

MAKERERE



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COLLEGE OF ENGINEERING, DESIGN, ART AND TECHNOLOGY

DEPARTMENT OF CONSTRUCTION ECONOMICS AND MANAGEMENT

BACHELOR OF SCIENCE IN CONSTRUCTION MANAGEMENT

RESEARCH DISSERTATION

**ASSESSING THE EXTENT TO WHICH TOOLBOX TALKS
AFFECT LABOUR PRODUCTIVITY ON CONSTRUCTION
SITES IN MBALE CITY.**

BY

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**A RESEARCH REPORT SUBMITTED TO THE DEPARTMENT OF CONSTRUCTION
ECONOMICS AND MANAGEMENT FOR THE AWARD OF A BACHELOR OF SCIENCE
IN CONSTRUCTION MANAGEMENT**

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DECLARATION


I **SHIANWA EMMANUEL MASAWI** declare that the information contained in this report is original and contains the description of the activities involved in final year project research.

The content in here has never been submitted to any institution for any award, be it Makerere University or any other institution.

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APPROVAL

This is to certify and approve SHIANWA EMMANUEL'S research study report for submission to the Makerere University, College of Engineering, Design, Art and Technology, School of Built Environment, Department of Construction Economics and Management.

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DEDICATION

This report is dedicated to my Dad Mr. Masawi James and my mother, Dr. Nandutu Agnes for the continuous support rendered in my academic journey.

May the good Lord be your reward in all aspects of your lives.

ACKNOWLEDGEMENT

I am heavily indebted to my supervisor Mr. Katongole George Mark who continuously guided me throughout his research. Thank you very much.

I also extend my gratitude to my family and friends for all the support I was given during the period of research.

Special thanks go to all the companies which provided me with the necessary information for myresearch project.

ABSTRACT

Construction industries especially in developing countries face the problem of low productivity and this is partly because of poor communication and site safety while executing various tasks. This study was conducted with the aim of assessing the extent to which toolbox talks influence and affect the productivity of; foremen, site engineers, clerks of works and operatives in the Uganda Construction industry.

By using a closed ended questionnaire survey on construction workers in Uganda, a total of 25 construction sites were randomly selected and the percentage of sites actively carrying out toolbox talks was determined as well as the frequency with which these toolbox talks occur. With this the output of the labour productivity of the workers was established based on how close every project was to its individual proposed project schedule and the results suggested that toolbox talks played a significant role in conveying important communication, tracking progress and ensuring that safety hazards were mitigated. On the other hand, some of the workers, especially subcontractors, argued that this was a waste of time due to various reasons.

Management and supervisory teams should develop schemes in order to effectively communicate and track progress of all trades on the construction site and they should ensure that they work. This will necessitate application of an overall proper managerial effort in planning, organizing, coordinating and controlling projects and the plan should include all categories of labour that contribute to the productivity of the project as a whole.

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LIST OF ACRONYMS

GDP – Gross Domestic Product

CLP - Construction Labour Productivity

OSH - Occupational Health and Safety

eLCOSH - Electronic Library of Construction Occupational Safety And Health

U.K- United Kingdom

U.S - United States of America

CHAPTER ONE: INTRODUCTION

1.1 Background

According to the Daily Monitor. Residents of Mbale City have said there is a need to transform the city into a revived urban area, with potential to generate high local revenue collection(The Daily Monitor, 2021). With Mbale being one of the recently created cities, Structures and buildings are inevitably coming up in order to facilitate development(The New vision , 2020).

For the nation's economy to grow, construction productivity is very important and plays a significant role in the industry (Naoum, 2016).Labour is known as the most crucial and flexible resource used in the construction projects and construction productivity is directly related to labour (Muqem et al. 2012). Construction projects hire a large number of workers, thereby, it can be stated that manpower is the dominant productive resource, therefore construction productivity is highly dependent on human effort, efficiency and performance (Jarkas 2010).

There are several definitions provided of productivity by different researchers. The term 'productivity is generally defined as the maximisation of output while optimizing input (Naoum 2016; Durdyev et al. 2018).

According to Ajayi, O. 2010, Results indicate that owners rank 'poor communication among project participants' as the top severe factor affecting performance in construction projects, followed by 'poor labour productivity' and 'poor planning and scheduling' respectively.In addition, productivity is one of the important aspects for construction industry, which helps its survival and growth. Therefore, improving the productivity of the construction industry is of critical importance considering its significant contribution to the GDP (Hafezet al. 2014).According to Mahamid et al. (2013), labour productivity plays a key role in determining the success of a project. However, it might be affected by many unexpected variables. These variables may include factors related to labour, materials, tools and equipment, construction methods, political, financing, and environment (Alinaitwe et al 2007). Poor labour productivity is one of the main causes of cost and time overruns in construction projects. Accordingly, high attention should be given to this factor in the construction industry.

Toolbox talks are common in many industries, Defined as informal work-site training, these talks are designed to deliver safety messages to improve safety and prevent work-related

incidents (Varley & Boldt, 2002). Also referred to as tailgate trainings and stand-up meetings, toolbox talks allow an employer to briefly convey critical, time-sensitive safety information to a group of workers, many of whom are transient or temporary (Harrington, Materna, Vannoy, et al., 2009). Done well, these talks can improve communication, empower workers, and reduce injuries and improve safety (Gillen, Goldenhar, Hecker, et al., 2013).

Toolbox talks differ widely in content, type, delivery method and level of worker engagement. Discussion topics and general content for canned talks are widely available from agencies funded by state and federal government (CPWR, 2014; eLCOSH, 2014a; Harvard Environmental Health & Safety, 2014; Washington State Department of Labor & Industries, 2014) and from safety organisations, risk management companies and international sources. Although these prepared resources provide useful information, they are more relevant and effective when tailored to each job site, the work tasks at hand and the construction crew (Harrington, et al., 2009; Varley & Boldt, 2002).

Several delivery methods are more effective than a typical lecture format. For example, narrative approaches involve sharing real-life stories of near hits and workplace incidents to which employees can relate (Heidotting, 2002; Varley & Boldt, 2002). Participatory approaches engage the crew in discussing a topic that can be applied to their specific situation, and foster site specific problem solving (Harrington, et al., 2009; Varley & Boldt, 2002). Research also suggests that workers are more attentive when groups are small (fewer than 20 workers) and the trainer is a senior employee, such as site supervisor, foreman or safety supervisor, who is perceived as having authority to support any needed changes (Varley & Boldt, 2002). In general industry, safety training has shown to be effective in improving worker knowledge and worker behaviour (Robson, Stephenson, Schulte, et al., 2012).

