

**THE EFFECT OF MATERIAL HANDLING ON THE PROFITABILITY OF
MANUFACTURING ORGANIZATIONS**

CASE STUDY: MUKWANO GROUP OF COMPANIES (U) Ltd.



**A research dissertation submitted to the faculty of Business Administration and
Management in partial fulfillment of an award of a Bachelor's degree in Business
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DEDICATION

I dedicate this research report to my parents Mr. Kibuga Paul and Miss Nakabuye Christine for their love, moral and financial support towards success of my education not forgetting the family of Mr. Ssebamala Mathias for the care they gave me through all the years I have been at the university.

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ABSTRACT

The study examined material handling and profitability in manufacturing organizations with specific reference to Mukwano group of companies. It was guided by research objectives which were; to find the effect of material handling on the profitability of manufacturing organizations, to find the effect of materials storage on the profitability of manufacturing organizations, to find how record keeping affects the profitability of manufacturing organizations and to find the effect of equipment on the profitability of manufacturing organizations. The study used a cross sectional survey design with both qualitative and quantitative results while data was collected using questionnaires and interviews. In data analysis, frequencies, percentages, standard deviation and mean were used to show the magnitude of the effect the independent variables on dependent variable. The population of the study was 280 respondents and the sample size was 162 though the actual participants were 131. The respondents were given questionnaires and in percentage, those returned were 80.9% and the un returned were 19.1%. The male took the highest percentage which was 55.7% Study findings revealed that material handling has a positive significant effect on the profitability of manufacturing organizations. According to the study results, it was found out that there is positive significant effect storage and record keeping has on the profitability of manufacturing organizations. The study concluded that storage is more important than equipment and record keeping as far as material handling and profitability is concerned, this therefore means that if proper storage is maintained, the organization can achieve higher profitability. The study therefore recommends that the organization should have enough stores so as to meet every need of its members and staffs, so as to have guaranteed effectiveness of material handling. The other stores could be in other regions so as to be able to distribute to the nearer regions.

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter is going to talk about the effect of material handling on the profitability of an organization but putting the emphasis on manufacturing companies. Taking Mukwano group of companies as my case study. Mukwano is one of the leading manufacturers in Uganda found at the industrial area, Kampala²⁶⁷¹, Uganda. Material handling is a part of material management that concern with the safety of material in transit, the regularity in delivery and also the flow of the materials. It includes a number of operations that can be executed either by hand (manual) or by mechanical means or devices to convey material and to reduce the human drudgery. Recent researches (Evan *et al.*, 1988; Ramkrishina, 2005; Ogbadu, 2009; Ondiek, 2009) have shown that materials account for the more than fifty percent of the annual turnover in the manufacturing firms. This clearly shows that priority should be given to material management and handling in manufacturing firms in order to achieve significant cost saving, improvement in production efficiency, an increase profitability and competitiveness. Alert (2012) indicated that profitability is defined as an income generated in the business which is calculated by subtracting the expenses from revenue. The author went on by indicating that the word profitability derives from profit devoted by the Greek letter “π”. This is defined as the difference between the total revenue of a business and the total costs of a business. In order to achieve profitability, the organization needs to minimize costs in all ways possible.

1.1 Back ground of the study

Material handling is generally concerned with the flow of materials from the source of supply through the production line to the final consumers. This means that material handling includes such function as the primary responsibilities of purchasing plus other major procurement responsibilities like Inventory Control, traffic, receiving, warehousing as well as production planning and control.

Cater Douglas defined material handling as the aggregate of those ordinary courses of business which are in the process of production of goods or services to be available for sale.

Material are significant portion of most firms of assets which accordingly requires substantial investment in order to keep these inventories from becoming unnecessarily large, material must be managed effectively. In modern business greater emphasis has being put in material handling. It concern in material management is to provide materials in the right condition at the right time. It implies that the handling procedures should be able to: retain appropriate stock level, ensure proper use of stock, ensure that inventory is fully amounted for

Jonny Ater – defines material handling as the movement and protection of materials goods and products through the process of maintaining, distribution, consumption and disposal. Material handling should be controlled and carried out properly if a huge standard of efficiency and cost effectiveness is to be achieved. Companies have found more and more competition on the world market. Today it is a common practice to source and supply globally. This is a great potential for the manufacturing companies, but also an increasing necessity for cost-effectiveness, which alone is not enough anymore. Because of the high competition, companies have to change

internal process continuously. The intensity has increased and this results in shorter life-cycles, shorter lead times and more need of flexibility. These, and also the focus on time and responsiveness, link the external market changes with internal activities to stay competitive.

In order to achieve proper and better material handling, material handling principles were brought up. Materials have to be planned for and here the needs are specified and the performance objectives are set the materials plan should be in line with the strategic plan. Material handling methods, equipment, controls and software should be standardized within the limits of achieving overall performance objectives and without sacrificing needed flexibility, modularity and throughput, anticipation of changing future requirements. Material handling work should be minimized without sacrificing productivity or the level of service required of the operation. Human capabilities and limitations must be recognized and respected in the design of material handling tasks and equipment to ensure safe and effective operations. Unit loads shall be appropriately sized and configured in a way which achieves the material flow and inventory objectives at each stage in the supply chain. Effective and efficient use must be made of all available space. Material movement and storage activities should be fully integrated to form a coordinated, operational system which spans receiving, inspection, storage, production, assembly, packaging, unitizing, order selection, shipping, transportation and the handling of returns. Material handling operations should be mechanized and/or automated where feasible to improve operational efficiency, increase responsiveness, improve consistency and predictability. Environmental impact and energy consumption should be considered as criteria when designing or selecting alternative equipment and material handling systems. A thorough economic analysis should account for the entire life cycle of all material handling equipment and resulting systems. All these can help improve the efficiency and effectiveness of material handling.

Material handling must therefore be put into consideration if organizations are to achieve profitability because material handling increases effectiveness and quality control, safety level, production capacity level, efficiency in receipt, storage and dispatch.

1.2 Problem statement

Material handling in manufacturing organizations is an important aspect of the production process. Materials are the main input in any production system. Its importance is attached to raw materials that call for proper management in an organization in the past inventory control was not seen to be necessary. In fact excess inventories were considered as an indication of wealth. Management by then considered over stocking beneficial. But today firms have started to embrace effective inventory control. According to Buffa and Salin (1987), there are several reasons for keeping inventory. Too much stock could result in funds being tied down, increase in handling costs, deterioration of materials, obsolescence and theft. On the other hand, shortage of materials can lead to interruption of products for sales: poor customer service and underutilized machines and equipments.

Many companies engage diverse strategies to achieve organizational goal through material handling. The control of materials as it affects organizations is the unavailability of materials in stores and proper reconciliation of possible loss to business through interaction of production or failure to meet order with the handling cost of stock. But the problem is the improper usage of materials in the manufacturing process.

1.3 Objectives

General objective

To find the effect of material handling on the profitability of manufacturing organizations

Specific objectives

- i. To find the effect of materials storage on the profitability of manufacturing organizations.
- ii. To find how record keeping affects the profitability of manufacturing organizations
- iii. To find the effect of equipment on the profitability of manufacturing organizations.

