.9%)

were neutral on the issue, while 26.8% agreed and 11.6% strongly agreed that the procedures are effective. However, a minority of respondents disagreed (8%) or strongly disagreed (10.7%) with the statement. The mean score above the neutral point suggests that there is a slight tendency to view them as effective, but the high standard deviation and large percentage of neutral responses indicate that there is not a strong consensus. Overall, these statistics imply that there is some level of agreement that forces account practices and are beneficial in reducing costs.

The results indicate varying opinions on whether force account practice contributes to cost-saving measures in construction projects. About 18.7% disagree that force account approach is cost effective and 45.5% had the opinion that force account approach contributes to value for money and the remaining 35.7% of the respondents were neutral. These statistics suggest that there is no strong consensus about effectiveness on how force account approach can contribute to value for money. A significant number, 35.7%, are neutral, indicating either a lack of information or uncertainty about the issue. Although the mean leans slightly towards agreement, the high standard deviation reveals that opinions are spread out. This could mean that while some individuals find the force account practice is effective in cost-saving, a notable percentage do not share this view. This is a call into question on whether the overall challenges of force account facilitation for construction projects is affecting value for money which was not the focus of this study.

The results show that only a small percentage of respondents strongly agree (8.9%) or agree (31.2%) that the force account practices have a positive effect. The majority are neutral (41.1%), and a smaller portion disagree (6.2%) or strongly disagree (12.5%). The mean value stands at 3.18, which is closer to the "neutral" rating, and the standard deviation is 1.10, indicating a moderate spread of opinions. These statistics imply that there is not a strong consensus among respondents that force accounts are effective for timely completion. The fact that the majority are neutral suggests that there may be other factors at play affecting the timing of construction projects which is the room for further study contributed by this research.

The results show that the majority of respondents are generally positive about the established procurement processes, specifically regarding its role in avoiding delays in

construction projects. The mean score is 3.13, which falls between "Neutral" and "Agree," while the standard deviation of 1.16 indicates some variability in the opinions. However, it is noteworthy that 35.7% of the respondents "Agree" and 8% "Strongly agree," making up a significant 43.7% who have favourable opinions. On the contrary, findings indicate that only 24.1% either "Disagree" or "Strongly disagree." Interestingly, a substantial 32.1% of respondents are "Neutral" on the topic, suggesting that there may be some level of uncertainty or lack of information among this group. The data implies that while the existing procurement processes are generally viewed as effective in avoiding delays, there is room for improvement, especially considering the large percentage of respondents who are neutral. This could signify that more education or clarification on the force account practices could potentially shift this neutral group towards a more favourable view.

The results show that for the statement that "The force account practice ensures that materials and services meet the project specifications," 15.2% strongly disagree, 9.8% disagree, a substantial 36.6% remain neutral, 32.1% agree, and only 6.2% strongly agree. The mean score for this statement is 3.04 with a standard deviation of 1.13. This suggests that overall opinion leans slightly towards the neutral side, indicating that there is neither strong satisfaction nor strong dissatisfaction with how force account practice is ensuring that materials and services meet project specifications. The high percentage of neutral responses could imply that many respondents are either unsure or find to be somewhat effective but still lacking in certain aspects. The variability in responses, as indicated by the standard deviation of 1.13, further suggests that there is no consensus among respondents.

The descriptive statistics for the statement "Force account practices guarantees that the final construction aligns with the set specifications" show that a large proportion of respondents (40.2%) are neutral, suggesting uncertainty or lack of a firm opinion on the issue. A combined 40.2% of participants either agree (30.4%) or strongly agree (9.8%) with the statement, indicating that there is some level of belief that following procurement guidelines is crucial for meeting construction specifications. However, a notable 19.6% of respondents disagree (12.5%) or strongly disagree (7.1%) with the statement. The mean score stands at 3.23 with a standard deviation (S.D) of 1.03, suggesting that while the average sentiment leans towards agreement, there is a

moderate level of variability in the responses. These statistics imply that while there is a general trend toward conformance to specification, there is also significant disagreement and uncertainty on force account implementation. This implies that additional measures are needed to improve confidence in the effectiveness of force accounts on the implementation of construction projects in Moshi District Council.

The descriptive statistics for the statement "The procurement procedures facilitate quick and accurate completion of project quotations" reveal that a mean score of 3.29 and a standard deviation of 1.09 were recorded. The majority of respondents were neutral (41.1%) on the effectiveness of force accounts in procurement procedures, suggesting that there's no strong consensus. However, the numbers tilt slightly towards a positive view, with 30.4% agreeing and 12.5% strongly agreeing, making up a total of 42.9% in favour, as opposed to 16% (9.8% strongly disagree and 6.2% disagree) expressing a negative view. This indicates that there are positive indicators on satisfaction of usage of force account approach and provide a room for improvement in force account practices and outputs for construction projects in Moshi District Council.

The result reveals that 11.6% of respondents strongly agree and 35.7% agree that the current procurement practices make it easier to finalise quotations for construction projects. In contrast, a smaller percentage of people disagree (6.2%) or strongly disagree (9.8%) with the statement. The majority of respondents, 36.6%, remain neutral. With a mean score of 3.33 and a standard deviation of 1.09, the results suggest a general leaning towards a favourable view of the current procurement system's impact on the ease of finalising quotations for construction projects in Moshi District Council. However, the high percentage of neutral l responses and relatively high standard deviation indicate that there is still significant variability in opinions in the procurement system.

The average score for the effectiveness of force account facilitation on procurement practices in the implementation of construction projects in Moshi District was 3.21, with a standard deviation of 1.10. This average score is slightly above the neutral point of 3, indicating that respondents generally lean towards agreeing that force account has a facilitating role in procurement practices. However, the standard deviation of 1.10 also suggests that there is variability in the opinions of the respondents, meaning not

everyone agrees to the same extent. Overall, these statistics imply that while force accounts are generally considered effective in streamlining procurement practices, there is room for improvement and a need for further investigation due to the observed variability in responses.

In addition, the respondents were asked how they would describe the influence of force accounts on the procurement practises aspects of construction projects in Moshi District Council. A respondent indicated that;

> *"…… the adoption force account has streamlined procurement in Moshi District Council by enabling direct sourcing of materials and services, reducing reliance on external suppliers and resulting in cost savings…"(28 August, 2023)*

Another respondent indicated that;

> *"……..force account enhances procurement efficiency by allowing quick adaptation to project changes and improving cost transparency throughout the procurement process in Moshi District…" (28 August, 2023)*

The interview responses highlight several positive implications of the use of force account in construction projects in Moshi District Council. Firstly, it's clear that force accounting has led to streamlined procurement practices by allowing direct sourcing of materials and services, reducing dependence on external suppliers, and ultimately resulting in cost savings. This implies that construction projects in the region can better control their procurement activities and potentially achieve cost-efficiency. Secondly, the responses indicate that force accounts enhance procurement efficiency by enabling quick adaptation to project changes and improving transparency in cost management. This adaptability suggests that construction projects in Moshi District Council can respond more effectively to evolving project needs, ensuring smoother project execution.

4.6.2 Assumption of regression

The assumptions tests conducted included Multicollinearity Test, Test for Heteroscedasticity and Normality Test.

4.6.2.1 Multicollinearity “test

Multicollinearity “test was conducted to determine if two or more of the predictor (independent) variables in the regression model were highly correlated (Table 11). Variance inflation factor (VIF) was used to test multicollinearity and VIF of below 10 indicated acceptable limits. If the VIF value of exploratory variables is greater than 10, then variables were regarded as highly collinear.

Table 11: Multicollinearity test using tolerance and VIF

	Collinearity Statistics	
	Tolerance	**VIF**
Cost Reduction	0.352	2.838
Buying direct from manufacturer	0.313	3.199
Conformity to Specifications	0.348	2.875
Compare Suppliers quotation	0.258	3.877

SPSS results (2023)

From the “findings above all the variables had tolerance values >0.2 and VIF values <10 as shown in Table 11 and thus according to Myres (2015) who indicated that where VIF ≥ 10 indicate presence of Multicollinearity, there was no multicollinearity among the independent variables.

4.6.2.2 Test for normality

Test for normality determines if the data is well modelled and normally distributed (linear). To test the normality of the variables, Shapiro–Wilk test was used as it has the highest power among all tests for normality. The hypothesis was tested at a critical value at 0.05, where the rule is that reject H_0 if the probability (P) value is less than 0.05 or else do not reject. The dependent variable should be normally distributed because the study was analysed using a multiple regression model where the condition of normality must be satisfied (Quataroli & Julia, 2012). The hypothesis was that;

H_1: The data is normal. The results for normality are as shown in Table 12.

Table 12: Normality Outputs

	Shapiro-Wilk		
	Statistic	**df**	**Sig.**
Cost Reduction	0.806	112	0.054
Buying direct from manufacturer	0.745	112	0.050
Conformity to Specifications	0.720	112	0.060
Compare suppliers quotation	0.850	112	0.081
Value for money of the Project	0.705	112	0.073

The results indicated that using the Shapiro-Wilk test of normality, the data is normal since the p-values are above 0.05 for all the variables and thus we do not reject the alternative hypothesis (H_1). Therefore, the variables on availability of cost reduction, timely completion, conform to specifications, quotation completion and value for money of the projects are normal in distribution and hence subsequent analysis can be carried out.

4.6.2.3 Heteroscedasticity test

A heteroscedasticity test was conducted to examine the potential correlation of error terms across observations in the time series data. In regression analysis, it is essential for the error terms to exhibit a constant variance, which is referred to as homoscedasticity. To assess whether the residuals satisfy this criterion, the Breusch-Pagan test for heteroscedasticity is employed.

Table 13: Heteroscedasticity Test

Breusch-Pagan test for heteroscedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (9) = 25.24
Prob>chi^2 = 0.062

In Table 13, the null hypothesis of this test posits that the residuals are homoscedastic. If the p-value exceeds 0.05, it can be inferred that there is a consistent level of variance. The null hypothesis was not rejected at a significance level of 0.05, as the reported p-value was 0.060. Therefore, based on the findings presented in Table 13, it can be concluded that the data did not exhibit significant heteroscedasticity.

4.6.3 Regression analysis

Multiple linear regression analysis was used to present the relationship between variables on availability of cost reduction, buying direct from manufacturer, conformity to specifications, and Compare supplier's quotation on value for money of the projects. The average score from the Likert scale for variables on availability of cost reduction, buying direct from manufacturer, conformity to specifications, Compare supplier's quotations were regressed against the average score for value for money of the projects. The results are as presented in Table 14.

Table 14: Regression Outputs for procurement practices and implementation of construction projects

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.895[a]	.789	.789	6.04293

ANOVA					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Regression	360524.401	4	90131.100	2468.199	.000
Residual	3907.313	107	36.517		
Total	364431.714	111			

	Unstandardized Coefficients		Standardised **Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	.318	3.057		.104	.917
Cost reduction	.813	.073	.786	11.140	.000
Buying direct from suppliers	.748	.046	.746	16.312	.000
Conformity to specifications	.586	.042	.555	13.858	.000
Compare suppliers quotation	.497	.064	.491	7.775	.000

The Model Summary shows a high R value of .895, indicating a strong relationship between the variables. The R Squared and Adjusted R Square values are both .789, which means that approximately 78.9% of the variation in the "Value for Money of the Project" can be explained by the model. The standard error of the estimate is 6.04293, providing a measure of the accuracy of predictions.