1.2 Problem Statement.

According to various econometric models, productivity growth is a major factor that contributes to the improvement of living standards and international competitiveness. In addition productivity increments have contributed to the rise in per capita income in most countries. Studies have shown that labour productivity is a factor that has an impact on performance on construction site projects. And is influenced by very many factors across different regions in the world ranging from first world countries down to third world countries. In the UK site safety is among the most influential factors affecting labour productivity. Toolbox talks is one of the ways site personnel are briefed about the safety hazards on site. Done well, these talks improve communication among various trades, empower workers, reduce injuries and improve safety. Despite the wide availability of prepared toolbox talks and their increasing popularity, few studies have examined their efficacy or effectiveness.

In Uganda, many construction projects are challenged by time and cost overruns due to low labour productivity on sites. Studies have shown that various factors such as incompetent supervisors, rework and poor communication among others have significantly influenced labour productivity. Participants, especially subcontractors, attribute toolbox talks to a waste of time as they suppose they already know what is supposed to be done.

Considering the fact that few studies have been conducted to examine the efficacy or these toolbox talks, One is left to wonder if these toolbox talks are worth looking into to understand if it can significantly influence the productivity of labour on construction sites.

1.3 Study Objective.

1.3.1 Main Objective

The main objective of the study is to investigate the extent to which toolbox talks influence labour productivity on construction sites in Mbale City.

1.3.2 Specific Objectives

- To Identify the sites that actively carry out these toolbox talks in Mbale City
- To measure the frequency of these toolbox talks held on these construction sites.
- Determine the levels of labour productivity on these sites.
- Establish the relationship between toolbox talks and labour productivity on these construction sites.

1.4 Justification.

Mbale being awarded city status by the government of Uganda inherently makes it a target destination for investors and developers. In so doing infrastructure development is inevitably on the rise in order to spur economic growth. As a result there is a need to do everything necessary in order for construction projects to be completed in their intended duration. Toolbox talks having a major part in influencing participants on construction sites to adhere to safety guidelines and rules leaves one to wonder if management could achieve more through this site meeting. Interaction and communication of workers and management has the potential to influence the attitude of the workers as a result affecting productivity and performance.

1.5 Scope of study

1.5.1 Academic scope

Academically, the research focused on investigating the extent to which toolbox talks affect labour productivity on construction sites in Mbale city. The study took on the approach of reviewing literature related to the subject topic. From published and unpublished reports, conference papers, text books, journals, to statute law and government policy documents.

1.5.2 Time Scope

This research lapsed for a period of eleven months (March 2021 – January 2022)

1.5.3 Geographical Scope

The geographical scope was Mbale City and the targeted respondents were Site Engineers, Clerk of works, Foreman and Operatives (masons, steel fixers, welders and other people engaged in the building works) and persons with expertise in the construction industry. The sampling frame were all building construction contractors involved in both small and large projects and registered with Uganda National Association of building and civil works.



Mbale

Figure 1.1 Showing a map of Mbale City

1.6 HYPOTHESES

H₀. The regular occurrence of toolbox talks on construction sites will not influence the general operation of activities on construction sites in Mbale city.

CHAPTER 2: LITERATURE REVIEW

2.1 DEFINITION

Productivity is the measure of the rate at which work is performed. It is a ratio of production output to what is required to produce it. Productivity is measured as a total output per one unit of a total input. In construction, the output is usually expressed in weight, length, or volume, and the input resource is usually in cost of labour or man-hours. Productivity is considered a key source of economic growth and competitiveness and as such, is basic statistical information for many comparisons and industrial performance assessments.

Productivity = Output /Input

At the project site, contractors are often interested in labour productivity. It can be defined in one of the following ways;

Labour Productivity = Output /Labour cost

Or

Labour Productivity = Output /Work hour.

There is no standard definition of productivity and some contractors use the inverse of above,

Labour Productivity = Labour cost / work hour Output

In general, productivity signifies the measurement of how well an individual entity uses its resources to produce outputs from inputs.

The two most important measures of labour productivity are:

- (1) the effectiveness with which labour is used in the construction process and;
- (2) the relative efficiency of labour doing what it is required to do at a given time and place (Dozzi & Abourizk 1993).

2.2 TYPES OF PRODUCTIVITY.

(a) Partial Productivity:

It is the ratio of output to one class of input. For example, output per man – hour is partial productivity concept or output per ton of material and interest revenue generated per shilling of capital

(b) Total factor productivity:

It is the ratio of net output to the sum of associated labour and capital input. The net

output there is sometimes called value – added output. In this ratio, we explicitly consider only the labour and capital input factors in the denominator.

(c) Total Productivity:

It is the ratio of total outputs to the sum of all input factors. This is a holistic measure that takes into consideration the joint and simultaneous impact of all the input such as labour, materials, machine, capital, and energy. This measure has received much attention over the past ten years, as evidenced by many papers and case studies.

2.3 SIGNIFICANCE OF PRODUCTIVITY.

It has daily influence on the ability of:

- Companies to make a profit by reducing cost and time overruns
- Government to earn more revenue through taxation and provide services.

2.4 IMPORTANCE OF LABOUR PRODUCTIVITY ON CONSTRUCTION PROJECTS

Labour productivity is one of the most serious factors that affect the physical progress of any construction project (Durdyeu et al, 2011). In order for any construction industry to keep improving project success, it first needs to improve the standard of labour productivity to reduce the cost of any construction project. The Asian Productivity Organisation has argued that “improvements in labour construction productivity would make a substantial benefit to the national economy (Intergraph, 2012). According to (Hammad et al, 2011) an “increase in labour productivity may result in more growth and a positive effect on the society” An increase in Labour productivity may reduce the overall cost of the project, which can result in more affordable houses being built. Every contractor, subcontractor and employer has to agree to a contract for the project to start. These contracts have a start date, plan, budget, work scope, duration, finish date and other important factors for any project. This agrees with (Hammad et al, 2011) that “Every year companies and contractors are hit with billions of dollars in construction claims as a result of lack of labour productivity”. Improving labour productivity in construction projects will not only result in project success, but will also result in a significant impact on improving the GDP, which positively affects the economy and reputation of any country.

2.5 LABOUR PRODUCTIVITY FACTOR ANALYSIS

Discussed below are generally the various factors affecting labour productivity and are reviewed from past studies.