1.4 Research questions

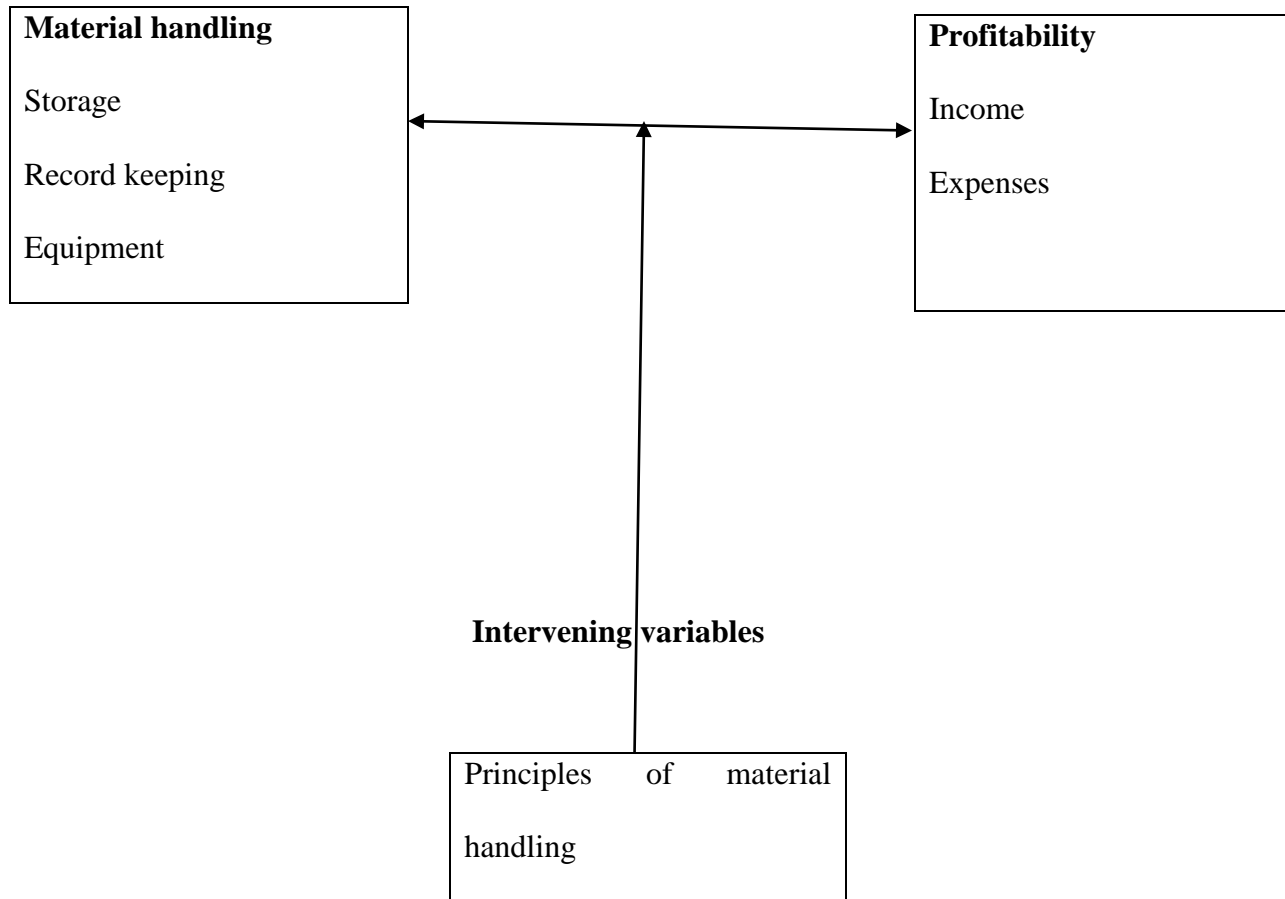
1. What is the effect of materials storage on the profitability of manufacturing organizations?
2. How does record keeping affect the profitability of manufacturing organizations?
3. What is the effect of equipment on the profitability of manufacturing organizations?

1.5 Conceptual frame work

The conceptual framework below shows the relationship between human material handling and profitability. A general conceptualization diagram as shown below illustrates that material handling is the dependent variable and profitability is the independent variable while the principles of material handling have a moderating effect on material handling and profitability. This is well portrayed in the in the diagram shown below.

Independent variable

Dependent variable



Source: Matthew P. Stephens and Fred E. Meyers, the material handling institute and modified by the researcher

The independent variable is material handling and this covers storage, record keeping and equipment. The independent variable is profitability and it includes income and expenses or costs which means that for an organization to achieve profitability, they have to minimize expenses which can be through proper storage to avoid the losses and damages, record keeping for references and proper accounting of all the entries made and proper use of the material handling equipment which make work more efficient and effective and thereby saving time and costs. For

an organization to achieve all this, they have to make sure that they balance the relationship between the two variables.

1.6 Scope of the study

1.6.1 Geographical scope

The study is going to be carried out in Mukwano group of companies located in the industrial area, Kampala 2671, Uganda. Mukwano group of companies is one of the leading manufacturers in Uganda and keeps on growing economically from time to time. Mukwano manufactures a lot of products among which include plastics, sweets, soap detergents, cooking oil among others.

1.6.2 Content scope

The study is going to look at the in-depth coverage on the impact of material handling on the profitability of manufacturing companies. It is going to briefly talk about the relationship between material handling and profitability and how the two are interdependent on one another.

1.6.3 Time scope

The study will consider information relating to the period of three years that is 2013-2016 in order to capture previous and latest statistics and trends to ensure reliability and validity of presented findings.

1.7 Justification of the study

The research will be carried out to address the effect of material handling on the profitability of manufacturing organization and get broader idea of the two variables.

1.8 Significance of the study

Knowledge generated through this research will be very useful to subsequent researchers. It will add to the global pool of research on variables of this work. It will also provide organizations with useful information on how to properly handle and manage their materials so that they can get the required profits.

The research findings will be used as references by those who want to carry out more research about the variables under the study.

The findings from this study may help the researcher to gain new knowledge on material handling and its applications.

The study will help managers to redesign the policies in order to improve their efficiency and effectiveness of handling materials.

1.9 Definition of key terms

Materials: They refer to goods in different firms for different purposes such as raw materials for production, maintenance, processing of finished goods.

Material Handling: It is a part of material management that concern with the safety of material in transit, the regularity in delivery and also the flow of the materials.

Profitability: Is the ability of a company to use its resources to generate revenues in excess of its expenses.

Profit: It is what is left of the revenue a business generates after it pays all its expenses directly related to the generation of the revenue.

Revenue: The amount of money that a company receives during a specific period, including discounts and deductions for returned merchandise.

Expenses: Money spent or cost incurred in an organization's effort to generate revenue, representing the cost of doing business

1.10 Conclusion

In conclusion, material handling has the ability to affect profitability in manufacturing organization to improve efficiency and profitability. Although manufacturing organization can achieve profitability through different ways, material handling affects them so much and should therefore be given much thought.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter describes or presents a review of literature on material handling as the independent variable and profitability as the dependent variable. The chapter is to show the reviewed literature by the various authors about the variables (material handling and profitability) and a number of sources are going to be used to gather the information.

2.1 Over view of the variables

2.1.1 Material handling

Materials handling makes production flow possible, as it gives dynamism to static elements such as materials, products, equipments, layout and human resources (Stock & Lambert, 2001; Chopra & Meindl, 2001). Groover (2001) highlights that despite its importance, materials handling is a topic that frequently is treated superficially by the companies. Every organization invests a considerable amount of capital on materials. In many cases, the cost of materials exceeds fifty percent of the total cost of goods produced. Such a large investment requires considerable planning and control so as to minimize wastage which invariably affects the performance and profitability of organizations. Materials are the life blood and heart of any manufacturing system. No industry can operate without them. They must be made available at the right price, right quantity, in the right quality, in the right place and at the right time in order to coordinate and schedule the production activity in an integrative way for an industrial undertaking. A manufacturing firm will remain shaky if materials are under stocked, over stocked or in any way poorly managed (Lee *et al.*, 1977 and Bunjako, 2000)

Shingo (1996) indicated that, in the West, production was treated as a process of a sequence of operations. In the Production Function Mechanism, the concepts are directly related to a production analysis focus. A process analysis consists of an observation of the production flows that turn raw materials into final products. From this concept, the author highlights that the main analysis is the one associated with the process, because it follows the production object. The analysis of the operations comes later because it focuses on production subjects (operators and machines). When making this distinction, it is possible to perceive the relevance of materials handling.