The ANOVA results show a highly significant F-value of 2468.199 with a significance level (Sig.) of .000 which is less than 0.05. This indicates that the regression model predicts the dependent variable significantly well. The sum of squares for the regression and residuals are 360524.401 and 3907.313, respectively, with a total sum of squares of 364431.714.

The factor "Cost reduction" had a coefficient of .813 and a standard error of .073. The t-value was 11.140, and the significance level was .000<0.05. The high t-value and the significance level of zero indicate that cost reduction is a highly significant factor in affecting the value for money of the project. The "Timely completion" variable had a coefficient of .748 and a standard error of .046. The t-value for timely completion was 16.312, and the significance level was .000<0.05. These numbers indicate that the timely completion of a project is also a very significant factor in achieving value for money.

The variable "Conformity to specifications" had a coefficient of .586 and a standard error of .042. The t-value for this variable was 13.858, and the significance level was .000<0.05. This suggests that conforming to specifications is also crucial for achieving value for money in construction projects.

Lastly, “compare supplier’s quotation “variable had a coefficient of .497 and a standard error of .064. The t-value for this factor was 7.775, and the significance level was .000<0.05. This implies that the compare supplier’s quotation is also a significant factor that influences the value for money of the project. All the variables were found to be highly significant in affecting the value for money of construction projects in Moshi District Council.

The findings are content with Olusola, (2017) that supported that value-for-money valuation for a project should be conducted before a project is commenced and after the project is completed to determine whether or not value for money has really been provided. Tekka (2019) findings recognized that force account methods had a positive significant effect in increasing project competitiveness in the construction firms. Force account methods were also proven to be useful to the local builders and it had led to satisfaction to the clients and society stakeholders through the construction of quality social economic infrastructure. Mayani (2019), study found that there was a relatively significant influence of organisation personnel based on professional experienced staff and project management on VFM in construction of public buildings.

4.7 Force Account Financial Management Practices on Timely Completion of Projects

4.7.1 Descriptive statistics

The respondents were asked statements on force account facilitation on financial management in the implementation of construction projects. This was done asking them to indicate their level of agreement or disagreement where 5= strongly agree, 4= agree, 3= neutral, 2= disagree and 1= strongly disagree. This is as shown in Table 15.

Table 15: Descriptive statistics for financial management

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	S.D
Funds for the project are readily available when needed.	5.4%	7.1%	32.1%	42.0%	13.4%	3.51	1.00
The availability of funds has a significant impact on the construction project's progress.	15.2%	6.2%	39.3%	29.5%	9.8%	3.13	1.16
The financial systems and networks in place are effective in managing the project's budget.	7.1%	13.4%	33.0%	35.7%	10.7%	3.29	1.06
The financial systems and networks contribute to smooth communication among stakeholders.	7.1%	13.4%	35.7%	32.1%	11.6%	3.28	1.07
The current payment procedures contribute to the efficient completion of construction tasks.	8.9%	12.5%	30.4%	38.4%	9.8%	3.28	1.09
The payment procedures are clear and easy to understand.	8.0%	13.4%	28.6%	43.8%	6.2%	3.27	1.04
Payments to contractors and suppliers are made on time.	13.4%	9.8%	29.5%	39.3%	8.0%	3.19	1.15
Timely payment practices contribute to the overall success of the construction project.	12.5%	8.9%	40.2%	28.6%	9.8%	3.14	1.12
Average						3.26	1.09

Source: Field data (2023)

The descriptive statistics for the statement "funds for the project are readily available when needed" in the context of financial management through force account shows that a majority of respondents either agree (42.0%) or feel neutral (32.1%) about the statement. The mean score of 3.51 with a standard deviation of 1.00 indicates that on average, the sentiment leans toward agreement. Smaller percentages strongly agree (13.4%), while even fewer disagree (7.1%) or strongly disagree (5.4%). This suggests that there's a general sentiment that financial resources are accessible for project implementation, but it's not overwhelmingly positive. The moderate standard deviation indicates that opinions are somewhat varied, but not extremely so. This could mean that while funds may be available, they might not always be easily or promptly accessible for everyone involved in the construction projects in Moshi District. Therefore, financial management under force accounts appears to be somewhat effective but may benefit from further evaluation and adjustments.

The respondents in Moshi District were asked about the role of force account facilitation in financial management for construction projects. Specifically, they were asked whether the availability of funds has a significant impact on a project's progress.

The data shows that 15.2% strongly disagree, 6.2% disagree, 39.3% are neutral, 29.5% agree, and 9.8% strongly agree, with a mean score of 3.13 and a standard deviation of 1.16. This data suggests that opinions are varied but lean towards a neutral or slightly positive view on the significance of fund availability. A notable 39.3% of respondents are neutral, indicating that a substantial portion of the sample neither agrees or disagrees that funding is crucial. The mean score above 3 indicates that, on average, respondents are more likely to agree than disagree, but not overwhelmingly so. The standard deviation of 1.16 points towards a reasonable spread of opinions, indicating that while there is some consensus, there's still a significant diversity of views. This could imply that while financial management is acknowledged as a factor, it may not be universally seen as the most critical element for construction project success in Moshi District Council.

Majority of respondents feel that the financial systems and networks in place are relatively effective in managing the project's budget. 35.7% of the respondents agree and an additional 10.7% strongly agree with the statement. On the other hand, only 7.1% strongly disagree and 13.4% disagree. A notable 33.0% remain neutral on the topic. The mean score for this statement is 3.29, which leans towards the "Agree" side, and the standard deviation is 1.06, indicating that responses are fairly close to the mean. These statistics suggest that, generally, the current financial management methods through force account facilitation are perceived as relatively effective by stakeholders.

The results show that under the role of financial systems and networks in the smooth communication among stakeholders in construction projects, a small percentage of respondents (7.1%) strongly disagree and 13.4% disagree that the financial systems contribute effectively. On the other hand, a significant portion (35.7%) remains neutral, while 32.1% agree and 11.6% strongly agree. The mean score stands at 3.28 with a standard deviation of 1.07. These statistics suggest that there is no overwhelming consensus on the effectiveness of financial systems in facilitating smooth communication among stakeholders. The notable proportion of neutral responses indicates a level of uncertainty or lack of knowledge about the system's efficacy, and the standard deviation suggests a wide range of opinions.

The results indicate that a significant portion of respondents feel positively about the effect of current payment procedures on the efficient completion of construction tasks in Moshi District. 38.4% agree and 9.8% strongly agree that the current payment procedures are effective, while only 8.9% strongly disagree and 12.5% disagree. The majority, 30.4%, remain neutral. The mean score of 3.28 on a 5-point scale further underscores the generally positive sentiment, although the standard deviation of 1.09 suggests that opinions are somewhat varied. These statistics suggest that, overall, the current financial management systems, particularly the payment procedures, are viewed as fairly effective in contributing to the successful implementation of construction projects. However, the significant percentage of neutral responses and the range of opinions reflected in the standard deviation indicate that there might be underlying issues that could be addressed to make the system more universally effective.

The results reveal that a majority of respondents believe that payment procedures in force account facilitation are generally clear and easy to understand, as indicated by 43.8% agreeing and 6.2% strongly agreeing. However, a notable portion remains neutral at 28.6%, while 13.4% disagree and 8.0% strongly disagree with the statement. The mean score stands at 3.27 with a standard deviation of 1.04. These statistics suggest that while many find the financial processes in force accounts reasonably straightforward, a significant number of respondents either remain neutral or express difficulty in understanding the procedures. This could indicate that there might be a need to make payment procedures more accessible or clear for everyone involved, as a diverse range of perspectives exist.

The results indicated that 39.3% of respondents agree and 8.0% strongly agree that payments to contractors and suppliers are made on time. However, 13.4% strongly disagree and 9.8% disagree with this statement. A notable 29.5% remained neutral. The average score for this item was 3.19 with a standard deviation of 1.15. These statistics indicate a generally positive but mixed sentiment toward timely payments in the district's construction projects. While a majority leans towards agreement, the presence of a substantial percentage of neutral and disagreeing respondents suggests that there are inconsistencies in the financial management practices, specifically in

making payments on time. This could lead to delays or complications in the implementation of construction projects.

The survey results for the statement "timely payment practices contribute to the overall success of the construction project" indicate a mixed response from the respondents in Moshi District. While a small fraction of respondents strongly agreed (9.8%) or agreed (28.6%) with the statement, a sizable 40.2% remained neutral. The percentages of those who disagreed (8.9%) or strongly disagreed (12.5%) were lower but still notable. With a mean score of 3.14 and a standard deviation of 1.12, the data shows that opinions on this issue tend to lean slightly towards agreement but with a high level of variation among respondents. The implications of these statistics suggest that there is not a strong consensus on the impact of timely payment practices on the success of construction projects in Moshi District. While there is some agreement that timely payments are important, the high percentage of neutral responses and the spread in the data points to differing opinions.

The descriptive statistics indicate that the average score for respondents' views on the impact of force account facilitation on financial management in the implementation of construction projects in Moshi District is 3.26, with a standard deviation of 1.09. This average score leans slightly towards a neutral to agreeable stance, suggesting that the respondents generally view force account methods as somewhat effective in financial management aspects. However, the standard deviation of 1.09 implies a notable variance in opinions, meaning that while some people might find it effective, there's a significant portion who have differing views. This variability suggests that there's an inconsistency in how well force account methods are considered effective in managing finances across different construction projects.

In addition, the respondents were asked how the use of force accounts influenced financial management practices, particularly in relation to timely project completion, in Moshi District Council construction projects. A respondent indicated that;

> *"……the use of force account has improved financial management in Moshi District Council construction projects. The flexible allocation of funds and the presence of a contingency fund are key factors ensuring timely project completion…" (28 August, 2023)*

Another respondent indicated that;

> *"……..using a force account enhances financial management by enabling cost control and budget adjustments. Timely fund disbursement and budget monitoring are vital for keeping projects on schedule…" (28 August, 2023).*

The responses from the interviewed participants underscore the positive implications of utilising force accounts in Moshi District Council construction projects for financial management and timely project completion. The mention of flexible fund allocation and the presence of a contingency fund reflect an adaptable financial approach that can respond to project needs promptly. This flexibility can help mitigate financial constraints and disruptions, ultimately contributing to on-time project delivery. Furthermore, the emphasis on cost control, budget adjustments, timely fund disbursement, and effective budget monitoring highlights the importance of proactive financial management practices enabled by force account. These practices not only ensure that projects stay on schedule but also optimise resource utilisation and cost-effectiveness.

4.7.2 Assumption of regression

The assumptions tests conducted included Multicollinearity Test, Test for Heteroscedasticity and Normality Test.

4.7.2.1 Multicollinearity test

Multicollinearity "test was conducted to determine if two or more of the predictor (independent) variables in the regression model were highly correlated (Table 16). Variance inflation factor (VIF) was used to test multicollinearity and VIF of below 10 indicated acceptable limits. If the VIF values of exploratory variables are greater than 10, then variables were regarded as highly collinear.