- i. **Safety:** Accidents have high impacts on labour productivity. Various accident types occur at the site, such as an accident causing death and resulting in a total work stoppage for a number of days. An accident that causes an injured person to be hospitalised results in a work decrease of the crew for which the injured employee worked. Small accidents resulting from nails and steel wires can stop work and, thus, decrease productivity (Sanders & Thomas, 1991). Even insufficient lighting shows decreased productivity because sufficient lighting is required to work efficiently and because insufficient lighting has negative effects. Employing a safety officer helps labourers to recognize the required safety regulations and to follow them, which can reduce the number of accidents, thus increasing productivity.
- ii. **Motivation:** Motivation is one of the important factors affecting construction labour productivity. Motivation can best be accomplished when labourers personal ambitions are similar to those of the company. Factors such as payment delays, a lack of a financial motivation system, non-provision of proper transportation, and a lack of training sessions are grouped in this topic (DeCenzo&Holoviak, 1990).
- iii. **Supervision:** Generally, projects come across some design, drawings and specification changes during construction. If drawings or specifications are with errors and unclear, productivity is expected to decrease since labourers in the field are uncertain about what needs to be done. As a result, task may be delayed, or have to be completely stopped and postpone it until clear instruction. There is a likely 30% loss of productivity when work changes are being performed (Thomas et al., 1999). Work inspection by the supervisor is an essential process to proceed. For example, the contractor cannot cast concrete before an inspection of the formwork and steel work, thus affecting labour. With non-completion of the required work according to the specifications and drawings, supervisors may ask for the rework of a specific task. Supervisors' absenteeism stops the

work totally for activities that require their attendance, such as casting concrete and backfilling, further delaying inspection of the completed work which, in turn, leads to delays in starting new work.

- iv. **Material/Tools:** Material management is one of the most important factors in the construction industry. Productivity can be affected if required materials, tools, or construction equipment for the specific are not available at the correct location and time. Selection of the appropriate type and size of construction equipment often affects the required amount of time; it is, therefore, essential for site managers to be familiar with the characteristics of the major types of equipment most commonly used in construction. Labourers require a minimum number of tools and equipment to work effectively to complete the assigned task. If improper tools or equipment is provided, productivity may be affected. (Guhathakurta & Yates, 1993).
- v. **Quality of raw materials and equipment provided:** Inefficiency of equipment and poor quality of the raw material are factors which cause low productivity. The productivity rate of inefficient equipment is low. Old equipment is subject to a great number of breakdowns, and it takes a long time for the labourers to complete the work thus reducing productivity. Poor-quality material used for work is the other factor because poor materials generally lead to unsatisfactory work and can be rejected by supervisors, thus reducing the productivity.
- vi. **Managerial Factors:** Managers' skill and attitudes have a crucial bearing on productivity. In many organisations, productivity is low even though the latest technology and trained manpower are made available. Experienced and committed managers can obtain surprising results from average people. Employees' job performance depends on their ability and willingness to work. Management is the catalyst to create both. Advanced technology requires knowledgeable labourers who, in turn, work productively under professionally qualified managers. It is only through sound management that optimum utilisation of human and technical resources can be secured.
- vii. **Manpower Group:** Literature shows that a lack of labour experience is the factor which negatively affects labour productivity and proves that, to achieve good productivity, labour plays a significant role. Contractors should have sufficiently skilled labourers employed to be productive. If skilled labour is unavailable and a contractor is required to

complete specific tasks with less-skilled labour, it is possible that productivity will be affected. The absence of any crew member may impact the crew's production rate because workers will, typically, be unable to accomplish the same production rate with fewer resources and with a different crew member. Misunderstanding among labourers creates disagreements about responsibilities and the work bounds of each labourer, which leads to a lot of work mistakes and decreases labour productivity. Lack of compensation and increased labourer age negatively affect labour productivity because labour speed, agility, and strength decline overtime and reduce productivity (Heizer and Render, 1990).

- viii. **Time:** During construction projects, there are many tasks which causes a loss of productivity. Past study shows productivity decreases with working overtime. The most frequently stated reasons are fatigue; increased absenteeism; decreased morale; reduced supervision effectiveness; poor workmanship, resulting in higher rework; increased accidents (Horner and Talhouni, 1995). Working overtime initially result in increased output, but continuing overtime may lead to increased costs and reduced productivity (Hinze, 1999). Time used by a construction labourer on productive activities averages about 30% of the total time available. An employee in the field only works effectively for 3.5 hours of his 8-hour shift and spends 20% of his time on direct value-adding activities (Alinaitwe et al., 2005).
- ix. **Schedule Compression:** When there are early delays in a project, compressions of the overall time frames for a later activity are often the way to compensate for interruptions and to complete the assigned task on schedule. From a professional scheduling perspective, schedule compression may be possible without accelerating individual work activities by utilising floats in the project's overall schedule. However, on many projects, schedules are not fully resource loaded. As a consequence, a properly updated schedule reflecting the delays may show the project finishing on time without shortening individual activities. Schedule compression may result in forcing extra labourers for the desired task by the contractor because of shortening the overall duration, allowing the contractor to complete the total remaining work. Schedule compression, when linked with overtime, often results in major productivity losses due to shortages of material tools or equipment to support the extra labour, resulting in difficulty for planning and

coordinating the task, and unavailability of experienced labourers (National Electrical Contractors Association, 1983).

- x. **Type of Project:** To accomplish substantial productivity, every member of a crew requires adequate space to perform tasks without being affected with/by the other crew members. When more labourers are allotted to perform particular task, in a fixed amount of space, it is probable that interference may occur, thus decreasing productivity. Additionally, when multiple trades are assigned to work in the same area, the probability of interference rises and productivity may be reduced. Interference among the various crews and labourers is due to mismanagement on construction sites. For example, a steel-fixtiture crew has to wait before fixing the reinforcement rods if the carpenter's framework is incomplete. The types of activities and construction methods also influence labour productivity (Sanders and Thomas, 1991).
- xi. **Project Management Factors:** Improper scheduling of work, shortage of critical construction equipment or labour, may result in loss of productivity. Improper planning of project-initiation procedures generally lead to lost labour productivity. Additionally, poor site layout can contribute to a loss of productivity. Labourers have to walk or drive a long way to lunch rooms, rest areas, washrooms, entrances, and exits, affecting overall productivity (Association for the Advancement of Cost Engineering (AACE) International Recommended Practice No. 25R-03, 2004).
- xii. **Natural Factors:** Various natural factors affecting labour productivity collected from previous studies are weather conditions of the job-site and geographical conditions. Others factors such as fuel, water, and minerals also affect productivity to certain extent. Productivity is found to be highly affected if weather recorded is too extreme (too cold, heavy rainfall, too hot.)
- xiii. **External Factors:** Weather conditions are a significant factor to consider for completion of any construction project. Adverse winter weather, such as winds and rains, reduces productivity, particularly for external work such as formwork, concrete casting, external plastering, external painting, and external tiling. Adverse weather sometimes stops the work totally (Sanders and Thomas, 1991).