According to Saxena (2003), Material handling system is the one of the importance factor needed to be considered during the organization operations. Because it involving the moving, packaging Storing of substance in any form. Various types of materials are stored in the ware housing. Each material has its own characteristics.

According to Burton (1999), stock tacking and recording is among the essential issues under effectiveness of material handling. Impartial of doing so will cause a huge and unimaginable loss to the organization. In the book of effective warehouse the misuse of equipment were instead to be prevented skill in operation and to fall rules existed.

According to Asef-Vaziri & Laporte (2005) an important proportion of manufacturing expenses can be attributed to material handling and the most critical material handling decisions in this area are the arrangement and design of material flow patterns. This idea is shared by Ioannou (2002), which argues that an important aspect of any production system is the design of a material handling system (MHS) which integrates the production operations. The relevance also occurs in another context. Ballou (1993) states that the storage and handling of goods are

essential among the set of logistics activities, and their costs can absorb 12% to 40% of its costs. Sule (1994) Sujono & Lashkari (2006), material handling accounts for 30–75% of the total cost of a product along the production chain, and efficient material handling can be responsible for reducing the manufacturing system operations cost by 15–30%. For Bowersox and Closs (1996), the main logistic responsibility in manufacturing is to formulate a master-program for the timely provision of materials, components and work-in-process. Stevenson (2001) understands that logistics (including materials and goods flowing in and out of a production facility as well as its internal handling) has become very important to an organization to acquire competitive advantages, as the companies struggle to deliver the right product at the correct place and time. The main challenge is to promote, with low cost, a flow whose velocity allows the execution of manufacturing process with the expected satisfaction level.

2.1.2 Profitability

Profitability is one of the most important objectives of financial management because one goal of financial management is to maximize the owner's wealth (McMahon, 1995). Thus, profitability is very important in determining the success or failure of a business. At the establishment stage, a business may not be profitable because of investment and expenses for establishing the business. When the business becomes mature, profits have to be produced.

Nimalathan (2009) mentioned that the profit is the primary objective of a business, which measures not only the success of a product, but also of the development of the market for it. Further profit is the report card of the past, the inventive gold star for the future. Weidenfeld and Nicholson (1970) concerned that the profit as a reward to owner of the capital but with the return to capital as an objective of a firm's activities. Velnamby and Nimalathan (2009) noticed the profitability will provide more accurate view of the firm's performance. Pandy (1979) indicated

that recent experience in countries with totally planned economies indicated that economists are probably right in emphasizing the importance of overall profitability as a criterion for the efficient operation of an enterprise. Weston (1978) declared that the profit is used to test the efficiency and used to measure the control and worth of the investment to the owners, margin of safety to the creditors, source of extreme benefits to the employees, to the Government a measure of taxable capacity and the basis of legislative action, to the country profits are an index of economic progress, national income generated and rise in the standard of living. On the other hand, Welstedt (1980) in his book entitled "state manufacturing enterprises in a Mixed Economy: Turkish case" stated that profitability of an enterprise can be ascertained, if profit is analyzed in terms of sales and investment. Schmalensee (1987) mentioned that to determine the determinacy of systematic changes in intra-industry profitability occurred over time so as to distinguish between an efficiency story and collusion story about why concentrated industries had higher profit rates than other industries, and also he found that large firms in general were higher profitable than small firms within the same industry. Velnampy and Nimalthasan (2007) pointed out that sales are positively associated with profitability ratios except return on investment, and numbers of depositors are negatively correlated with the profitability ratios except return equity. Sexton and Kasarda (2000) found that firm profitability was correlated with sustainable growth, while Chandler and Jensen (1992) found that sales growth and profitability were not correlated.

One of the most difficult attributes of a firm to conceptualize and measure is profitability (Ross, Westerfield and Jaffe, 1999). In a general sense, accounting profits are the difference between revenues and costs. However, the problem with accounting-based measures of profitability is that they ignore risk. In the economic sense, a firm is profitable only if its profitability is greater than investors can achieve independently in the capital market. In their text, Ross et al. (1999) suggest

some methods to measure profitability including profit margin or return on sales, return on assets, and return on equity.

Profit margins are computed by dividing profits by total operating revenue and thus express profits as a percentage of total operating revenue. Return on assets is the ratio of income to average total assets, both before tax and after tax, and measures managerial performance. Return on equity is defined as net income divided by average stockholders' equity, and shows profit available for stockholders.

Cohen (1989) stated measures of profitability are essential in any business. In his text, he indicated many different ratios to measure profitability of the business. They included asset-earning power, return on the owner's equity, net profit on sales, and return on investment. Asset earning power is determined by the ratio of earnings before interest and tax to total assets. It indicates how much operating profit each dollar of total assets earns.

Return on the owner's equity is computed by dividing net profit by average equity, and shows return that the business received in exchange for investment. Net profit on sales is determined by the ratio between net profit and net sales, and measures the difference between what the business takes in and what it spends in the process of doing business. Return on investment is simply computed by dividing net profit by total assets. This measure is very useful for measuring profitability.

Burns (1985) used three ratios: return on total assets, return on net assets and return on equity to measure profitability while Hutchinson, and Meric (1988) measured profitability by the following ratios: net profit after tax/sales, earnings before interest and tax/total assets, and net profit after tax/owners' equity. Altman (1968), in a study of financial ratios, discriminate

analysis and the prediction of corporate failure, measured profitability by two ratios: retained earnings/total assets (RE/TA) and earnings before interest and taxes/total assets (EBIT/TA).

2.2 Review according to objectives

2.2.1 Storage and profitability

Materials storage is an important function of materials handling(Osisioma,1996) He further posits that it is an act of carelessness to abandon the materials acquired at the factory premises without adequate taking care of them to avoid losses which may result from attack from insect, rodents, birds or theft by people, damage by fire, heat or moisture. Storage of materials entails careful handling of material and maintains accurate control over them. It shows how much materials are in the store and when to place order. Effective handling of material is essential tool for cost saving and increase profitability. Ogbadu (2009) posits that storage goes in hand with record keeping. Keeping record can detect theft and pilfering early enough. The issue of materials from store to production department must be properly authorize and recorded. Johnson (1993) maintain that profit can be achieve if managers effectively manage issues relating to stores location, layout and equipment inspection, protection of stores, issues to production, stock records and disposal of obsolete. Defective, scrap and surplus materials could be well stored and be disposed off or return to the supplier later, a very good avenue for increasing profitability in manufacturing firms if effectively done. Ogbadu (2009) observe that to achieve profitability in disposal of scrap and surplus, it involves decision in the areas of return to suppliers, selling to suppliers, selling to other firms, selling to dealers. Carter (1982) define scrap as the residue of process materials left behind during production while surplus is the materials from purchases which were not wholly consumed in the production

In adhering to fire safety precautions, employees should note that flammable and combustible materials must be stored according to their fire characteristics. Flammable liquids, for example, must be separated from other material by a fire wall. Also, other combustibles must be stored in an area where smoking and using an open flame or a spark-producing device is prohibited. Dissimilar materials that are dangerous when they come into contact with each other must be stored apart. The materials in the storage rooms should be given enough space and arranged in a proper way possible so that they do not take a lot of space.

2.2.2 Record keeping and profitability

McMahon (1998) argues that the basic form of record keeping deters many owners because to them, keeping records do not provide a trend of their current operations and thus impact less on performance.

Atherton (1985) notes that all the stages of records keeping are interrelated thereby forming a continuum where both record keepers and archivists are involved in the management of recorded information. Because it involves a broader context of archival science that connects the past to the present and the present to the future, this theory is assumed to be the best for managing or keeping both electronic and paper records with the view to improving efficiency as well satisfying users. Flynn (2001) asserts that the records continuum theory is significant because it provides a broader interpretation of records and record keeping systems offered by the lifecycle.