Table 16: Multicollinearity Test Using Tolerance and VIF

	Collinearity Statistics	
	Tolerance	**VIF**
Fund availability	0.545	1.834
Systems and networks	0.453	2.208
Payment procedures	0.373	2.680
Timely payment	0.424	2.358

SPSS results (2023)

From the “findings above all the variables had tolerance values >0.2 and VIF values <10 as shown in Table 16 and thus according to Myres (2015) who indicated that where VIF ≥ 10 indicate presence of Multicollinearity, there was no multicollinearity among the independent variables.

Test for Normality

Test for normality determines if the data is well modelled and normally distributed (linear). To test the normality of the variables, Shapiro–Wilk test was used as it has the highest power among all tests for normality. The hypothesis was tested at a critical value at 0.05, where the rule is that reject H_0 if the probability (P) value is less than 0.05 or else do not reject. The dependent variable should be normally distributed because the study was analysed using a multiple regression model where the condition of normality must be satisfied (Quataroli & Julia, 2012). The hypothesis was that;

H_1: The data is normal.

The results for normality are as shown in Table 17.

Table 17: Normality Outputs

	Shapiro-Wilk		
	Statistic	**df**	**Sig.**
Fund availability	0.807	112	0.085
Systems and networks	0.722	112	0.060
Payment procedures	0.818	112	0.068
Timely payment	0.808	112	0.076
Timely completion of project	0.876	112	0.071

The results indicated that using the Shapiro-Wilk test of normality, the data is normal since the p-values are above 0.05 for all the variables and thus we do not reject the alternative hypothesis (H_1). Therefore, the variables on fund availability, systems and networks, payment procedures, timely payment and timely completion of projects are normal in distribution and hence subsequent analysis can be carried out.

4.7.2.2 Heteroscedasticity test

A heteroscedasticity test was conducted to examine the potential correlation of error terms across observations in the time series data. In regression analysis, it is essential for the error terms to exhibit a constant variance, which is referred to as

homoscedasticity. To assess whether the residuals satisfy this criterion, the Breusch-Pagan test for heteroscedasticity is employed.

Table 18: Heteroscedasticity test

Breusch-Pagan test for heteroscedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (9) = 27.91
Prob>chi^2 = 0.074

In Table 3, the null hypothesis of this test posits that the residuals are homoscedastic. If the p-value exceeds 0.05, it can be inferred that there is a consistent level of variance. The null hypothesis was not rejected at a significance level of 0.05, as the reported p-value was 0.074. Therefore, based on the findings, it can be concluded that the data did not exhibit significant heteroscedasticity.

4.7.3 Regression analysis

Multiple linear regression analysis was used to present the relationship between variables on fund availability, systems and networks, payment procedures, timely payment and timely completion of projects. The average score from the Likert scale for variables on fund availability, systems and networks, payment procedures, and timely payment were regressed against the average score for timely completion of projects. The results are as presented in Table 19.

Table 19: Regression Outputs for procurement Practice and implementation of construction projects

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.893[a]	.785	.685	7.44567

ANOVA[a]					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Regression	400665.417	4	100166.354	1806.820	.000[b]
Residual	5931.860	107	55.438		
Total	406597.277	111			

	Unstandardized Coefficients		Standardised **Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	1.101	3.517		.313	.755
Fund Availability	.798	.055	.773	14.605	.000
Systems and Networks	.510	.036	.498	14.080	.000
Payment Procedures	.572	.055	.565	10.378	.000
Timely Payment	.832	.062	.830	13.477	.000

SPSS results (2023)

The R-Square value of 0.785 indicates that approximately 78.5% of the variation in the timely completion of projects can be explained by the variables in the model: Fund Availability, Systems and Networks, Payment Procedures, and Timely Payment. The Adjusted R-Square value of 0.685 gives us a more accurate representation of the goodness-of-fit of the model, taking into account the number of predictors. This suggests that the model is a good fit for the data, but there is room for improvement.

The ANOVA test shows a significant F-value of 1806.820 with a significance level of 0.000 because its p value is less than 0.05, suggesting that the model significantly improves the prediction of timely completion of projects compared to a model with no predictor variables. In simpler terms, the variables included in the model are important in predicting the outcome.

The variable Fund Availability has a coefficient (B) of 0.798 and a very low significance level (Sig.) of 0.000 <0.05. This implies that for every unit increase in Fund Availability, there is an associated 0.798 unit increase in the Timely Completion of the project, making it highly significant in determining the outcome. For Systems and Networks, the coefficient is 0.510 with a significance level of 0.000<0.05. This indicates that Systems and Networks have a significant role, and an increase in this variable by one unit would result in an increase in Timely Completion of the project by 0.510 units.

Similarly, the variable Payment Procedures shows a coefficient of 0.572 and a significance level of 0.000<0.05. This means that Payment Procedures also significantly affect the timely completion of projects. A unit increase in this variable leads to a 0.572 unit increase in Timely Completion. Finally, the variable Timely Payment has a coefficient of 0.832 with a significance level of 0.000<0.05. This makes it highly significant. An increase in timely payment by one unit would increase timely completion by 0.832 units. All the variables—fund availability, systems and networks, payment procedures, and timely payment—are significant with p-values of 0.000. They positively affect the timely completion of construction projects in Moshi District.

The findings are in line with Welder and Dahl (2019) whose study revealed that the contractual basis has been inadequate and that the management of the project and the cost has been imperfect. Peter et al (2016) established that interdependence exists

between causes that lead to cost overruns; materials have largely been ignored when considering the likelihood and impact of their occurrence. Doloi (2013) revealed that using the lowest price as award criterion can give the bidders an incentive to place bids that are unprofitable without additional payment. Endut et al (2015) revealed that construction industry in Malaysia is associated with time and cost overruns which affect the amount of physical infrastructural development that can be undertaken. The study suggests that there is a need to investigate further factors responsible for the level of time and cost overrun

In conclusion, the findings of this study as far as the three objectives are concerned are supported by the theory of Resource-Based View because in order for an organisation to perform in-house operations efficiently, it should possess sufficient resources. That means, an organisation should not be dependent on other organisations' resources. This theory was considered in this study because; the study involved assessing the influence of force accounts in achieving value for money in construction projects. Force account requires that an organisation should possess its own resources which include funds, manpower and equipment to run force accounts in implementing construction projects.

Funds are key in order to procure construction materials, pay labourers and facilitate supervision of the projects while manpower is important purposely for smooth running and implementation of the project. Manpower is required to provide technical assistance and give directions as per the project specifications.

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Chapter Overview

This section presents information concerned with summary of the study, conclusion and implication of study to several stakeholders in reflection to objectives of the study. Summary section provides brief information related to findings obtained from the study , the conclusion part provides overall researcher remarks on each specific objective and the policy implication part provides study impact to several stakeholders.

5.2 Summary

The first objective of the study aimed to assess the extent to which force account personnel factor has facilitated quality output in the implementation of construction projects in Moshi District. The descriptive statistics revealed that, on average, respondents' collective level of agreement with the provided statements regarding force account's effectiveness fell slightly above the midpoint, indicating a moderate level of agreement among them.

On the regression results, quality output was found to have a statistically significant positive impact on project implementation, as evidenced by a low significance level (Sig.) of 0.000<0.05. This suggests that the more quality output l a project has, the more likely it is to be effectively implemented.

Similarly, ‘Experience emerged as a strong positive factor, with a coefficient (B) of 0.375 and a significance level of 0.000<0.05, indicating that availability of personnel and experience in similar construction works greatly enhances project implementation. Board standards and certification level also played a role, albeit with a slightly less pronounced impact compared to experience, as reflected by its coefficient of 0.148 and a significance level of 0.004.

Lastly, Ability to align with specifications closely followed 'Experience,' with a coefficient (B) of 0.380 and a significance level of 0.000<0.05, emphasising the importance of adhering to board standards and certification for successful project implementation.

The second objective aimed to assess the effectiveness of force account practices facilitated value for money on the implementation of construction projects in Moshi District Council, focusing on its impact on procurement practice. Descriptive statistics revealed that, on average, respondents leaned towards agreement (average score of 3.21) that force account played a facilitating role in procurement practice, albeit with some variability in opinions as indicated by the standard deviation of 1.10. Under the regression results, Cost reduction was found to be highly significant, with a coefficient of 0.813 and a low standard error. This underscores the importance of cost reduction in achieving value for money in projects. Similarly, "buying direct from manufacturer" emerged as another highly significant factor, with a coefficient of 0.748 and a low standard error, emphasising its role in project success.

"Conformity to specifications" was also deemed crucial, with a coefficient of 0.586 and a low standard error, indicating its significance in achieving value for money. Lastly, "compare supplier's quotation" was found to be significant, with a coefficient of 0.497 and a low standard error.

These findings collectively highlight the multifaceted nature of factors influencing the value for money of construction projects in Moshi District Council, with cost reduction, buying direct from manufacturer, conformity to specifications, and comparison of supplier's quotation all playing significant roles.

The third objective was to examine the extent to which force account has influenced financial management in timely completion in the implementation of construction projects in Moshi District Council.

The descriptive statistics average score of respondents' views indicates a somewhat neutral to agreeable stance with an average score of 3.26, although the standard deviation of 1.09 implies a notable variance in opinions. This suggests that while force account methods are generally perceived as somewhat effective in financial management, there is a significant variability in these perceptions among respondents, highlighting inconsistency across different construction projects.

The regression results indicated that Fund Availability emerged as highly significant, with a coefficient of 0.798, indicating that an increase in fund availability is associated with a substantial increase in timely project completion.

Systems and Networks also play a significant role, as evidenced by a coefficient of 0.510, implying that improvements in this area positively impact timely completion. Payment Procedures and Timely Payment also emerged as influential factors, with coefficients of 0.572 and 0.832, respectively, both highly significant.

These findings collectively suggest that financial aspects, alongside efficient systems and payment procedures, are key determinants of project completion timelines in Moshi District Council's construction project.

5.3 Conclusion

The study concludes that the effectiveness of force accounts in the implementation of construction projects in Moshi District Council is influenced by several key factors. First and foremost, in assessing the extent to which force account facilitates personnel factor, it was found that there is a moderate level of agreement among respondents regarding its effectiveness. The availability of personnel and their experience were identified as crucial factors positively impacting project implementation. Additionally, adherence to experience was emphasised as a significant factor contributing to successful project outcomes. This suggests that investing in skilled personnel and ensuring compliance with industry standards can enhance the overall effectiveness of force accounts in construction projects in Moshi District Council.

Secondly, the study indicates that force account plays a facilitating role in procurement practice with respondents generally leaning towards agreement on its effectiveness. Cost reduction, buying direct from manufacturer, conformity to specifications, and comparing suppliers quotations were identified as highly significant factors influencing the value for money of construction projects. These findings highlight the importance of cost-efficiency and adherence to project timelines, as well as the need to meet specified project requirements. Consequently, the study underscores the multifaceted nature of factors affecting the success of construction projects and emphasises the significance of managing procurement processes effectively when utilising force account practice.