- xiv. **Political Factors:** Law and order, stability of government, etc. are essential for high productivity in the construction industry. The government's taxation policies influence willingness to work and expansion of plants. (A. Kumar, as cited in Desai, 2004).

2.6 TOOLBOX TALKS

Toolbox talks are defined as informal work-site training, these talks are designed to deliver safety messages to improve safety and prevent work-related incidents (Varley & Boldt, 2002). Also referred to as tailgate trainings and stand-up meetings, toolbox talks allow an employer to briefly convey critical, time-sensitive safety information to a group of workers, many of whom are transient or temporary (Harrington, Materna, Vannoy, et al., 2009).

Toolbox talks differ widely in content, type, delivery method and level of worker engagement. Discussion topics and general content for canned talks are widely available from agencies funded by state and federal government (CPWR, 2014; eLCOSH, 2014a; Harvard Environmental Health & Safety, 2014; Washington State Department of Labor & Industries, 2014) and from safety organisations, risk management companies and international sources. Although These prepared resources provide useful information, they are more relevant and effective when tailored to each job site, the work tasks at hand and the construction crew (Harrington, et al., 2009; Varley & Boldt, 2002).

Several delivery methods are more effective than a typical lecture format. For example, narrative approaches involve sharing real-life stories of near hits and workplace incidents to which employees can relate (Heidotting, 2002; Varley & Boldt, 2002). Participatory approaches engage the crew in discussing a topic that can be applied to their specific situation, and foster site specific problem solving (Harrington, et al., 2009; Varley & Boldt, 2002). Research also suggests that workers are more attentive when groups are small (fewer than 20 workers) and the trainer is a senior employee, such as site supervisor, foreman or safety supervisor, who is perceived as having authority to support any needed changes (Varley & Boldt, 2002). In general industry, safety training has shown to be effective in improving worker knowledge and worker behaviour (Robson, Stephenson, Schulte, et al., 2012).

CHAPTER 3: METHODOLOGY

This chapter will discuss the Research methodology, this refers to the principles and procedures of logical thought processes which are applied to a scientific investigation (Fellows, 2008), research design, target population, sampling strategies, data collection methods, data quality control and data processing and analysis.

3.1 Research design

The research design is determined by considering how to link the research questions with data collection and analysis of the results. Research design is the program that guides the investigator in the process of collecting, analysing and interpreting observations. (Nachmias, 1993) Generally the kind of data to be used in this study will be both quantitative and qualitative. Qualitative research design will be employed to get experience viewpoints and suggestions concerning toolbox talks and quantitative methods will involve capturing data for statistical analysis.

3.2 Description of population

Site supervisors and the workers (randomly 10 workers will be picked at each site) on the construction sites in Mbale will be reliable to obtain the data required for the study and this will be done through random sampling of about 25 ongoing both public and private construction projects and construction industries in Mbale. Five operatives, two site managers or engineers and one safety officer or Planning supervisors, two Clerk of works or foremen will be interviewed to obtain the data required for the study.

3.3 Sampling strategies

The sites will be sampled by use of a web based random number generator that runs according to Monte-Carlo simulations. A total of 60 construction sites will be listed in a spreadsheet and an online random number generator will be used to determine the 25 sites on which the study will be carried out.

This method is done to eliminate all kinds of bias in order to achieve the objectives of our study.

3.4 Data Collection Methods

Both primary and secondary data will be used to obtain information for purposes of study.

In primary data collection, the primary sources will consist of administration of a questionnaire; observation of construction activities on various sites; and interviews with a few personnel based on an interview schedule.

Secondary data will be mainly information from textbooks, relevant literature on construction labour productivity and construction safety published by the Health and Safety Executive, Academic Journals, published books, the news media; and the Internet.

3.5 Data Quality control

Observations; This will involve collection of information by way of the researchers own observation without interviewing the respondents. It relates to what is currently happening.

Interviews; will be used as one of the sources of collecting primary data. The interviews will be held with site personnel, including site agents, clerks of works and both skilled and unskilled workers to assist in explaining and clarifying any information required. This consists of questions that the interviewers will use when questioning face to face the respondents, it extends to greater accuracy, adequate explanations and better feel of responses.

Questionnaires; this will involve a number of drafted questions which will be personally delivered to respondents and the respondent guided on filling the form where necessary

3.6 Data Processing and Analysis

All collected information from the survey will be recorded, checked and verified for the analysis. Microsoft Excel and Word will be used. Results will then be presented using graphs and tables to show the relationship developed between toolbox talks and labour productivity based on our hypotheses that will be generated.

3.7 Research Ethics

Research ethics refer to norms for conduct that distinguish between acceptable and unacceptable behaviour in the process of carrying out research (B.Resnik, 2020). The study aimed at ensuring informed consent of all participants in the study, confidentiality and anonymity of the participants and data protection.