Bellardo & Bellardo (1992) defined records as documents created or received and maintained by an or
In adhering to fire safety precautions, employees should note that flammable and combustible materials must be stored according to their fire characteristics. Flammable liquids, for example, must be separated from other material by a fire wall. Also, other combustibles must be stored in an area where smoking and using an open flame or a spark-producing device is

prohibited. Dissimilar materials that are dangerous when they come into contact with each other must be stored apart from organization or individual in pursuance of legal obligation or in transacting business. They argue that record management involves the application of systematic and scientific control to all recorded information that an organization needs in order to conduct its business in a sustainable manner. This definition is embracing, factoring legal, commercial as well as sustainability considerations. These are key features and happenings in the ever changing business environment.

Record keeping itself has a long history dating back to 3600 BC (Mairura, 2011) where clay tablets were predominantly used to maintain records and list of commodities. Several books of records have come to pass as civilization permeates to every corner across the globe. Today, different books of records are used. The choice of a book among others depends on the type of business ownership. Record keeping involves the capturing, maintaining and provision of authentic and ready-available records of business activities. There are different reasons for maintaining records and these vary from business to business. ASA & RIM (2011) argue that the primary motive for keeping records is at least to provide ample evidence of and information about business activities. Thus the existence of records underpins individual, organization and social accountability as well as providing a back-up memory. The practice of records keeping and management involves record keeping systems, creation of record control as well as automated management information systems (Walters, 1995). McLean (1999) opine that good record management involves among other things the control and creation of records as well as assimilation of new records management technologies. Maintaining business records includes but not limited to entries of day-to-day transactions of business regarding its receipts and payments. It may also include the list of assets and liabilities, number of employees and

measurement indicators. However, a basic record keeping system should be simple to use, easy to understand, reliable and consistently designed to provide information on a timely basis. In conventional accounting terminology, these are generally referred to as the qualitative characteristics of financial statements. These characteristics underscore the relevance of accounting and business records, and breaking information down to levels that meet the user requirements of a variety of stakeholders. In practice, recording can be manually or electronically done. By manual recording, owners/employees perform all transactions manually on periodic basis. Under this system, majority of the transactions usually recorded are the sales and/or purchase of merchandise on credit, receipt and/or payment of cash. Many have argued that manual recording has the advantage of being relatively cheaper than the electronic method. According to them, this is because the manual way of recording transactions does not involve the use of computers and hiring skilled personnel. This is obviously one reason why small scale enterprises shy away from using the electronic way of recording transactions which involves the use of computers often associated with rising operating cost. On the face value, this argument looks appealing. It however adopts a narrow approach to determining what is expensive and what is not. For example, the costs of computers and skilled personnel, however expensive, pales into insignificance when benchmarked against the costs of poor record keeping and or the benefits of an improved and consistent record keeping culture. Many have called for the need of keeping records in enhancing business performance. For instance, Hughes (2003) asserts that keeping business records is an important driver for the success of a business and argues that a comprehensive record or book keeping system enables business owners to develop accurate and timely financial reports that detail the progress and prospects of the business. Thus, the performance of a business is contingent on the existence of book keeping system. Some authors

(Macey, 2001; Frolick & Ariyachandra, 2006) have used increased market share, profitability, improved facilities and meeting required standards as proxies for business performance. Arguing along the same line, Fitzgerald et al. (1991) views performance indicators to include but not limited to profitability, business competitiveness, sales growth, customer base, liquidity and capital structure, and relative market share, quality of services and staff competence as well as resource utilization and productivity.

Okoli (2011) calls for the maintenance of proper record keeping in enhancing profitability and performance. Whilst the importance and role of record keeping is widely acknowledged, the drivers of record keeping itself are at best anecdotal.

2.2.3 Equipment and profitability

Materials handling study requires that several elements are considered. The first is a handling system project, which covers activities of sequencing, velocity, layout and routing (Groover, 2001). In order to complete the analysis, Groover (2001) recommends analyzing the material itself (or object) to be transported. Therefore, it suggests the classification of Muther and Hagan (apud Groover, 2001), which considers: physical state (solid, liquid, gas), size (volume, length, width, height), weight, condition (hot, cold, dry, dirty, sticky, adhesive), risk of damage (weak or strong) and safety hazards (explosive, flammable, toxic, corrosive, etc.). Additionally, the issue of equipment and devices must be examined. Dias (1993) adopts the term “moving” to describe management (handling) to adopt the terminology of Groover (2001). When dealing with equipment, Dias (1993) presents a broad classification that covers five categories: (i) transporters (belts, chains, rollers, etc.); (ii) cranes, hoists and lifts; (iii) industrial vehicles (carts, tractors, pallet transporters, forklifts); (iv) positioning equipment, weighing and control (ramps, transfer equipment); and (v) stents and support structures (pallets, holders, reels). According to Chan, Ip

& Lau (1999), a key factor in material handling system design process is the selection and configuration of equipment for material transportation. According to Gurgel (1996), the equipment should be selected based on some preliminary considerations: take into account the utilization of the factory floor and its load capacity; examine the dimensions of doors and corridors; pay close attention to ceiling height, identify the environmental conditions and their nature, avoid the use of combustion engines traction equipments in storage of food products, meet all safety standards to protect humans and to eliminate the possibility of incurring criminal and civil liabilities arising from accidents, and examine all kinds of available energy options and their capacity to supply required movements. The right choice of equipment and location of work-in-process is fundamental for the optimization of a company's manufacturing capacity. Bowersox and Closs (1996) state that a critical factor in positioning stocks in process is a balance between convenience and consolidation to create efficiencies when the stock flows along the value chain. The importance of layout, which defines the placement of equipment and, consequently, restricts possible routes and sequencing, can be perceived by the prominence that the subject is treated in production management literature. Stair and Reynolds (2006), Laudon (2006), O'Brien and Marakas (2007) support the study of fundamentals and general principles of information systems. In order to improve the performance of distribution operations and, in this specific case, the internal material handling process, it is important to consider both human and technical factors (Chakravorty, 2008). In this sense, this study assesses the internal customers' perception of a material handling process improvement. With regard to the attributes to be considered in a material handling system, according to Kulak (2005), effective use of labor, providing system flexibility, increasing productivity, decreasing lead times and costs are some of the most important factors influencing selection of material handling equipment. These factors

are directly related to some attributes found in the present study. The determination of a material handling system involves both the selection of suitable material handling equipment and the assignment of material handling operations to each individual piece of equipment (Sujono & Lashkari, 2006). Hence, according to Sujono & Lashkari (2006) material handling system selection can be defined as the selection of material handling equipment to perform material handling operations within a working area considering all aspects of the products to be handled.

2.3 Conclusion

There has been a lot of research carried out on how material handling affects the manufacturing organizations, giving clear and simple understandings of the variables using citations.

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter gives details on the way in which the study was done, the research area, the method of sampling used, the research designs, sample procedure, size and sampling technique, data instrument and collection tools as well as data management and analysis, population of the research, ethical considerations and the difficulties/limitations encountered during the research.

3.1 Research design

Kisulu and Deho.(2006,) defines research design as a scheme, outline or plan that can be use to generate answers to research problems. The study adopted a case study design. This design was adopted for this study because it intensively described and analyzed the role of motivation on employee productivity. The case study design included questionnaire survey and in-depth interview methods (Kombo and Tromp, 2006). The researcher used qualitative and quantitative approaches for data collection. Qualitative research methods focus on discovering and understanding the experiences, perspectives, and thoughts of participants—that is, qualitative research explores meaning, purpose, or reality (Hiatt, 1986). Aliaga and Gunderson (2002) described quantitative research methods as an inquiry into a social problem; explain phenomena by gathering numerical data that are analyzed using mathematically based methods

3.2 Area of study

The study was conducted at Mukwano group of companies. Mukwano group of companies is one of the leading and most respected conglomerates in eastern and central Africa with its headquarters in Kampala Uganda found at the industrial area, Kampala2671, Uganda. Since its humble beginning in 1986, the Mukwano business has grown through visionary diversification

into manufacturing, agriculture, property development, logistics, supply-chain management and packaging. The study however is aimed to assess the impact of material handling on profitability for better planning and efficient management the Mukwano group of companies

3.3 Study population

The research population is a group of individuals, objects, or items from which the items are taken for measurement (Kumar 2005). The workforce was approximately 280 full-time staff and this represents the target population for the study. The staffs fall in different categories while doing their work and are paid basing on that.