Lastly, in examining the influence of force account on financial management on the timely completion of construction projects, the study found a somewhat neutral to agreeable stance among respondents. While force account practices were perceived as

somewhat effective in financial management, there was notable variability in opinions, suggesting inconsistency across different projects. Fund availability, systems and networks, payment procedures, and timely payment were identified as significant factors affecting project completion timelines. This implies that ensuring adequate funding and implementing efficient financial systems and payment procedures are essential for achieving timely project completion.

5.4 Recommendations

To enhance the effectiveness of force account in this regard, it is recommended:
Construction project officials (Local government officials and schools head teachers) in Moshi District Council should prioritise on-going training and skill development for their workforce. This investment should focus on improving the professional expertise of construction personnel. By providing regular training opportunities, workers can acquire the necessary skills and knowledge to handle complex construction tasks efficiently.

In addition, findings indicated that force accounts are directed to policy makers and local government authorities (LGAs) do not separate their assigned responsibilities and construction projects under force account; it is, therefore, recommended that the government should create a specific department dealing with force account projects.

Furthermore, it is crucial to emphasise strict adherence to conformity specifications throughout all phases of construction projects. Project managers and teams should conduct regular audits and quality checks to ensure that every aspect of a project aligns with established standards. This includes materials used, construction techniques, and final work quality. By consistently adhering to industry standards and specifications, construction projects can maintain the desired level of quality and ensure that specifications are met, which is paramount for the success of any construction endeavour.

To optimise the role of force account in procurement practices, construction projects in Moshi District Council should focus on streamlining their procurement practices. This involves improving the efficiency of comparing supplier quotations and ensuring that procurement activities align with project timelines. It is recommended to establish

clear and standardised procurement guidelines that outline the steps, responsibilities, and timelines involved in the procurement practices. Regularly reviewing and optimising these practices can lead to cost reduction and contribute to timely project completion.

Additionally, robust project monitoring and quality assurance mechanisms should be implemented. This includes setting up a dedicated quality control team responsible for regular inspections and checks to ensure that construction materials and work conform to specified standards. By consistently monitoring the quality of materials and workmanship, projects can uphold the integrity of specifications, which is essential for delivering value for money. A well-documented quality assurance process can help identify and rectify deviations from standards promptly.

To improve financial management in construction projects and enhance timely completion, it is recommended to prioritise thorough financial planning and budgeting. Project managers should ensure that adequate funds are available throughout the project's lifecycle. This involves forecasting expenses accurately and setting up contingency funds to address unexpected financial challenges. A well-defined budget that accounts for all project expenses can prevent delays caused by financial constraints and ensure smooth project execution. Furthermore, efficient payment procedures should be implemented to facilitate timely payments to contractors and suppliers. This includes the establishment of transparent invoicing processes and adherence to agreed-upon payment schedules. Projects should maintain open communication channels with contractors and suppliers, addressing any payment-related issues promptly. Timely payments not only motivate contractors and suppliers to adhere to project timelines but also foster positive working relationships, which can contribute to overall project success.

5.5 Study Contribution.

Further research in this field could explore the long-term impact of force account utilisation on construction projects in Moshi District Council, focusing on post-construction assessments and sustainability. Additionally, investigating the role of technology and digital tools in enhancing the effectiveness of force account methods, Challenges facing implementers of force account on their daily basis as well as

conducting comparative studies with other regions or construction methodologies, would provide valuable insights for improving construction project management and outcomes in the future.

5.6 Areas for Further Studies

The study suggests that there is a need of conducting research in other areas concerning force account procurement methods. “The Public Procurement Act” mentioned only the condition of using the method but it did not mention the purchasing procedures, this is a loophole of abuse of the method. Therefore the faculty of law can conduct a further study to analyse the above mentioned gap.

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APPENDICES

Appendix I: Questionnaire

Dear Respondent,

My name is Sapiencia Cyprian Mugarula, a student at Moshi Co-operative University undertaking a Masters in Project Planning and Management. I am doing research on Effectiveness of force account on the implementation of Construction Projects in Moshi District Council". This research is part of fulfilment of the requirements for the award of Master in and Project Planning Management. I kindly request you to fill in this questionnaire by putting a tick (V) and explaining where required to the questions given. The information you will give will be confidential and for academic purposes.

PART A: Government officers profile

01	Respondent Age	21-30 years
		31-40 years
		41-50 years
		51-60 years
02	Respondent Level of Education	Ordinary education
		Certificate
		Diploma
		Bachelor degree
03	Type of Organization	Tanzania Police Force
04	Position in Organization	Construction personnel
		Procurement Officer
05	Experience in current position	< 3 years
		4-6 years
		7-9 years
		10-12 years
		13-15 years
		>15 years

PART B: Questionnaire on Quality output

Personnel factor	SD	D	M	A	SA
Availability of Personnel					
Qualified personnel are consistently available for construction projects in Moshi District Council.					
There is a sufficient number of qualified staff to meet the project needs in Moshi District.					
Experience					
The personnel involved have prior experience in similar construction projects.					
Experience is commonly considered when staffing projects in Moshi District Council					
Board standards certification					
Construction projects in Moshi District generally follow boards standards and certification					
Board standard certification to construction projects are used to test the quality of the construction project					
Ability to align with specification					
Projects in Moshi District are commonly executed according to established standards and specifications.					
The construction projects in Moshi District regularly align with required standards and specifications.					

PART C: Questionnaire on Value for money

Procurement Practice	SD	D	M	A	SA
Cost Reduction					
The procurement practices in place are effective in reducing the overall cost of construction projects.					
The current procurement practices contribute to cost-saving measures in construction projects.					
Buying from manufacturer					
The procurement practices have a positive impact on completing construction projects on time.					
The established procurement practices help in avoiding delays in construction projects.					
Conformity to Specifications					
The procurement practice ensures that materials and services meet the project specifications.					
Adhering to procurement guidelines guarantees that the final construction aligns with the set specifications.					
Compare supplies quotation					
The procurement practices facilitate quick and accurate completion of project quotations.					
The current procurement practices makes it easier to finalise quotations for construction projects					

PART D: Questionnaire on Financial management

Financial management	SD	D	M	A	SA
Fund Availability					
Funds for the project are readily available when needed.					
The availability of funds has a significant impact on the construction project's progress.					
Systems and Networks					
The financial systems and networks in place are effective in managing the project's budget.					
The financial systems and networks contribute to smooth communication among stakeholders.					
Payment Procedures					
The current payment procedures contribute to the efficient completion of construction tasks.					
The payment procedures are clear and easy to understand.					
Timely Payment					
Payments to contractors and suppliers are made on time.					
Timely payment practices contribute to the overall success of the construction project.					

PART E: Questionnaire on Project Implementation

Effective Project Implementation	SD	D	M	A	SA
Quality output of the Project					
The quality of work done on construction projects in Moshi District generally meets the specified standards.					
Most construction projects in Moshi District meet or exceed the expectations for quality.					
The materials used in construction projects in Moshi District are usually of high quality.					
Value for money					
The construction projects in Moshi District provide good value for the money invested.					
The budgets allocated for construction projects in Moshi District are usually appropriate for achieving the desired quality.					
Cost overruns are uncommon in construction projects in Moshi District.					
Timely completion of project					
Construction projects in Moshi District are often completed within the agreed time frame.					
Delays are rarely encountered in the completion of construction projects in Moshi District.					
Most construction projects in Moshi District are managed efficiently, ensuring timely completion.					

THANK YOU FOR YOUR COOPERATION

Appendix II: Interview Guide to Stakeholders

1) How would you describe the influence of force account personnel on construction projects in Moshi District?

……

……..……

……

……..

2) How has force accounting impacted the procurement practice in construction projects in Moshi District? Specifically, can you explain how it has influenced the efficiency and effectiveness of procurement processes?

……

……..……

……

……

3) How has the use of force accounts influenced financial management practices, particularly in relation to timely project completion, in Moshi District construction projects? Are there specific financial factors or strategies that stand out in this context?

4) ……

……..……

……

……

What are the advantages and disadvantages of using force accounts in construction projects in the Moshi District Council?

……

……..……

……

……

THANK YOU FOR YOUR COOPERATION.

Appendix II: Matrix Analysis

Objectives	Data	Data collection tools	Study Design	Targeted Population	Tools of data analysis	Measurement Scale
To examine the influence of Force account factors on quality output of the implementation of community based projects	Primary	Questionnaire, Interview and Observations	Qualitative and Quantitative	Accounting officer, procurement unit, local Fundi, engineers, community	Mean Std. Dev. Ordered logistics regression ' Linear regression	Nominal Interval Ordinal
	Secondary	PPRA Guidelines, Ministerial regulations, BOQ				
To examine Force Account procedures on value for Money in Community based project	Primary	Questionnaire Interview Observation Focus group	Qualitative and quantitative	Accounting officer, procurement unit, local Fundi, engineers, community	Mean Standard deviation Specification of matrix notation	Nominal Interval Ordinal
	Secondary	Progress report, engineers test, BOQ				
To analyse Local Government Authority financial management on timely completion the implementation of Community based projects	Primary	Questionnaire and Interview	Qualitative and Quantitative	Accounting officer, procurement unit, local Fundi, engineers, community, Use department	Mean Standard Deviation Linear regression	Nominal Interval Ordinal
	Secondary	Work program contract				

Appendix III: Research permit

UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

MOSHI CO-OPERATIVE UNIVERSITY (MoCU)
CHUO KIKUU CHA USHIRIKA MOSHI

OFFICE OF THE VICE CHANCELLOR

06 Sokoine Road, 25121 Mtumuni,
P. O. Box 474, Moshi, Tanzania. Tel: +255 272751833,
Email: vc@mocu.ac.tz, Website: www.mocu.ac.tz

Unapojibu tafadhali taja:
Kumb. Na. MoCU/UGS/3/41

Tarehe: 19 Mei, 2023

Katibu Tawala,
Mkoa wa Kilimanjaro,
S. L. P. 3070
MOSHI.

YAH: KIBALI CHA KUFANYA UTAFITI KWA WANAFUNZI WA CHUO KIKUU CHA USHIRIKA MOSHI (MoCU)

Tafadhali husika na kichwa cha habari hapo juu.

Madhumuni ya barua hii ni kumtambulisha kwako **Ndugu Sapiencia Cyprian Mugarula** mwanafunzi wa Chuo Kikuu cha Ushirika Moshi ambaye kwa sasa anatarajia kufanya utafiti katika eneo lako.

Maombi haya yamezingatia Waraka wa Serikali wenye Kumb. Na. MPEC/R/10/1 wa tarehe 7 Julai, 1980 pamoja na Hati Idhini ya Chuo Kikuu Cha Ushirika Moshi (MoCU). Moja ya majukumu ya Chuo ni kufanya tafiti na kutumia matokeo ya tafiti hizo katika kufundishia. Aidha, wanafunzi hufanya tafiti kama sehemu ya masomo yao wakiwa Chuoni.

Ili kufanikisha utekelezaji wa tafiti hizo, Makamu Mkuu wa Chuo hutoa vibali vya kufanya tafiti nchini kwa wanataaluma na wanafunzi kwa niaba ya Serikali na Tume ya Sayansi na Teknolojia.