CHAPTER 4: RESEARCH FINDINGS

4.1 Return rate of questionnaires

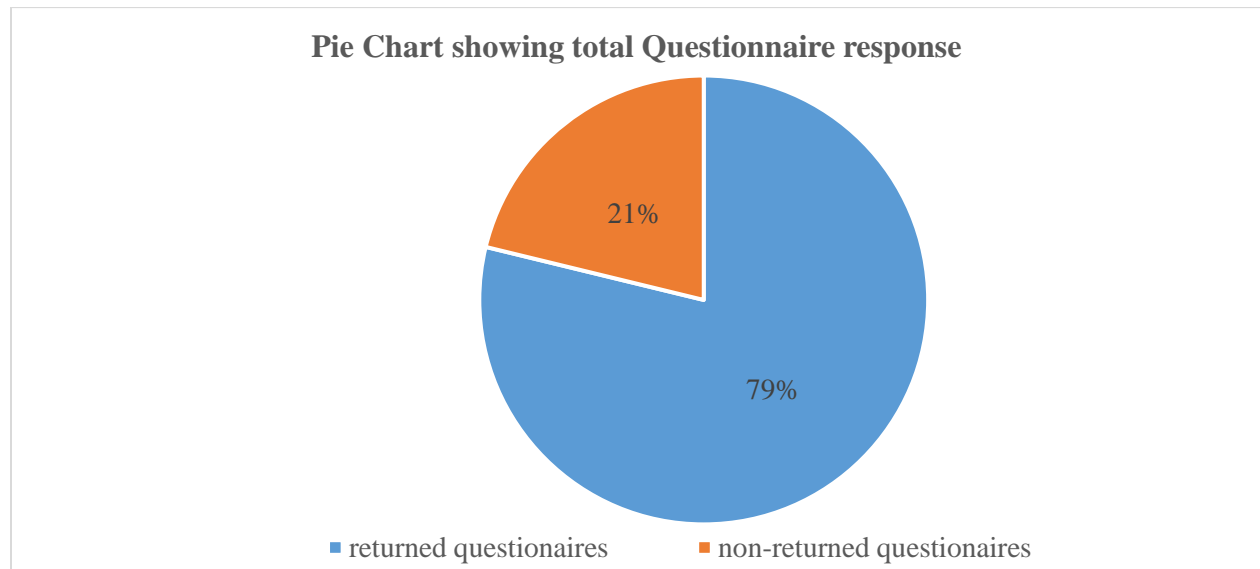
According to the Questionnaires prepared, 250 Questionnaires were distributed and only 197 were returned. The response rate was 78.8% which was reasonable. This means that the information presented in this research can be relied on for any other study related to my area of research. The response rate of the questionnaires is summarised below;

Table 4.1 Showing Response rate of each category

Group of respondents	No. issued	No. returned	Return rate (%)
Site Engineers	50	44	88
Safety officers	25	20	80
Clerk of works and foremen	50	39	78
operatives	125	94	75.2
total	250	197	78.8

(Source: Author's analysis using Ms Excel)

Figure 4.1 Showing total questionnaire response rate

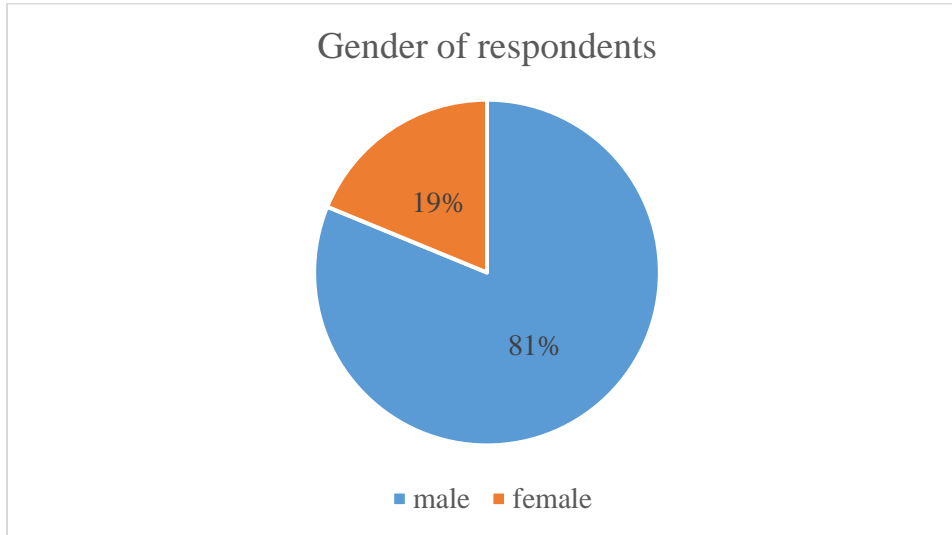


(Authors analysis, MS Excel)

4.2 Gender of respondents

The respondents were required to indicate their gender and the pie-chart below show the ratio of males to females among the construction workers who were chosen to fill in the questionnaire. From the pie-chart it is clear that the males are much more than the females in the industry as workers were selected without bias.

Figure 4.2: Percentage of Women and Men



(Author's Analysis, Ms Excel)

While carrying out the research, 37 (19%) females and 160 (81%) males were questioned. This implied that the research findings relied mostly on views of male respondents.

Table 4.2 Showing gender of respondents

Gender	Frequency	Percentage (%)
Male	37	19
Female	160	81
Total	197	100

4.3 Time period of experience

The workers who were able to respond to the research have spent different years working in the construction industry. These were asked to choose the category within which the time they have spent working in the construction industry and most of the respondents were found to fall under 5-10 years category and the least were in the 10-15 years category.

Figure 4.3: Graph showing the years of Experience of respondents



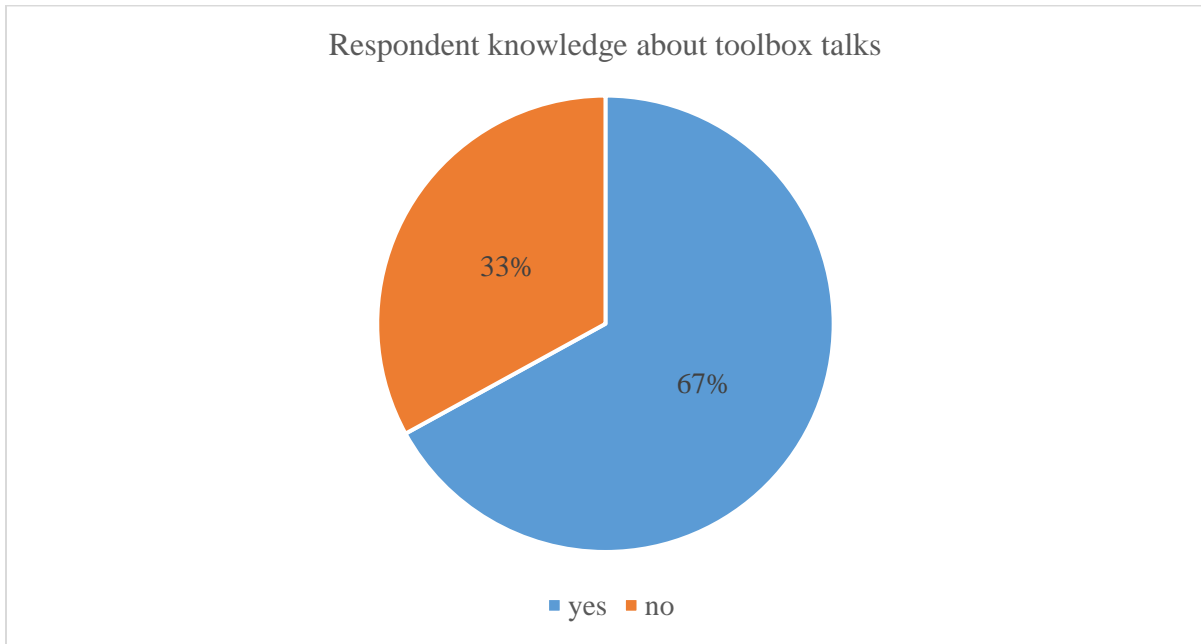
(Author’s analysis, Ms Excel)