3.4 Sample size

The clear sample size of the study population was 162 employees and this is based on the statistical model of Krejcie and Morgan (1970) table to find the sample size because the population was too big and the researcher could not sample it thus studied a small sample of the population of employees.

3.4.1 Sampling technique

The researcher used a simple random selection technique to obtain data from the respondents and also apply non probability sampling technique since some respondents were part of the study on the day of data collection and thereafter grouped it for data analysis and interpretation.

3.5 Data sources

3.5.1 Primary sources

The study was mainly obtained from primary sources that constituted of the employees under support staff. This was because they were key participants in this research and their response to

the questions or data acquired from them was of great importance during the evaluation process of the findings.

3.5.2 Secondary sources

The secondary sources applied in the study were reports, government publications, books and journals which were employed to search for data as they contained more findings from different authors thus provide a wider source of ideas when analyzing and evaluating the data which was collected.

3.6 Data collection instruments

The researcher used two methods of data collection which were questionnaire method and interview method for this study.

3.6.1 Questionnaire

Kothari (2004) describes a questionnaire to be a number of questions printed or typed in a defined order on a form or set of forms which was sent to respondents who were expected to read and understand the questions and write down the reply in the space meant for the purpose in the questionnaire itself.

The primary data was collected through use of questionnaires as the major instrument for collecting data and these were constructed and administered in form of self-administered questionnaires which were open and close ended in format. The respondents answered basing on how they agreed or disagreed with the statements in the questionnaire.

3.6.2 Interview guide

These were in form of direct question and answer, where the researcher interacted with the respondents by asking them questions and recording their feedback. They are normally of two types i.e. telephone interviews and face to face interviews. The researcher used face to face interviews because they were less costly and the researcher could be able to see the expressions and attitudes of the respondents accordingly.

3.7 Quality Control Methods

3.7.1 Validity

Data validity was ensured through subjecting the drafted tools such as the questionnaire questions to be reviewed by experts to ensure that the right questions for research study were asked. The experts reviewed the items in the instrument and determined whether the items would measure the information it was designed to elicit. After some minor modifications, the experts recommended the use of modified instrument for the study. The researcher also ensured that right questions for the study were asked basing on the objectives.

3.7.2 Reliability

The reliability of a study was measured by how similar the results would be if another researcher conducted the same study. (Kirk and Miller, 1986). To ensure data reliability the researcher administered different forms of data collection instruments that is; questionnaires and there results were compared. The researcher conducted a test and re-test method from the same respondents to ensure a degree of consistency and precision in case the same instrument was employed the second time to the same respondents. Through presenting the formulated questionnaires, it helped to establish that the results relevant due to accuracy in data that was collected (Sekaran, 2010)

3.8 Measurement of variables

The independent variable was material handling and the dependent variable was profitability. A structured standard questionnaire was used. The tool was to solicit responses on a five point liker scale with the following verbal anchors: strongly agree, agree, not sure, disagree and strongly disagree.

3.9 Data management and Analysis

The field data was managed, analyzed and presented using quantitative method

3.9.1 Quantitative data

Data from questionnaires was summarized, coded, tabulated and analyzed. Editing was done to improve the quality of data for coding. The collected data was described by making use of descriptive statistics, which enabled the researcher to synthesize and summarize the qualitative data. The descriptive statistics described the sample in terms of the responses to the questions using frequencies, means and standard deviations. Frequencies are the number of times a response has occurred, a mean is the sum of a set of scores divided by the number of scores and a standard deviation measures variability around the mean (Salkind, 2000). Correlation measures the degree of relation between two variables. Correlation lies between -1 to 1. N is the population correlation while the sample correlation is denoted by r . Correlation analysis measured the nature of relationship between the two variables in this study and the results will be shown in tables.

3.10 Ethical Consideration

The researcher requested for permission from the Administration to carry out this research hence present a letter to the management where the research was conducted prior to the date when the data collection was carried out

Citation of all the sources in the study either in the literature or appendices and also accessed data through official channels was put into consideration.

The researcher ensured that responses from recipient especially personal or sensitive matters were kept confidential and well protected by making sure that information on respondent's attitude, feelings or personal life was not disclosed.

3.11 Limitations

There was a challenge with the cross-sectional time dimension used for collecting data since it was a short period to get information and this was minimized by use of case study design.

Since data was collected from the people or employees who were sometimes biased and not sure of what they were giving out or even sometimes not allowed to say out certain information, it was anticipated that it could be given with errors, inaccuracy, and misstatements were expected. But the researchers tried as much as possible to reduce this to see that research met the relevant requirements for a scientific research.

3.12 Conclusion

This chapter looked at the steps the researcher used to ensure that the research is accurate and reliable and the different methods the researcher used in collecting of information used in the research. The researcher also asserted the reliability and validity of this research.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.0 Introduction

This chapter presents analysis and discussion on the study findings obtained from the sample used and studied case using different tools, namely; questionnaires, interviews, documentary reviews and observations. The prime purpose of data analysis was to ultimately provide evidence in form of responses to the research questions in respect to the stated objectives formulated to assist in analyzing the overall objective of this study. This study aimed to assess effect of material handling on the productivity of manufacturing organizations: case study Mukwano group of companies. This chapter analyses and discusses the gathered information based on objectives