Hivyo basi, tunakuomba umpatie mwanafunzi aliyetajwa hapo juu msaada atakaouhitaji ili kufanikisha utafiti wake. Gharama za utafiti atalipia mwenyewe. Msaada anaouhitaji ni kuruhusiwa kuonana na viongozi na wananchi ili aweze kuzungumza nao kuhusiana na utafiti wake. Aidha, endapo kuna maeneo yanayozuiliwa kufanyika kwa shughuli hii, tafadhali mjulishe hivyo.

Mada ya utafiti wa mwanafunzi aliyetajwa hapo juu ni: **"Assessment of Effectiveness of Force Account on the Implementation of Construction Projects in Moshi District Council"**

Maombi haya ni kwa ajili ya utafiti utakaofanyika **Wilaya ya Moshi** kuanzia tarehe 22 Mei, 2023 hadi 22 Mei, 2024.

Wako katika ujenzi wa Taifa,

.....
Prof. Alfred S. Sife
Makamu Mkuu wa Chuo

Nakala kwa: Sapiencia Cyprian Mugarula (Mtafiti)

Appendix IV: Research permit

THE UNITED REPUBLIC OF TANZANIA
PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND LOCAL GOVERNMENT

KILIMANJARO REGION
Telegrams `REGCOM` KILIMANJARO
Tel. No. 027-2754236/7, 2752184
Fax No.027 – 27-54430
E-mail ras.kilimanjaro.go.tz
Ras.kilimanjaro@tamisemi.go.tz

OFFICE OF THE REGIONAL COMMISSIONER,
17 ROAD FLORIDA
P. O. BOX 3070
25107 - MOSHI

In reply please quote:

Kumb. FA.228/276/03/'x"/360

25th May, 2023

District Executive Director,
Moshi District Council,
P.O.Box 3003,
MOSHI

REF: RESEARCH PERMIT

Kindly refer to the above subject.

2. I would like to introduce to you **Mr/Ms. Sapiencia Cyprian Mugarula** a Student from Moshi Cooperative University (MoCU).

3. He/she has been granted permission to conduct research titled **"Assessment of Effectiveness of Force Account on the Implementation of Construction Projects in Moshi District Council".**

4. The permission has been granted to him/her to collect data from 22nd May, 2023 to 22nd May, 2024, at his/her own cost.

5. You are kindly requested to give him/her required co-operation and support and make sure that he abides to all Government rules and regulations.

6. Thank you for your cooperation.

J.K. Sallema
For: REGIONAL ADMINISTRATIVE SECRETARY

Appendix V: Plagiarism Report

turnitin

Digital Receipt

This receipt acknowledges that Turnitin received your paper. Below you will find the receipt information regarding your submission.

The first page of your submissions is displayed below.

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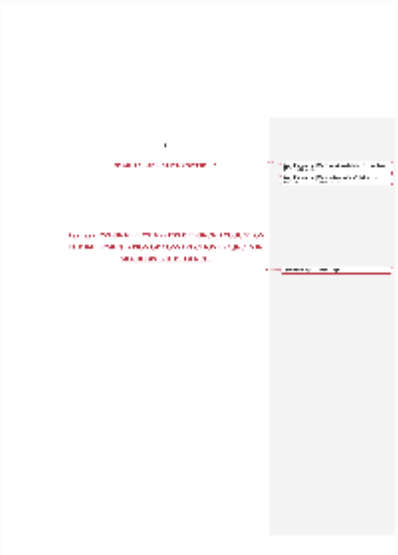
Submission title:	ASSESSMENT OF EFFECTIVENESS OF FORCE ACCOUNT ON TH...
File name:	Sappy_Cyprian_-_LATEST_NEW.doc
File size:	765.5K
Page count:	94
Word count:	20,590
Character count:	119,990
Submission date:	31-Oct-2023 01:30PM (UTC+0300)
Submission ID:	2213026065



APPENDIX: MANUSCRIPT

ASSESSMENT OF EFFECTIVENESS OF FORCE ACCOUNT ON THE IMPLEMENTATION OF CONSTRUCTION PROJECTS IN MOSHI DISTRICT COUNCIL

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ABSTRACT

Using force accounts is crucial in Local Government since for a long time there has been outcry of high cost of construction, delayed completion and low quality, due to contractors as result the Government has been emphasising the use of force account method. Hence this study assessed the effectiveness of force accounts in construction of projects in Moshi District Council. Both qualitative and quantitative approaches were employed through descriptive research design with a sample of 120 respondents obtained through simple random and purposive sampling techniques. The results were analysed through descriptive analysis and inferential statistics by using SPSS version 22.0. Findings indicated that force account personnel factors contributed to positive quality output as the results revealed that more than 80% of respondents agreed and the regression output indicated positive and significant relationship (0.135) between personnel factors and force account implementation at with p- value < 0.05. Findings further indicated that force account practices were positive and significant (p- value < 0.05) influencing value for money force account financial management variable had a coefficient of .748. The t-value for timely completion was 16.312, and the significance level was .000 implying a positive relationship. In a nutshell, force accounts have a significant positive impact on project implementation, as evidenced by a low significance level (Sig.) of 0.000 procurement practice has variable effectiveness in the implementation of construction projects. It is concluded that construction under project account is crucial for the development of public infrastructures in Moshi District Council. Hence, it is recommended that force account guidelines should be reviewed by creating a specific force account department with enough proper technical personnel and working tools.

Keywords: *Force account, quality output, Value for money, timely completion of the project, construction projects, Moshi District Council.*

1.0 INTRODUCTION

The government of the United Republic of Tanzania adopted and declared development vision 2025. To achieve the vision in a broader perspective, the government introduced various sectoral development programs which resulted in several projects implemented through public procurement. Since 2015, the government has emphasised cost-effectiveness and the best value for money in construction projects. With this, the force account mechanism was viewed as the best approach to meet this objective (PPRA, 2019).

From the year 2016, the force account method has been used by public bodies in construction, reconstruction, demolition, repair or renovation of public buildings, Matto (2021). Though the force account method is not a new approach in the academic literature, it is coined as an emergent procurement model (Mbabazi and Mugurusi, 2019). From a procurement point of view, the organisation decides on "make versus buy", "in-sourcing versus out-sourcing", and "contracting-in versus contracting-out". Hence, the notions "make", "in-sourcing", "in-house", and "contracting-in" are related to the force account approach.

Despite reported exultant, there are lots of questions on execution and sustainability of projects implemented under force account due to its theoretical and empirical limitations. Previous and current studies have reported innumerable restraints of force account approach that need to be taken on board before embarking on the projects. With this, the following studies have reported that:

- "The force account model exposes the government to the greatest degree of high risk since it cannot pass the risk on to Any other entity besides itself" Satyanarayana (2012) cited in Mbabazi and Mugurusi (2019, p. 167).
- "For effective delivery of government building projects there is a need of [identifying] procedure for an effective application of force account" (Shengeza, 2017, p. 154).
- "Force account is still a mystery in both theory and practice" (Mbabazi and Mugurusi, 2019, p. 166).
- "There is a dilemma on whether public bodies and other stakeholders at large understand clearly the concept, procedures and challenges of force account" (France, 2019, p. 123).

It is not clear whether the force account projects executed in Tanzania take into account the identified aspects. Failure to consider such aspects the procuring entity may face numerous challenges during implementation and after completion of the project.

In Tanzania, The PPA of 2011 and PPR 2013, the law under which procurement activities are governed, defines force account method as construction by the procuring entity itself or use of public or semi-public agencies or departments concerned, where procuring entity or the public or semi-public agency uses its own personnel and equipment or hired labour (PPR, 2013), therefore under force account the entity (PE) does not use contractors for execution of works projects. The public procurement regulations 2013

Provides the justifications for using of force account method as; when construction contractor/service providers are unlikely to bid at reasonable prices because of the location of and risks associated with the project, work to be carried out without the disruption of ongoing operations, emergency, possession on adequate and qualified technical personnel and construction works is the part of routine activity of the entity.

Despite the use of force account in the implementation of public projects in Tanzania, still there are many challenges in project implementation during the target period, based on the expected budget allocated and also caused by changes in the project design, delays in information, mismanagement of the project and late payments to contractors (Kikwasi, 2013). Overspending occurs due to cost overruns, delaying the implementation of projects on time (Memon and Rahman, 2014). This study assessed the effectiveness of force accounts on the implementation of construction projects in Moshi District council..

2.0 THEORETICAL REVIEW

This study was guided by Resource-Based View (RBV) as detailed below.

2.3.1 Resource Based View

The central focus of this theory was on the essence of firm resources and how organisations can make use of such resources to create competitive benefit in the given industry. The firms have the specific and unique resources that can utilise to

have an advantageous position in delivering high levels of efficiency in the market (Kraaijenbrink *et al.,* 2010). According to Wernerfelt (1984) provided, firms in any industry have either tangible or intangible assets to utilise for creating competitive position.

The resource-based view holds that the success of an organisation depends most on the competitive advantage that a firm has created through its resources since the organisation resources are important determinants for creating competitive advantage. The organisation can involve the use of resources such as financial resources, technology, human beings, and social relationships (Mweru and Maina, 2015). According to Makadok (2001) for firms to have sustainability in a competitive environment should ensure its resources are rare, non-tradable and valuable.

In the construction industry the firm might decide to use its unique human resource through the use of their competence on creating an innovation that others cannot create in a given period, also the use of firm financial resources may be in use to facilitate projects completion while others wait for the planned budget. This tendency creates a more favourable environment to have efficient operations (Goh and Loosemore, 2017).

The theory is relevant to study because in order for an organisation to perform in-house operations efficiently, it should possess sufficient resources. That means, an organisation should not be dependent on other organisations' resources. This theory was considered in this study because; the study involved assessing the influence of force accounts in achieving value for money in construction projects. Force account requires that an organisation should possess its own resources which include funds, manpower and equipment to run force accounts in implementing construction projects.

Funds are key in order to procure construction materials, pay labourers and facilitate supervision of the projects while manpower is important purposely for smooth running and implementation of the project. Manpower is required to provide technical assistance and give directions as per the project specifications.