From the graph above, it is vividly shown that most of the workers in the field have had a sufficient amount of experience. According to the topic of research, since most workers have been working for over 5 years, the data collected on toolbox talks effectiveness is reliable.

4.4 PROOF OF KNOWLEDGE ABOUT TOOLBOX TALKS

From the survey made during the study, it was found that (132)67% of the respondents knew what toolbox talks were and just (65)33% of the respondents either completely did not know or were unsure of the term “toolbox talks”. These had to be educated about the term a little before further interaction. This was done to obtain relevant information concerning the research study.

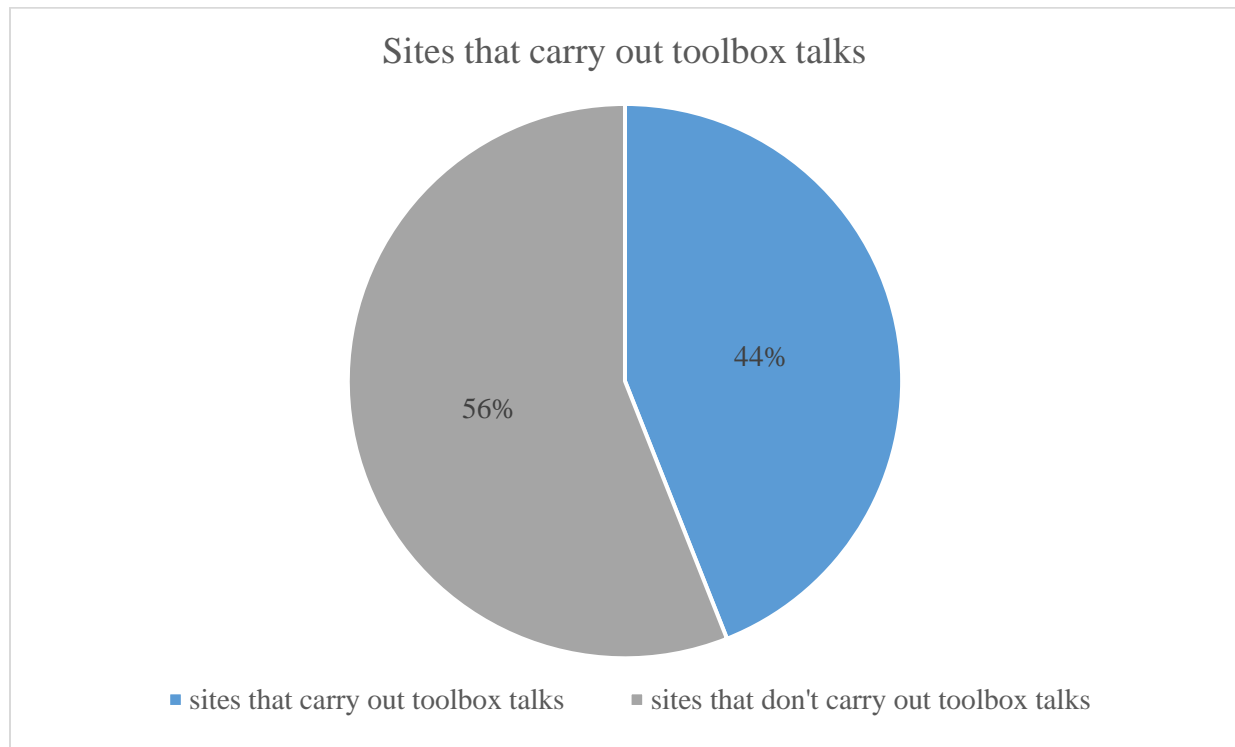
Figure 4.4: Pie chart showing proof of knowledge concerning toolbox talks



(Author's analysis, MS excel)

4.5 Specific objective one: To identify the sites actively carrying out toolbox talks

Figure 4.5: Pie chart showing the percentage of sites that actively carries out toolbox talks