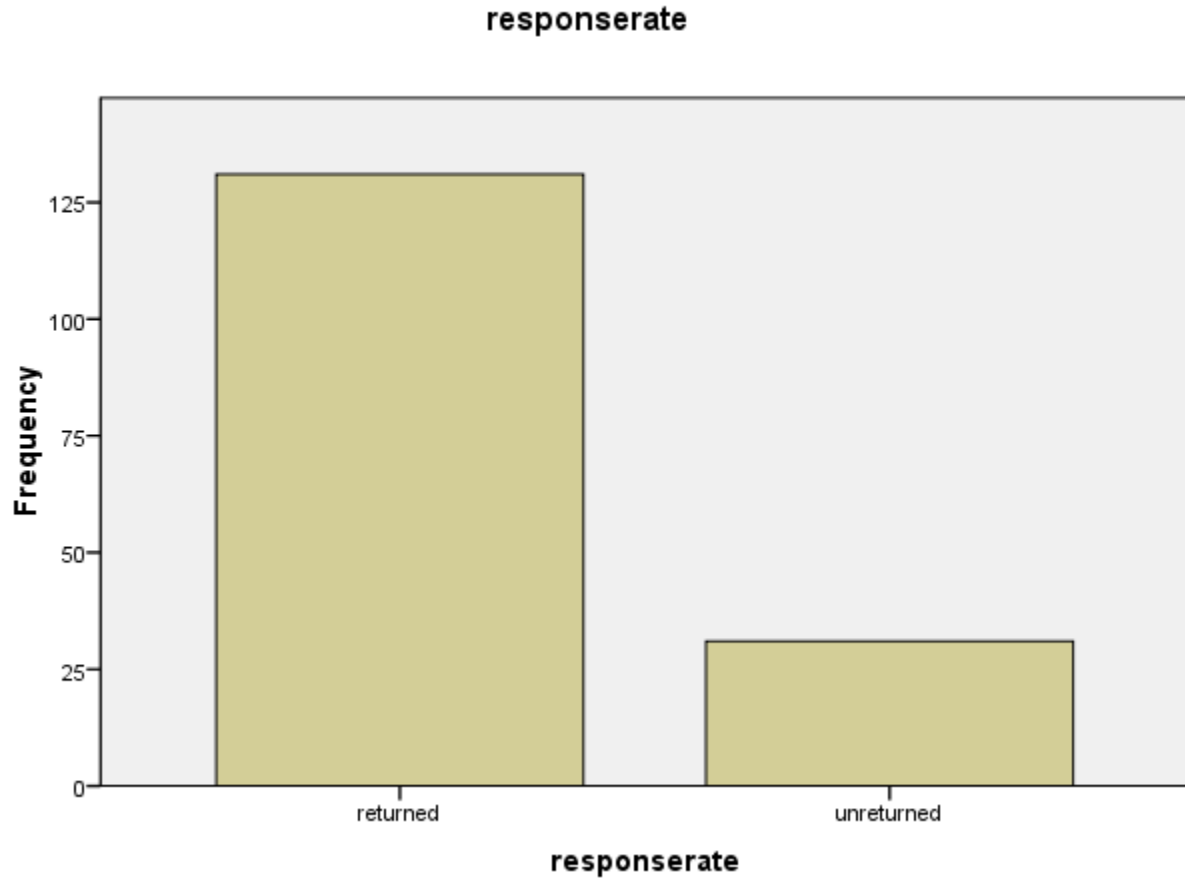
4.1 Response rate

Out of the 162 questionnaires that were distributed, 131 were appropriately filled and returned for analysis and this represented a response rate of 80.9%. According to Babbie (2004) a return rate of 50% is acceptable to analyze and publish therefore the response rate of 86% is considered to be adequate in forming conclusions and generalization of the study population. This is represented in the chart below.

Table 4.1 Response rate

Details		Frequency	Valid Percent	Cumulative Percent
Valid	Returned	131	80.9	80.9
	unreturned	31	19.1	100.0
	Total	162	100.0	
Total		163		

Figure 4. 1



Source: Primary data (2017)

4.3 Respondent's bio-data

The researcher requested the respondents to provide their personal details which included sex, educational level, age and work experience.

Respondent's sex/ gender

According to the findings, 58 of the respondents indicated that they were female while 73 indicated that they were male. This shows that majority of the respondents were male

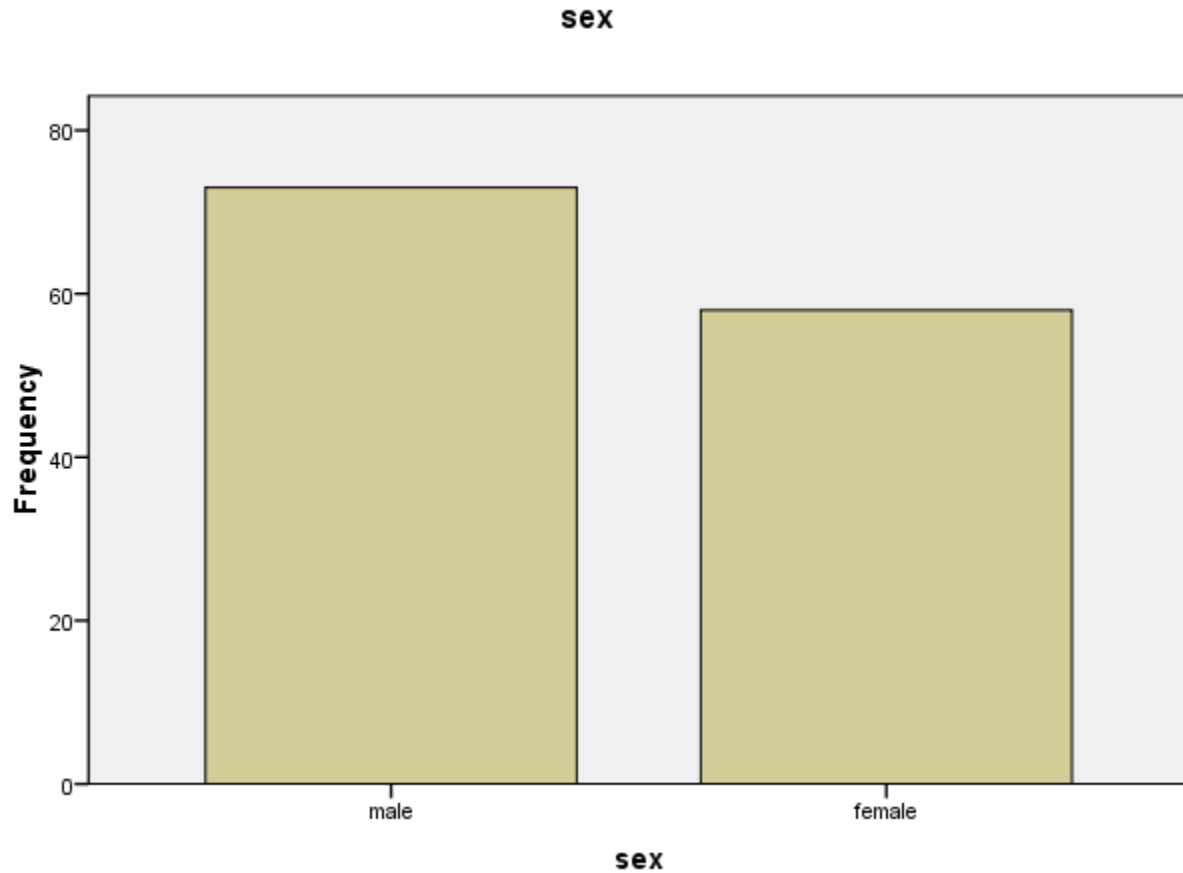
Table 4.2

Sex/gender

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	73	55.7	55.7	55.7
Female	58	44.3	44.3	100.0
Total	131	100.0	100.0	

Source: Primary data (2017)

Figure 4. 2



Source: Primary data (2017)

As shown in the above chart, the majority of respondents (55.7%) were male and female were only (44.3%). It was also found that the male work in manufacturing organizations more than the female because they tend to be more energetic and less tiresome than the females since the logistics and supply chain department tends to be more tiresome.