2.1 Conceptual Framework

The conceptual framework below illustrates the impact of using the force account to effectively implement community based-projects in Moshi District

Independent variables **Dependent Variable**

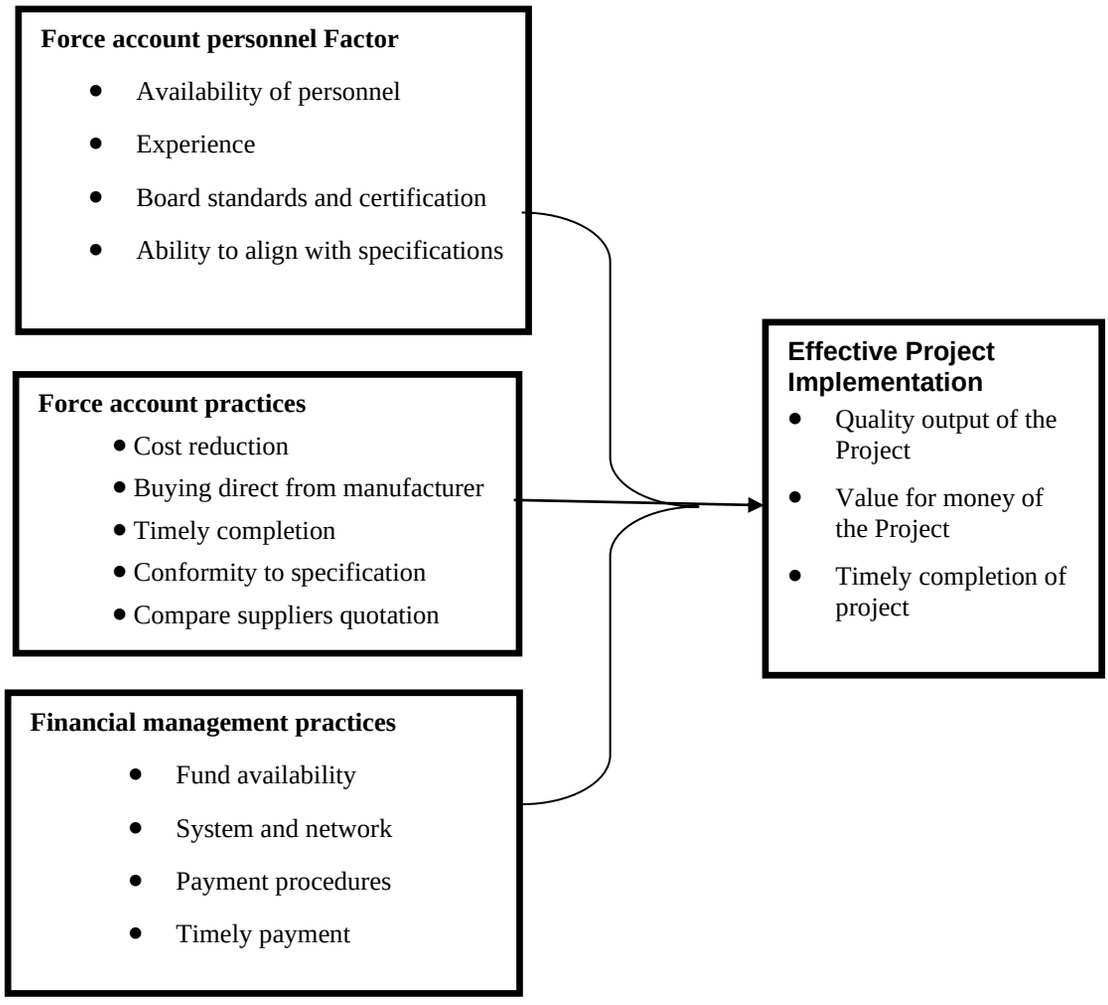

Figure 1: Conceptual Framework

Source: Researcher (2023)

3.0 RESEARCH METHODOLOGY

This study was conducted through a descriptive research design. According to Mugenda & Mugenda (2013) a descriptive is an attempt to collect data from members of a population in order to determine the current status of that population with respect to one or more variables. Skinner (2013) stated that descriptive research is suitable

since it considers issues such as economy of the population, rapid turnaround in data collection and it is suitable for extensive research.

In addition, the study used both qualitative and quantitative approaches. The qualitative strategy dealt with people's perception and ideas based on the given topic but the quantitative strategy is the type of approach that involves factual data and studying the relationship between the facts. The study employed a quantitative research approach to get to the roots of the research problem. This was because the researcher aimed to establish a study with a higher degree of objectivity than subjectivity. The quantitative approach was used to obtain quantifiable information that enabled researchers to establish the relationship between procurement procedures and performance in cost, time and quality. Although much of the information was quantitative, the study took the path of qualitative research in order to collect qualitative information that supplemented quantitative information.

3.1 Geographical Coverage

The study was undertaken in Kilimanjaro Region specifically in Moshi District Council where force accounting was practised in construction of local government projects. The study focused on government Secondary schools structures constructed in the financial year 2021/2022, 2022 /2023 and 2023/2024. The rationale for choosing this study area was that, apart from the TZS 41.3 billion that was versed on the account of Moshi District Council for 52 projects in constructions, piloted results indicated that almost a half (23) of the projects were not completed on time as planned. In addition to the District Council was that the district has many projects (103) that are being undertaken under force account compared to projects found in other parts of Kilimanjaro Region, all those were under force account.

3.2 Target Population

The study involved Local builders, local Government officers, and committee's and suppliers of materials in Moshi District Council.

3.3 Sample Size and Sampling Technique

3.3.1 Sample Size

Since the population is large and unknown, the maximum sample size was derived from the following formula according to Smith (2003).

$$n = \frac{(Z\alpha/2)^2 P(1-P)}{\lambda^2}$$

Where: n = Sample Size;

$(Z\alpha/2)^2$ = Z-Value;

P = percentage of project team

λ = Maximum error, by using a confidence interval of 95% for the estimated population maximum error of 5%.

$Z\alpha/2 = 1.96;$

$P = 0.1;$

$\lambda = 5\% = 0.05$

$$n = \frac{(1.96)\ 0.085(1-0.085)}{(0.05)^2}$$

$$n = 119.5 \approx 120$$

3.3.2 Sampling Technique

The study used both probability and non-probability; in non-probability sampling the study used convenience sampling in obtaining information from the occupants while in probability sampling stratified random sampling was applied in selecting procurement officers and construction personnel within the organisation, since it allowed researchers to collect information from the existing respondents.

3.4 Data collection

3.4.1 Data Collection Method

The study adopted a survey method technique for the data collection. In collecting primary information, the researcher used questionnaires and interviews while secondary information involved documentary review. The tool for the data collection was a questionnaire and interview guide.

3.4.1.1 Questionnaire

The study used structured questionnaires. Self-administered approach was used to take questionnaires to the respondents and each respondent received the same copy of the questionnaire. Questionnaire had two sections in which the first section captured

particulars of respondents; such as age, level of education and experience in the organisation or study area. The second part captured data for the study specific objectives/hypothesis. Questionnaires were used in the quantitative data collection. These questionnaires were used since respondents were readily available and not so much occupied by administrative activities. The questionnaires were administered to the staff from various departments, procurement, receiving and inspection and construction committees. The questionnaire was also distributed to the heads of schools and ward development committee members of the district councils, where each respondent was given a time to fill and later on the researcher collected back the questionnaires. A five-point likert-scale of 1 to 5 was adopted to assess the degree of significance of each course.

3.4.1.2 Interview

The study used both structured and unstructured interview to set the discussion, this is because it gave respondents a chance to explain their ideas concerning procurement procedures and the constructional management practice in their projects.

The study used an interview method in order to get more information on construction of buildings by force account and make more elaboration on the questions. The interview guide was administered face to face to the School Facility Management Committee (SFMC), Heads of Schools (HS), Construction Committees (CC) and Procurement Committees (PC), receiving and inspection committee (RC) because these respondents had potential information on construction of buildings by force account as they were directly engaged in construction of government school buildings. The researcher prepared open-ended questions that were administered to 39 respondents in the councils so that to get more elaboration and clarifications on the subject matter. This method was used because the researcher needed more clarification on construction of buildings through force accounts in schools.

3.4.3 Documentary Review

This study made use of previous research conducted on related fields, journal articles and provided government reports such as (annual reports, books, codes and policies and audit reports). Also, the study adopted media references particularly newspapers to collect secondary information. The obtained secondary information was used as the basis for interpretation and inference for primary information.

3.5 Data processing and Analysis

Data were analysed based on research objectives and questions in order to acquire important knowledge about the study. Data were first codified and divided into similar topics. Descriptive statistics in the form of percentages and frequencies were used to report qualitative and quantitative data. The results of the data analysis were summarised using the frequency tables. Microsoft Excel and Statistical Package for Social Sciences (SPSS) version 22.0 software was used for data analysis. Scientific statistical methods for data analysis included testing the meaning of the variables using regression models as shown below:

Objective 1: On examining the extent force account personnel factor facilitated quality output on construction projects in Moshi District Council. The study used linear regression with the following model:

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

Y= Quality output for implementing construction projects.

X1 = Qualified personnelX2 = Experience

X3= Board standards and certification

X4 =Ability to align with specification

Objective 2: Examining the extent to which force account practice has facilitated the attainment of value for money in the implementation of construction projects in Moshi District Council. The study was guided by the following model specification of matrix notation as follows:

$$\gamma = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon\varepsilon$$

$$\gamma = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon\varepsilon$$

Where

Y= Value for money in the construction project

X1= Cost reduction

X2=Buying direct from manufacturer

X3= Conformity specifications

X4= Compare suppliers quotation

Objective 3: On analysing force account financial management on timely completion of construction project in Moshi District Council, linear regression was used as presented by the following model:

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

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

Y= Timely completion of construction project

X1 = Fund availability

X2 = Systems and networks

X3 = Payment procedures

X4 = Timely payment

e = Error term

β0, β1, β2, β3, β4, are the coefficients of the variables in regression equations

4.0 FINDINGS AND DISCUSSION

4.1 Demographic Characteristics of Respondents

4.1.1 Age of Respondent

The study involved respondents who were aged between 21 to 60 years old. Table 4.3 presents the age of respondent whereby; 11(9.8) of the respondents were aged between 21 to 30 years, 34(30.4%) were aged between 31 to 40 years, 46(41.2%) were aged between 41 to 50 years, 21(18.6%) were aged 51 to 60 years.

Table 1: Descriptive Statistics of the age of respondent

Variables	Frequency	Percent
21-30 years	11	9.8
31-40 years	34	30.4
41-50 years	46	41.2
51-60 years	21	18.6
Total	112	100.0

Source: Field data (2023)

The results imply that the majority age group of respondents was mature enough to provide rich information on effectiveness of using Force accounts to construct project

implementation. The age distribution of respondents in the study suggests a higher concentration of participants in the middle-age brackets, particularly those aged between 31 to 50 years. This could imply that the views collected are predominantly influenced by individuals who are likely to have substantial experience in the construction industry. Younger respondents (21-30 years) are underrepresented, as are those in the older age bracket of 51-60 years. Therefore, the findings might be more reflective of established practices and attitudes rather than capturing the full spectrum of generational perspectives.

4.1.2 Education Level

This part explains the education level of the respondent; the study involved respondents who had a certificate, diploma, bachelor degree and postgraduate degree. Table 4 presents that; there were 7(6.3%) respondents who had certificate level of education while 10 (8.9%) of the respondents had Diploma Degree level of education, 67(55.8%) of respondents had Bachelor level of education while 28(25%) had Masters' degree.

Table 2: Descriptive Statistics on education Level of respondents

Variables	Frequency	Percent
Certificate	7	6.3
Diploma	10	8.9
Bachelor	67	55.8
Master's degree	28	25
Total	**112**	**100.0**

The results imply that the majority 95 (80.8%) of respondents were highly educated and therefore could provide genuine information of the effectiveness of force accounts in the implementation of construction projects. With these statistics, it can be said that the study collected information from knowledgeable people. These were people who were able to read questions, think critically and give objective answers. Education levels and working experience are integral part of project implementers.