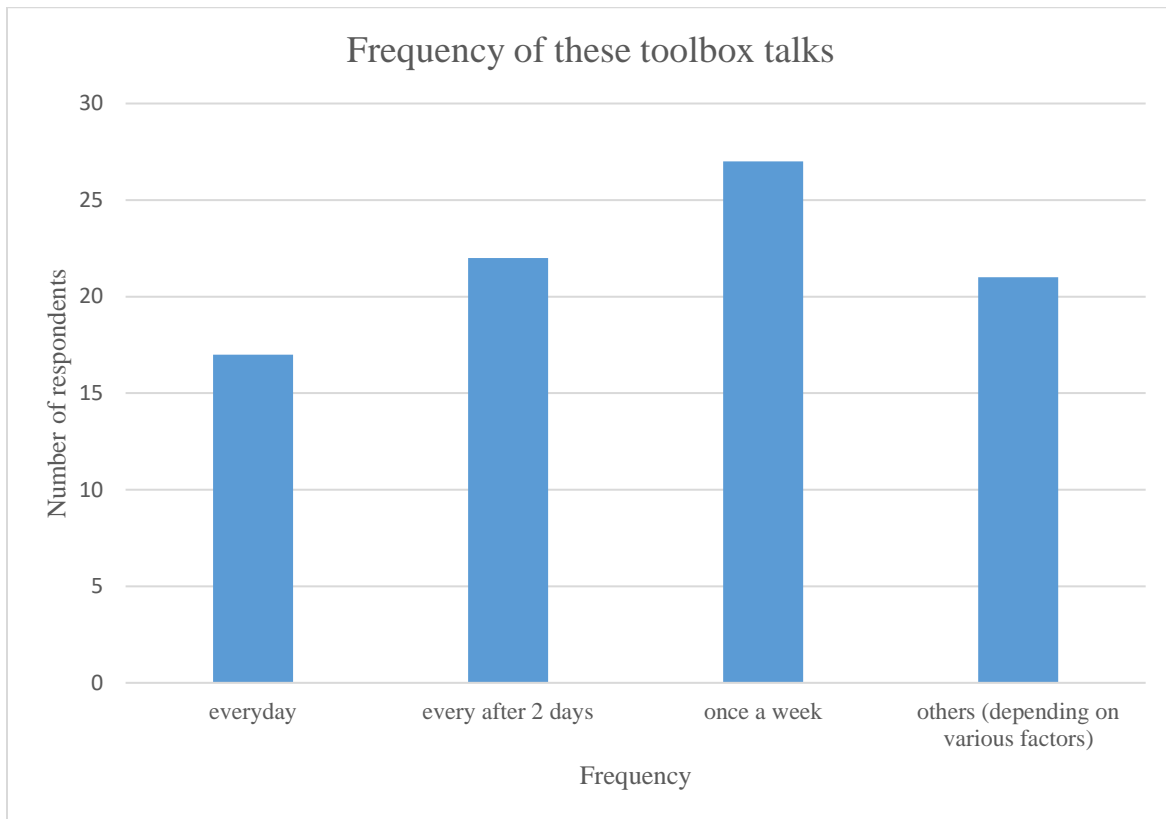


(Author's analysis, MS Excel)

We discover that out of the 25 sites visited only (11)44% of them actively carry out these toolbox talks whereas (14)56% of the sites did not.

4.6 Specific objective 2: to measure the frequency of toolbox talks at these sites

Figure 4.6: Showing the frequency of toolbox talks on construction sites



4.7 Specific objective 3: To determine levels of productivity on these sites

For the sites that did not have tool box talks 110 respondents participated in this survey and the following responses were given.

According to your project schedule, are you on track to complete the project on time?

Table 4.3: Showing the levels of productivity on sites that had toolbox talks

we are ahead of schedule	11
we are slightly behind schedule	43
we are on schedule	41
no, we are way behind schedule	15

For the sites that had tool box talks 87 respondents participated in this survey and the following responses were given.

According to your project schedule, are you on track to complete the project on time?

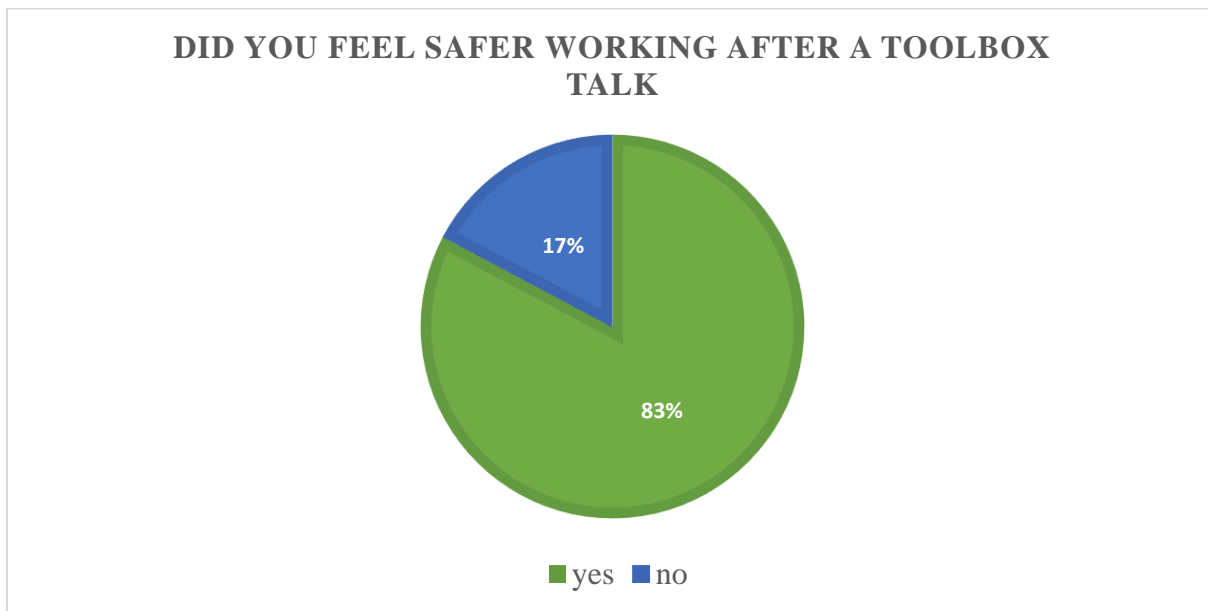
Table 4.4: Showing the levels of productivity on sites that did not have toolbox talks

we are ahead of schedule	22
we are slightly behind schedule	19
we are on schedule	41
no, we are way behind schedule	5

Some other opinions were obtained concerning the well being of the workers that were as a result of the toolbox talks.

Some of these included safety of workers. Workers were asked if they felt safer after having a toolbox talk and being made aware of the hazards that happen when executing specific tasks on sites. 72 (83%) of the respondents from the sites that actually had these toolbox talks stated that they felt safer after having a toolbox talk whereas 15(17%) of the respondents from these sites stated that it did not have a significant difference on their safety awareness and claimed their safety wasn't as a result of a toolbox talk rather than prior knowledge and experiences.

Figure 4.7: Piechart showing the percentage of respondents that felt safer after having a toolbox talk