Age of respondents

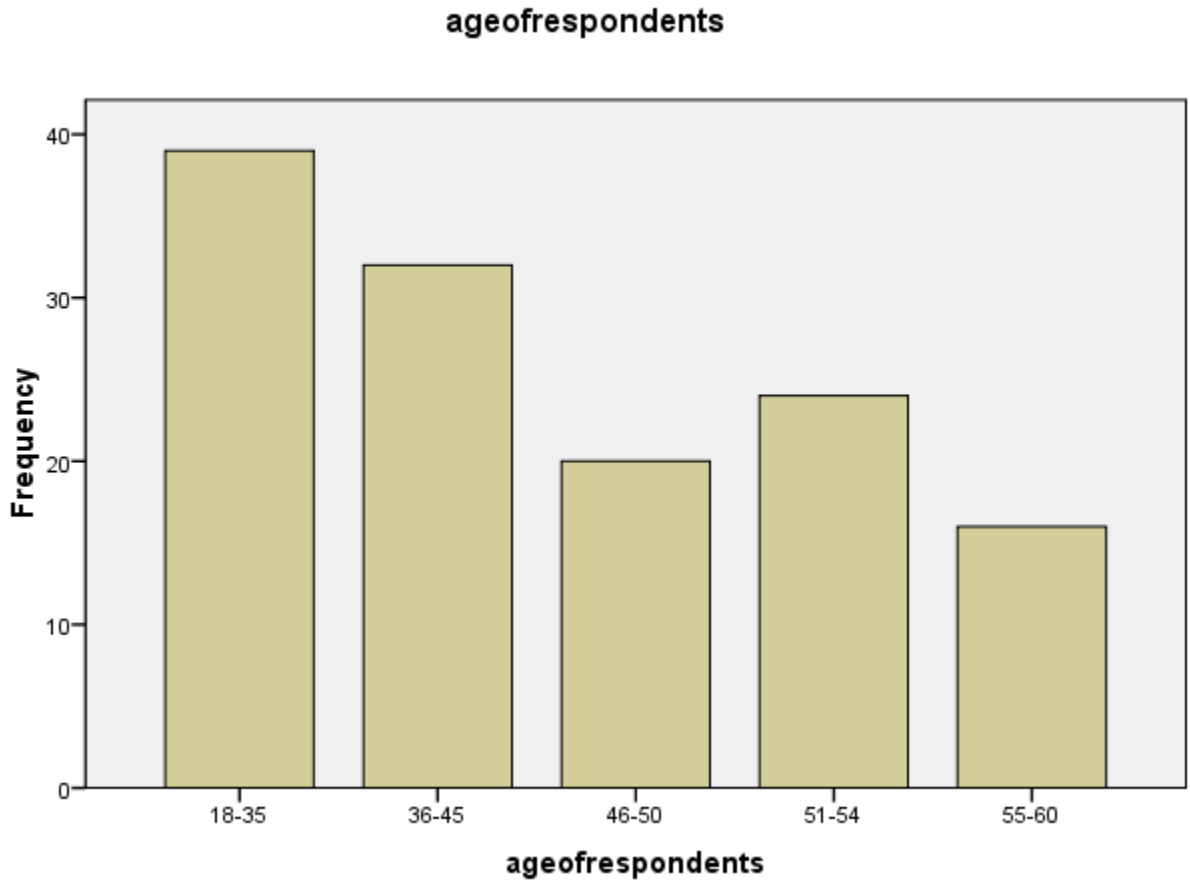
The researcher provided age groups and requested the respondents to select the group they belonged to. The results are as shown in the chart below.

Table 4.3 Age of respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 18-35	20	15.3	15.3	15.3
36-45	32	24.4	24.4	39.7
46-50	38	29.0	29.0	68.7
51-54	25	19.1	19.1	87.8
55-60	16	12.2	12.2	100.0
Total	131	100.0	100.0	

Source: Primary data (2017)

Figure 4. 3



Source: Primary data (2017)

Findings indicate that majority of the respondents (39 respondents) fall in the age group of 18-35 with a percentage of 29.8% and the second majority (32 respondents) have an age bracket of 36-45 with a percentage of 24.4%. This was of significant advantage since individuals within that age bracket are economically and technologically active so they could provide valid information concerning the study. 15.3% belong to the age group of 46-50 and they were 20 respondents, 18.3% have an age group of 51-54 who were 24 respondents and 12.2% have the lowest percentage and are of the age bracket of 55-60 and they were 16 respondents.

Educational level of respondents

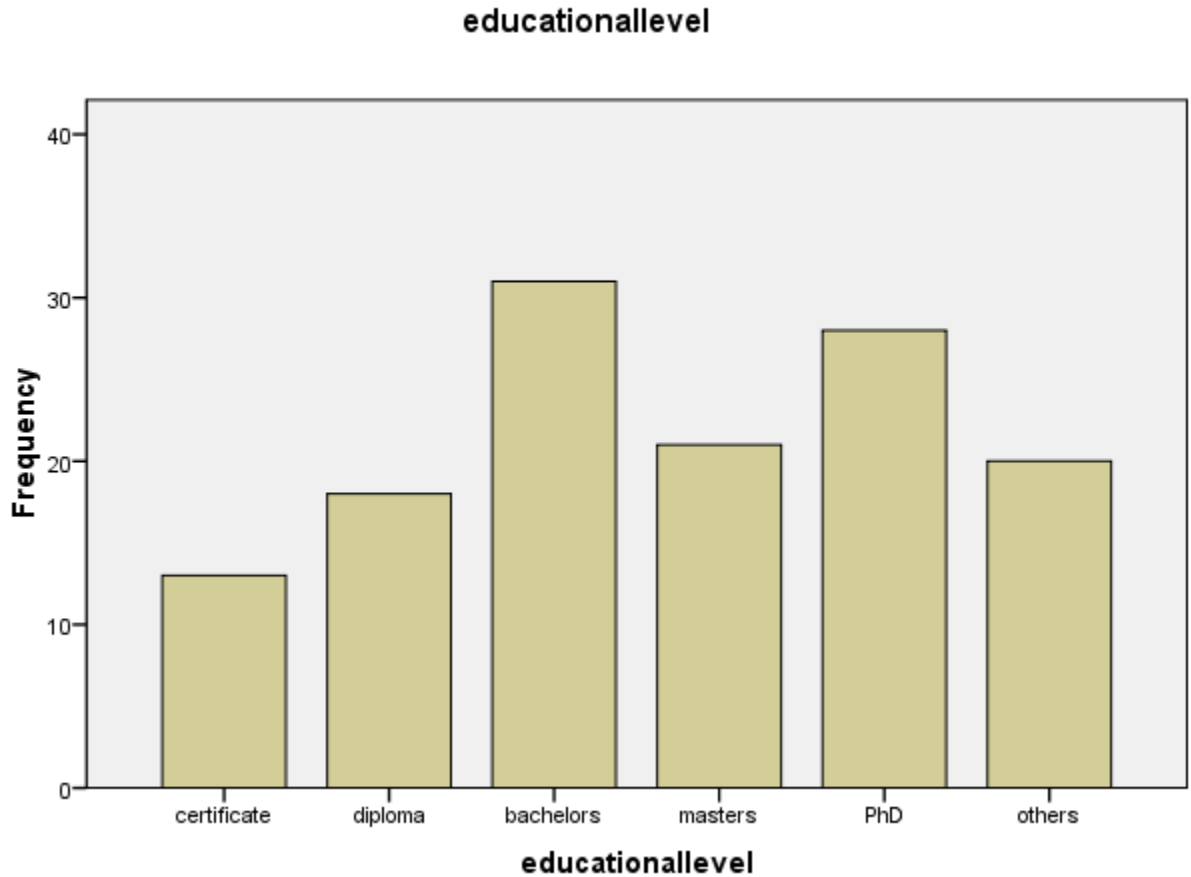
The respondents were also requested to indicate their academic qualifications and the responses were as shown below.

Table 4.4 Educational level

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid certificate	13	9.9	9.9	9.9
diploma	18	13.7	13.7	23.7
bachelors	31	23.7	23.7	47.3
masters	21	16.0	16.0	63.4
PhD	28	21.4	21.4	84.7
Others	20	15.3	15.3	100.0
Total	131	100.0	100.0	

Source: Primary data (2017)

Figure 4. 4



Source: Primary data (2017)

The above chart shows that majority of the respondents attained a bachelors in their studies with the frequency of 31, meaning that 31 of the respondents have bachelor's degrees, the second highest are those who attained PhD with a frequency of 28 respondents. 13 respondents have certificates, 18 have diplomas, 21 have masters and the 20 fall in other academic qualifications. With this chart, the researcher can conclude by saying that most of the respondents have a high level of education which is a great advantage to the organization because these people tend to be more focused and innovative.

Work experience of respondents

The researcher provided the experience (in terms of years) of the respondents and they responded as follows.

Table 4.5 Work experience

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0-3	22	16.8	16.8	16.8
4-10	34	26.0	26.0	42.7
11-15	46	35.1	35.1	77.9
16+	29	22.1	22.1	100.0
Total	131	100.0	100.0	

Source: Primary data (2017)

Figure 4. 5



Source: Primary data (2017)

According to the chart showing the work experience of respondents, the highest fall under 11-15 years with a frequency of 46 respondents. This serves to be an advantage to the organization because the higher the number of years, the more the experience so this shows that majority of the respondents are experienced and have more knowledge about the research being carried out. 22 respondents have the least number of years when it comes to work experience which is 0-3 years, 34 respondents have a work experience of 4-10 years and 29 respondents have a work experience of 16 years and above.