4.2 The effect of force account personnel factor in obtaining quality outputs of the project

The first objective was to determine the effect of force account personnel on quality output in the implementation of construction projects in Moshi District Council. The objective was analysed using descriptive and regression analysis.

4.2.1 The influence personnel factor towards implementation of construction projects

Before determining the relationship between variables, the study was subjected to testing assumptions tests which included Multicollinearity Test, Test for Heteroscedasticity and Normality Test.

4.2.1.1 Multicollinearity Test

Multicollinearity test was conducted to determine if two or more of the predictor (independent) variables in the regression model were highly correlated (Table 2). Variance inflation factor (VIF) was used to test multicollinearity and VIF of below 10 indicated acceptable limits. If the VIF value of exploratory variables is greater than 10, then variables were regarded as highly collinear.

Table 3: Multicollinearity Test Using Tolerance and VIF

	Collinearity Statistics	
	Tolerance	**VIF**
Availability of Personnel	0.412	2.427
Experience	0.215	4.645
Board standards and certification	0.317	3.160
Ability to align with specification	0.217	4.606

From the findings above all the variables had tolerance values >0.2 and VIF values <10 as shown in Table 6. This implies that there were no multicollinearity problems in the variables because VIF values were less than 10. These results are consistent with Myres (2015) who indicated that VIF $\geq$ 10 indicates presence of Multicollinearity. Therefore, there was no multicollinearity among the independent variables.

4.2.1.2 Test for Normality

Test for normality determines if the data is well modelled and normally distributed (linear). To test the normality of the variables, Shapiro–Wilk test was used as it has the highest power among all tests for normality. The hypothesis was tested at a critical value at 0.05, where the rule is that reject H_0 if the probability (P) value is less than 0.05 or else do not reject. The dependent variable should be normally distributed because the study was analysed using a multiple regression model where the condition of normality must be satisfied (Quataroli & Julia, 2012). The hypothesis was that;

H_1: The data is normal.

The results for normality are as shown in Table 7.

Table 4: Normality Outputs

	Shapiro-Wilk		
	Statistic	**df**	**Sig.**
Availability of personnel	0.741	112	0.055
Experience	0.835	112	0.052
Board standards Certification	0.723	112	0.068
Ability to Align with specification	0.867	112	0.071
Quality output of the Project	0.922	112	0.077

The results indicated that using the Shapiro-Wilk test of normality, the data is normal since the p-values are above 0.05 for all the variables and thus we do not reject the alternative hypothesis (H_1). Therefore, the variables on availability of personnel, experience, board standards and certification and ability to align with specifications and quality output of the project are normal in distribution and hence subsequent analysis can be carried out.

4.2.1.3 Heteroscedasticity Test

A heteroscedasticity test was conducted to examine the potential correlation of error terms across observations in the time series data. In regression analysis, it is essential for the error terms to exhibit a constant variance, which is referred to as homoscedasticity. To assess whether the residuals satisfy this criterion, the Breusch-Pagan test for heteroscedasticity is employed.

Table 5: Heteroscedasticity Test

Breusch-Pagan test for heteroscedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (9) = 37.57
Prob>chi^2 = 0.072

In Table 8, the null hypothesis of this test posits that the residuals are homoscedastic. If the p-value exceeds 0.05, it can be inferred that there is a consistent level of variance. The null hypothesis was not rejected at a significance level of 0.05, as the reported p-value was 0.072. Therefore, based on the findings, it can be concluded that the data did not exhibit significant heteroscedasticity.

4.2.2 Regression analysis

Multiple linear regression analysis was used to present the relationship between personnel, experience, board standards and certification, ability to align with specifications and quality output of the project. The average score from the Likert scale for qualified personnel, experience in related works, board standards certification, and ability to align with specification were regressed against the average score for quality output of the project. The results are as presented in Table 9.

Table 6: Regression Outputs for specification and personnel and implementation of construction projects

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.878[a]	.756	.654	12.09686

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Regression	337765.246	4	84441.312	577.045	.000
Residual	15657.745	107	146.334		
Total	353422.991	111			

Coefficients					
	Unstandardized Coefficients		Standardised **Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	3.630	6.485		.560	.577
Availability of personnel	.135	.032	.135	4.258	.000
Experience	.375	.051	.380	7.316	.000
Board standard and certification	.148	.050	.148	2.947	.004
Ability to align with specification	.380	.050	.376	7.652	.000

The R Square value is 0.756, which suggests that approximately 75.6% of the variance in the dependent variable can be explained by the independent variables in

the model. This is a relatively high value and indicates that the model fits the data well. A higher R Square value is generally a good sign, as it means that the variables you have included in your model explain a large proportion of the variance in the outcome variable. The F-statistic is 577.045 with a significance level of 0.000. This means that the overall model is statistically significant and that it's very unlikely that these results are due to random chance. In other words, at least one of the predictor variables is relevant for predicting the outcome variable. The high F-value indicates that there is a strong relationship between the variables included in the model and the dependent variable. The significance level for the F-statistic is 0.000, which is less than the common alpha level of 0.05. This means that the model is statistically significant. This strengthens the validity of the model and suggests that the predictor variables do have a meaningful impact on the dependent variable.

The regression coefficient for availability of personnel is 0.135, and its significance level is 0.000. This suggests that having personnel has a positive impact on the implementation of construction projects. Because the significance level is extremely low (essentially zero), this relationship is statistically significant. This implies that the more personnel you have, the better the construction project is likely to be implemented. The second variable, 'Experience,' has a coefficient (B) of 0.375 and a significance level of 0.000. This shows that experience in related construction works has a very strong positive impact on project implementation. Given the extremely low significance level, this is also statistically significant. Projects are more likely to be effectively implemented if the personnel have previous experience in similar works. Board standards and certification were with a coefficient (B) of 0.148 and a significance level of 0.004. This means that by considering board standards certification it brings better the construction projects implementation. The relationship is statistically significant given the low significance level (Sig.), although its impact is not as strong as that of 'Experience.'

Lastly, Ability to align with specification has a coefficient (B) of 0.380 and a significance level of 0.000. This variable has a strong positive impact on the implementation of construction projects, similar to 'Experience.' The significance level is extremely low, making this result statistically significant. Following ability to align with specification closely is highly associated with successful project

implementation. All the variables are statistically significant and positively associated with the effective implementation of construction projects in the Moshi District. Among these, 'Experience ' and ' board Standards and certification appear to have the strongest impact.

The results are consistent with Obodoh *et al* (2019) findings indicating that a quality management plan in construction was applied as the tool that guided construction professionals in the execution of construction projects in terms of quality. The findings by Paul (2020) indicated that procurement planning, Adoption of the E-Procurement system, supplier relationship management, professional experienced staff, effective communication and procurement cost estimation are very important elements of the procurement practices that contribute to the effectiveness of the procurement process. Japhary (2017) findings it was observed that in order to apply effectively the force account method then the supervisors and the consultancy should have collaboration with the procuring entity and executing team.

4.3 Effectiveness of force account practices on value for money during the implementation of construction projects

The second objective was to examine the effectiveness of force account practices on the attainment of value for money and the implementation of construction projects in Moshi District Council. The objective was analysed using regression analysis

4.3.1 Assumption of Regression

The assumptions tests conducted included Multicollinearity Test, Test for Heteroscedasticity and Normality Test.

4.3.1.1 Multicollinearity test

Multicollinearity test was conducted to determine if two or more of the predictor (independent) variables in the regression model were highly correlated. Variance inflation factor (VIF) was used to test multicollinearity and VIF of below 10 indicated acceptable limits. If the VIF value of exploratory variables is greater than 10, then variables were regarded as highly collinear.

Table 7: Multicollinearity Test Using Tolerance and VIF

	Collinearity Statistics	
	Tolerance	**VIF**
Cost Reduction	0.352	2.838
Buying direct from manufacturer	0.313	3.199
Conformity to Specifications	0.348	2.875
Compare Suppliers quotation	0.258	3.877

From the "findings above all the variables had tolerance values >0.2 and VIF values <10 as shown in Table 7 and thus according to Myres (2015) who indicated that where VIF ≥ 10 indicate presence of Multicollinearity, there was no multicollinearity among the independent variables.

4.3.1.2 Test for Normality

Test for normality determines if the data is well modelled and normally distributed (linear). To test the normality of the variables, Shapiro–Wilk test was used as it has the highest power among all tests for normality. The hypothesis was tested at a critical value at 0.05, where the rule is that reject H_0 if the probability (P) value is less than 0.05 or else do not reject. The dependent variable should be normally distributed because the study was analysed using a multiple regression model where the condition of normality must be satisfied (Quataroli & Julia, 2012). The hypothesis was that;

H_1: The data is normal.

The results for normality are as shown in Table 12.

Table 8: Normality Outputs

	Shapiro-Wilk		
	Statistic	**df**	**Sig.**
Cost Reduction	0.806	112	0.054
Buying direct from manufacturer	0.745	112	0.050
Conformity to Specifications	0.720	112	0.060
Compare suppliers quotation	0.850	112	0.081
Value for money of the Project	0.705	112	0.073

The results indicated that using the Shapiro-Wilk test of normality, the data is normal since the p-values are above 0.05 for all the variables and thus we do not reject the alternative hypothesis (H_1). Therefore, the variables on availability of cost reduction, timely completion, conform to specifications, quotation completion and value for

money of the projects are normal in distribution and hence subsequent analysis can be carried out.

4.3.1.3 Heteroscedasticity Test

A heteroscedasticity test was conducted to examine the potential correlation of error terms across observations in the time series data. In regression analysis, it is essential for the error terms to exhibit a constant variance, which is referred to as homoscedasticity. To assess whether the residuals satisfy this criterion, the Breusch-Pagan test for heteroscedasticity is employed.

Table 9: Heteroscedasticity Test

Breusch-Pagan test for heteroscedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (9) = 25.24
Prob>chi^2 = 0.062

In Table 9, the null hypothesis of this test posits that the residuals are homoscedastic. If the p-value exceeds 0.05, it can be inferred that there is a consistent level of variance. The null hypothesis was not rejected at a significance level of 0.05, as the reported p-value was 0.060. Therefore, based on the findings presented in Table 13, it can be concluded that the data did not exhibit significant heteroscedasticity.

4.1.2 Regression analysis

Multiple linear regression analysis was used to present the relationship between variables on availability of cost reduction, buying direct from manufacturer, conformity to specifications, and Compare supplier's quotation on value for money of the projects. The average score from the Likert scale for variables on availability of cost reduction, buying direct from manufacturer, conformity to specifications, Compare supplier's quotations were regressed against the average score for value for money of the projects. The results are as presented in Table 10.

Table 10: Regression Outputs for procurement practices and implementation of construction projects

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.895[a]	.789	.789	6.04293

ANOVA					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Regression	360524.401	4	90131.100	2468.199	.000
Residual	3907.313	107	36.517		
Total	364431.714	111			

	Unstandardized Coefficients		Standardised **Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	.318	3.057		.104	.917
Cost reduction	.813	.073	.786	11.140	.000
Buying direct from suppliers	.748	.046	.746	16.312	.000
Conformity to specifications	.586	.042	.555	13.858	.000
Compare suppliers quotation	.497	.064	.491	7.775	.000

The Model Summary shows a high R value of .895, indicating a strong relationship between the variables. The R Squared and Adjusted R Square values are both .789, which means that approximately 78.9% of the variation in the "Value for Money of the Project" can be explained by the model. The standard error of the estimate is 6.04293, providing a measure of the accuracy of predictions.