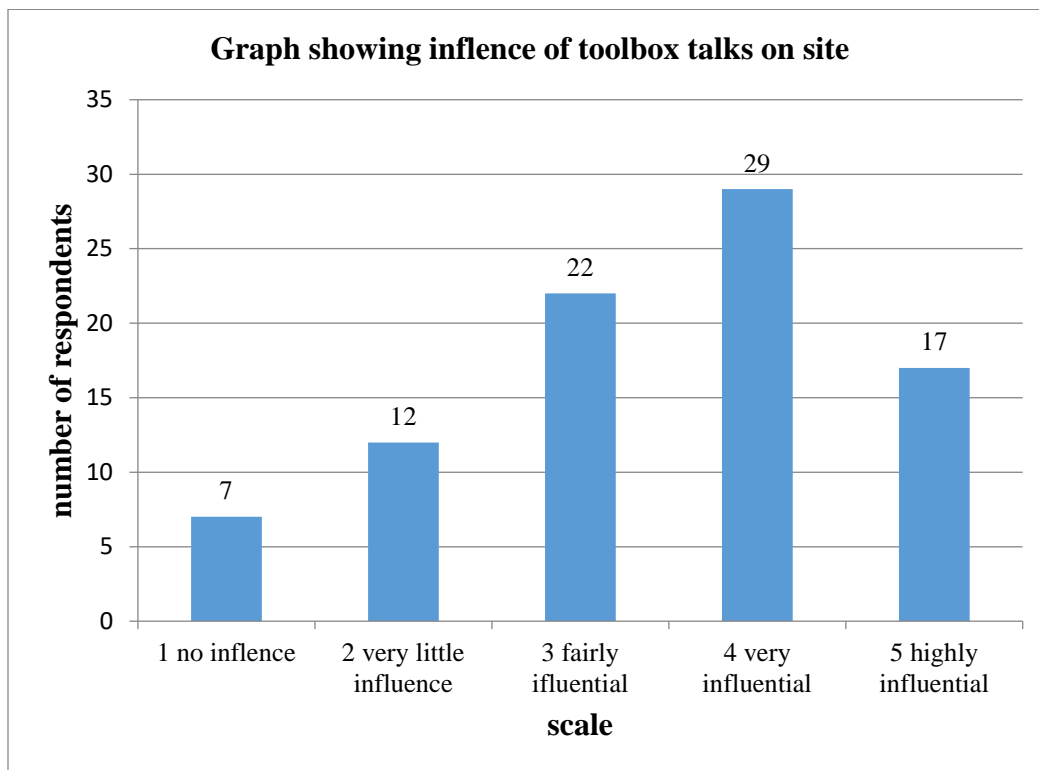


(Author's analysis, MS Excel)

4.8 Specific objective 4: Establish the relationship between toolbox talks and labour productivity on these construction sites.

In the process of carrying out site activities, daily and weekly targets are set in order to track productivity of labour. From a scale of 1 to 5, influence of toolbox talks on the rate at which one carried out their site activities in order to meet daily or weekly targets was determined (1 indicating little to no influence at all and 5 indicating there was a high influence on the rate at which work is done) This slot was mainly limited to sites that actually had toolbox talks and these were 87 of the total respondents (197).

Graph 4.1: Showing influence of toolbox talks on rate of work in order to meet daily and weekly targets



(Authors Analysis: Ms Excel)

From the Graph shown, it is noted that majority of the labour force were influenced by the toolbox meetings. This can be correlated to the fact that if one is reminded of their daily targets or weekly targets (short term goals) then, that goal is more likely to be achieved hence the long term goals get to be realized with time.

From our findings we can reject the hypothesis earlier stated that,” The regular occurrence of toolbox talks on construction sites will not influence the general operation of activities on construction sites in Mbale city.” As we have statistical data that proves that indeed Tool box talks directly influence the daily activities and operations on construction sites in Mbale City.

CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a closing summary of the research, challenges faced during the research followed by conclusions, recommendations.

5.2 Summary of findings

This study was carried out in Mbale City with data collected from foremen, site engineers, clerks of works and operatives from construction sites.

It was noted that toolbox talks had a noticeable impact on the way activities were executed on the sites that actually had them regularly. Safety measures were adhered to, there were lower cases of absenteeism, progress of works was easily tracked as all trades were involved during the toolbox talks. It was important to note that some operatives thought it was a waste of time since they claimed to know what was supposed to be done. This affected the frequency of these talks on 3 of the sites. These affected sites reduced the frequency with which they had these toolbox talks and only had them when they deemed it necessary for example at points where new staff were being inducted and when a new activity was going to occur.

It is important to note that some of the sites that didn't have these toolbox talks were having their projects on schedule. However much attention wasn't invested into understanding how this happened due to the nature of the study.

5.3 Challenges faced during the study

- One of the respondents availed information at a cost because the previous researchers used to pay in some money.
- Language barrier was a big challenge to the researcher as well as the respondents. The researcher filled in questionnaires for most operatives as they were giving audible responses.
- This research was conducted in a period of the COVID 19 pandemic which was a threat to the life of the researcher as well as respondents during data collection.

5.4 Conclusions

The study revealed that toolbox talks had an influence on labour productivity as the results show that sites that had them frequently were on schedule to meet project deadlines. It however wasn't entirely clear how the sites that did not have these toolbox talks were able to convey information, track progress, track absenteeism and ensure that labour productivity was optimum. This is because some of these sites claimed they were on schedule to meet their project deadlines.

It is also important to note that Labour productivity is highly influenced by other factors and so optimum labour productivity cannot be attributed to only one activity as we notice that some sites were still behind schedule even though they regularly had these toolbox talks.

RECOMMENDATIONS

Based on our study, a lot of things were learnt. One of which being labour productivity is achieved by blending all the techniques out there in order to get the most out of the labour force.

But at the end of the day, some important recommendations should be considered;

- Tool box talks should happen daily on construction sites so as to ensure daily targets are met.
- Tool box talks should also be modified in order to be relevant to the situation it is going to be used in and should also spear head communication and interaction amongst workers
- Tool box talks should not only be used to communicate the safety hazards of carrying out specific tasks but also have some other important aspects like inception of new site workers and other team building activities

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Appendix

7.1 Proposed budget

ESTIMATED BUDGET FOR THE STUDY				
NO.	ITEM	QTY	RATE	AMOUNT(UGX)
1	STATIONERY			
	Rim of Papers	1	15,000	15,000
	Pens	5	500	2,500
	Printing services	Lump sum		50,000
2	TRANSPORT			
	Travel	Lump sum		100,000
3	COMMUNICATION			
	Airtime	Lump sum		20,000
4	RESEARCH ASSISTANTS			
	Enumerators	5	30,000	150,000
5	ELECTRONIC SERVICES			
	Computer Software and Internet			100,000
6	MISCELLANEOUS	Lump sum		200,000
	GRAND TOTAL			637,500

7.2 Project timeline

Time Schedule																								
YEAR	2021-2022																							
MONTHS	August				Sept				October				Nov				Dec				Jan			
WEEKS	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Preliminaries																								
Literature Review																								
Proposal writing																								
Proposal Presentation																								
Data Collection																								
Data Analysis																								
Preliminary of Presentation Findings																								
Final Report writing																								
Submission of Draft Report																								
Final Presentations																								
Submission of Final Report																								