The ANOVA results show a highly significant F-value of 2468.199 with a significance level (Sig.) of .000. This indicates that the regression model predicts the dependent variable significantly well. The sum of squares for the regression and residuals are 360524.401 and 3907.313, respectively, with a total sum of squares of 364431.714.

The factor "Cost reduction" had a coefficient of .813 and a standard error of .073. The t-value was 11.140, and the significance level was .000. The high t-value and the significance level of zero indicate that cost reduction is a highly significant factor in affecting the value for money of the project. The "Timely completion" variable had a coefficient of .748 and a standard error of .046. The t-value for timely completion was 16.312, and the significance level was .000. These numbers indicate that the timely completion of a project is also a very significant factor in achieving value for money.

The variable "Conformity to specifications" had a coefficient of .586 and a standard error of .042. The t-value for this variable was 13.858, and the significance level was .000. This suggests that conforming to specifications is also crucial for achieving value for money in construction projects. Lastly, “compare supplier’s quotation “variable had a coefficient of .497 and a standard error of .064. The t-value for this factor was 7.775, and the significance level was .000. This implies that the compare supplier’s quotation is also a significant factor that influences the value for money of the project. All the variables were found to be highly significant in affecting the value for money of construction projects in Moshi District Council.

The findings are content with Olusola, (2017) who supported that value-for-money valuation for a project should be conducted before a project is commenced and after the project is completed to determine whether or not value for money has really been provided. Tekka (2019) findings recognized that force account methods had a positive significant effect in increasing project competitiveness in the construction firms. Force account methods were also proven to be useful to the local builders and it had led to satisfaction to the clients and society stakeholders through the construction of quality social economic infrastructure. Mayani (2019), study found that there was a relatively significant influence of organisation personnel based on professional experienced staff and project management on VFM in construction of public buildings.

4.4 Force account financial management practices and timely completion in the implementation of construction projects

4.4.1 Assumption of Regression

The assumptions tests conducted included Multicollinearity Test, Test for Heteroscedasticity and Normality Test.

4.4.1.1 Multicollinearity Test

Multicollinearity test was conducted to determine if two or more of the predictor (independent) variables in the regression model were highly correlated. Variance inflation factor (VIF) was used to test multicollinearity and VIF of below 10 indicated acceptable limits. If the VIF values of exploratory variables are greater than 10, then variables were regarded as highly collinear.

Table 11: Multicollinearity Test Using Tolerance and VIF

	Collinearity Statistics	
	Tolerance	**VIF**
Fund availability	0.545	1.834
Systems and networks	0.453	2.208
Payment procedures	0.373	2.680
Timely payment	0.424	2.358

From the findings above all the variables had tolerance values >0.2 and VIF values <10 as shown in Table 16 and thus according to Myres (2015) who indicated that where VIF ≥ 10 indicate presence of Multicollinearity, there was no multicollinearity among the independent variables.

Test for Normality

Test for normality determines if the data is well modelled and normally distributed (linear). To test the normality of the variables, Shapiro–Wilk test was used as it has the highest power among all tests for normality. The hypothesis was tested at a critical value at 0.05, where the rule is that reject H_0 if the probability (P) value is less than 0.05 or else do not reject. The dependent variable should be normally distributed because the study was analysed using a multiple regression model where the condition of normality must be satisfied (Quataroli & Julia, 2012). The hypothesis was that;

H_1: The data is normal.

The results for normality are as shown in Table 17.

Table 12: Normality Outputs

	Shapiro-Wilk		
	Statistic	**df**	**Sig.**
Fund availability	0.807	112	0.085
Systems and networks	0.722	112	0.060
Payment procedures	0.818	112	0.068
Timely payment	0.808	112	0.076
Timely completion of project	0.876	112	0.071

The results indicated that using the Shapiro-Wilk test of normality, the data is normal since the p-values are above 0.05 for all the variables and thus we do not reject the alternative hypothesis (H_1). Therefore, the variables on fund availability, systems and

networks, payment procedures, timely payment and timely completion of projects are normal in distribution and hence subsequent analysis can be carried out.

4.4.1.2 Heteroscedasticity Test

A heteroscedasticity test was conducted to examine the potential correlation of error terms across observations in the time series data. In regression analysis, it is essential for the error terms to exhibit a constant variance, which is referred to as homoscedasticity. To assess whether the residuals satisfy this criterion, the Breusch-Pagan test for heteroscedasticity is employed.

Table 12: Heteroscedasticity Test

Breusch-Pagan test for heteroscedasticity
in fixed effect regression model
H0: sigma(i)^2 = sigma^2 for all i
chi2 (9) = 27.91
Prob>chi^2 = 0.074

In Table 12, the null hypothesis of this test posits that the residuals are homoscedastic. If the p-value exceeds 0.05, it can be inferred that there is a consistent level of variance. The null hypothesis was not rejected at a significance level of 0.05, as the reported p-value was 0.074. Therefore, based on the findings, it can be concluded that the data did not exhibit significant heteroscedasticity.

4.4.2 Regression analysis

Multiple linear regression analysis was used to present the relationship between variables on fund availability, systems and networks, payment procedures, timely payment and timely completion of projects. The average score from the Likert scale for variables on fund availability, systems and networks, payment procedures, and timely payment were regressed against the average score for timely completion of projects. The results are as presented in Table 13.

Table 13: Regression Outputs for procurement Practice and implementation of construction projects

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.893[a]	.785	.685	7.44567

ANOVA[a]					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Regression	400665.417	4	100166.354	1806.820	.000[b]
Residual	5931.860	107	55.438		
Total	406597.277	111			

	Unstandardized Coefficients		Standardised **Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	1.101	3.517		.313	.755
Fund Availability	.798	.055	.773	14.605	.000
Systems and Networks	.510	.036	.498	14.080	.000
Payment Procedures	.572	.055	.565	10.378	.000
Timely Payment	.832	.062	.830	13.477	.000

The R-Square value of 0.785 indicates that approximately 78.5% of the variation in the timely completion of projects can be explained by the variables in the model: Fund Availability, Systems and Networks, Payment Procedures, and Timely Payment. The Adjusted R-Square value of 0.685 gives us a more accurate representation of the goodness-of-fit of the model, taking into account the number of predictors. This suggests that the model is a good fit for the data, but there is room for improvement.

The ANOVA test shows a significant F-value of 1806.820 with a significance level of 0.000, suggesting that the model significantly improves the prediction of timely completion of projects compared to a model with no predictor variables. In simpler terms, the variables included in the model are important in predicting the outcome.

The variable Fund Availability has a coefficient (B) of 0.798 and a very low significance level (Sig.) of 0.000. This implies that for every unit increase in Fund Availability, there is an associated 0.798 unit increase in the Timely Completion of the project, making it highly significant in determining the outcome. For Systems and Networks, the coefficient is 0.510 with a significance level of 0.000. This indicates that Systems and Networks have a significant role, and an increase in this variable by one unit would result in an increase in Timely Completion of the project by 0.510 units.

Similarly, the variable Payment Procedures shows a coefficient of 0.572 and a significance level of 0.000. This means that Payment Procedures also significantly affect the timely completion of projects. A unit increase in this variable leads to a 0.572 unit increase in Timely Completion. Finally, the variable Timely Payment has a coefficient of 0.832 with a significance level of 0.000. This makes it highly significant. An increase in timely payment by one unit would increase timely completion by 0.832 units. All the variables—fund availability, systems and networks, payment procedures, and timely payment—are significant with p-values of 0.000. They positively affect the timely completion of construction projects in Moshi District.

The findings are in line with Welder and Dahl (2019) whose study revealed that the contractual basis has been inadequate and that the management of the project and the cost has been imperfect. Peter *et al.* (2016) established that interdependence exists between causes that lead to cost overruns; materials have largely been ignored when considering the likelihood and impact of their occurrence. Doloi (2013) revealed that using the lowest price as award criterion can give the bidders an incentive to place bids that are unprofitable without additional payment. Endut *et al*. (2015) revealed that construction industry in Malaysia is associated with time and cost overruns which affect the amount of physical infrastructural development that can be undertaken. The study suggests that there is a need to investigate further factors responsible for the level of time and cost overrun.

5.0 CONCLUSION AND RECOMMENDATIONS

5.0 Conclusion

The study concludes that the effectiveness of force accounts in the implementation of construction projects in Moshi District Council is influenced by several key factors. First and foremost, in assessing the extent to which force account facilitates personnel factor, it was found that there is a moderate level of agreement among respondents regarding its effectiveness. The availability of personnel and their experience were identified as crucial factors positively impacting project implementation. Additionally, adherence to experience was emphasised as a significant factor contributing to successful project outcomes. This suggests that investing in skilled

personnel and ensuring compliance with industry standards can enhance the overall effectiveness of force accounts in construction projects in Moshi District Council.

Secondly, the study indicates that force account plays a facilitating role in procurement practice with respondents generally leaning towards agreement on its effectiveness. Cost reduction, buying direct from manufacturer, conformity to specifications, and comparing suppliers quotations were identified as highly significant factors influencing the value for money of construction projects. These findings highlight the importance of cost-efficiency and adherence to project timelines, as well as the need to meet specified project requirements. Consequently, the study underscores the multifaceted nature of factors affecting the success of construction projects and emphasises the significance of managing procurement processes effectively when utilising force account practice.

Lastly, in examining the influence of force account on financial management on the timely completion of construction projects, the study found a somewhat neutral to agreeable stance among respondents. While force account practices were perceived as somewhat effective in financial management, there was notable variability in opinions, suggesting inconsistency across different projects. Fund availability, systems and networks, payment procedures, and timely payment were identified as significant factors affecting project completion timelines. This implies that ensuring adequate funding and implementing efficient financial systems and payment procedures are essential for achieving timely project completion.

5.2 Recommendations

To enhance the effectiveness of force account in this regard, it is recommended:
Construction project officials (Local government officials and schools head teachers) in Moshi District Council should prioritise on-going training and skill development for their workforce. This investment should focus on improving the professional expertise of construction personnel. By providing regular training opportunities, workers can acquire the necessary skills and knowledge to handle complex construction tasks efficiently.

5.3 Study Contribution.

Further research in this field could explore the long-term impact of force account utilisation on construction projects in Moshi District Council, focusing on post-construction assessments and sustainability. Additionally, investigating the role of technology and digital tools in enhancing the effectiveness of force account methods, Challenges facing implementers of force account on their daily basis as well as conducting comparative studies with other regions or construction methodologies, would provide valuable insights for improving construction project management and outcomes in the future.

5.4 Area for Further Studies

The study suggests that there is a need of conducting research in other areas concerning force account procurement methods. “The Public Procurement Act” mentioned only the condition of using the method but it did not mention the purchasing procedures, this is a loophole of abuse of the method. Therefore the faculty of law can conduct a further study to analyse the above mentioned gap.

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