4.4 Descriptive Statistics basing on study objectives

Table 4.6 Descriptive Statistics on storage and profitability

Statement	N	Minimum	Maximum	Mean	Std. Deviation
Proper storage reduces damages which will lead to profitability	131	1.00	5.00	3.9160	.93676
Managers effectively manage issues relating to stores layout	131	1.00	5.00	3.6183	1.04114
There is careful handling of materials which maintains accurate control over them to show how much materials are in the store	131	1.00	5.00	4.0229	.88113
Issue of materials from store to production department is properly authorized and recorded	131	1.00	5.00	3.9389	.94263
Materials acquired at the factory premises are adequately taken care of to avoid loses	131	1.00	5.00	4.0000	.91987
Valid N (list wise)	131				

Source: Primary data (2017)

4.4.1 Proper storage reduces damages which will lead to profitability

The findings estimated that a mean of 3.9160 of the respondents agreed that proper storage reduces damages which leads to profitability which means that for an organization to achieve profitability, they have to make sure that they minimize damages by making sure they are so

careful while handling or dealing with materials in the stores because the more the damages, the more costs and this may lead to losses. However, a standard deviation of 0.93676 represents respondents who disagree with the above statement, to them it may not only be proper storage which can reduce damages, they consider other factors.

4.4.2 Managers effectively manage issues relating to stores layout

The research findings indicated that respondents with a mean of 3.6183 agree that managers manage issues relating to stores layout effectively and this is in line with what Johnson (1993) said that profit can be achieved if managers effectively manage issues relating to stores location, layout, meaning manager and the organization as a whole should consider manage store issues accordingly in order to achieve profitability for example stock record and issues to production, recording all materials that come in and leave the stores so that they know the right amount in the stores. This will help them reduce double handling and its related effects. However, a standard deviation of 1.04114 of the respondents disagree with the statement that managers effectively manage issues relating to stores layout which means that the organization to them does not consider effective management issues relating to stores layout which causes the organization to make losses.

4.4.3 There is careful handling of materials which maintains accurate control over them to show how much materials are in the store

The findings evaluated that a mean of 4.0229 of the respondents agree that there is careful handling of materials which maintains accurate control over them to show how much materials are in the store and this is in line with what Osisioma (1996) said that storage of materials entails careful handling of material and maintains accurate control over them. It shows how much materials are in the store and when to place order. This helps the organization to save time and

keep the right amount of materials stock in the stores so as to avoid over stocking and/or under stocking. However, respondents with a standard deviation of 0.88113 disagree with the statement above. To them, they may consider other factors like proper record keeping to help them know how much materials are in the store among other factors.

4.4.4 Issue of materials from store to production department is properly authorized and recorded

The findings estimated that respondents with a mean of 3.9389 agreed to the above statement and this is line with what Ogbadu (2009) said that the issue of materials from store to production department must be properly authorize and recorded. This shows the relationship between storage and record keeping, the organization must therefore record each and every single material leaving the store to the production department so that in case of any damages during the production process, they do not say they didn't get enough materials from the stores department. This also helps the organization to know what materials are exactly needed since they are always recorder and kept. However a standard deviation of 0.94263 represents respondents who disagree with all this implying that at times the organization does not put this into consideration, showing some times the material is just got out of the store before or without being authorized and recorded.

4.4.5 Materials acquired at the factory premises are adequately taken care of to avoid loses

Findings evaluated that respondents with a mean of 4.0000 agreed that materials acquired at the factory premises are taken care of to avoid loses which corresponds with what Osioma (1996) says that it is an act of carelessness to abandon the materials acquired at the factory premises without adequate taking care of them to avoid losses. The organization must therefore take care of the materials in the factory premises to avoid loses in terms of theft from both outsiders and

employees, accidents due to carelessness or improper placement of the materials, among other things. Security must be put into consideration to reduce and/or avoid theft. However, some respondents with a standard deviation of 0.91987 disagree with the above statement, showing that losses can be avoided through other precautions apart from adequately taking care of the materials at the premises, they look at the other factors.

Table 4.7 Correlations analysis between storage and profitability

Details		Storage	Profitability
Storage	Pearson	1	.944**
	Correlation		
	Sig. (2-tailed)		
	N		
Profitability	Pearson	.944**	1
	Correlation		
	Sig. (2-tailed)		
	N		

** . Correlation is significant at the 0.01 level (2-tailed).

Source: Primary data (2017)

The study findings revealed a correlation value of $(r = 0.944^{**} p < 0.01)$ which means that there is a positive moderate and a significant relationship between Storage and material handling in the manufacturing organizations. This implies that the performance and success of Mukwano group of companies depends on storage and how the organization can make effective use of it.

4.5 Record keeping and profitability

Table 4.8 Descriptive Statistics on record keeping and profitability

Statement	N	Minimum	Maximum	Mean	Std. Deviation
Proper record keeping is maintained to ensure proper management of materials.	131	1.00	5.00	3.5954	1.29364
Record keeping can be used where needed to make comparison between past and present and therefore make future decisions	131	1.00	5.00	3.6031	.98979
All material records are kept safe by management and all employees are aware of that for references.	131	1.00	5.00	3.7557	1.14416
All day-to-day activities, assets, liabilities, number of employees, damages and the like are recorded in the books.	131	1.00	5.00	3.6412	1.10292
Employees are well trained on how best they can carry out record keeping so that it becomes easy for them	131	1.00	5.00	3.3359	1.18718
Valid N (list wise)	131				

Source: Primary data (2017)

4.5.1. Proper record keeping is maintained to ensure proper management of materials.

The findings estimated that respondents with a mean of 3.5954 agreed that proper record keeping is maintained to ensure proper management of materials. This implies that if proper record keeping is not in place, there will not be easy or proper management of the materials. However, a standard deviation of 1.29364 of the respondents does not agree with this statement. Meaning, even if proper record keeping is not maintained, proper materials management can be achieved through other means that are not record keeping.

4.5.2 Record keeping can be used where needed to make comparison between past and present and thereby make future decisions.

The research findings evaluated that a mean of 3.6031 of the respondents agreed to the statement. Meaning that record keeping can be used for comparison and connection between the past and the present and then base on those comparisons to make decisions concerning the future. This in line with what Atherton (1985) says that record keeping it involves a broader context of archival science that connects past to the present and present to the future. However, a standard deviation of 0.98979 respondents disagrees with this. This implies that not only can comparisons be made using record keeping, but also through other means. To them, they do not only consider record keeping as terms of making comparisons, or connecting the past present and future but also other factors basing on the situation.

4.5.3 All material records are kept safe by management and all employees are aware of that for references.

Findings indicted that respondents with a mean of 3.7557 agreed that al material records are kept safe by management and all employees are aware of that for references. This means that there is a good relationship between management and their employees and with this the employees can feel trusted and motivated hence working harder and in case of anything like forgetting, they can

refer to the records kept and this is in line with what ASA & RIM (2011) says that the primary motive for keeping records is at least to provide ample evidence of and information about business activities as well as providing a back-up memory. However, a standard deviation of 1.14416 of the respondents do not agree with this, they believe that record keeping can not only be used to make references, but also other things can be put into consideration or they can get references elsewhere.

4.5.4. All day-to-day activities, assets, liabilities, damages and the like are recorded in the books.

The research findings estimated that a mean of 3.6412 agreed that the day-to-day activities are recorded in the books. This is in line with what McLean (1999) says that maintaining business records includes but not limited to entries of day-to-day transactions of business regarding its receipts and payments. It may also include the list of assets and liabilities and measurement indicators This means that the organization puts into consideration recording all the activities of the activities, assets and liabilities plus the manages and this can therefore help them in knowing which assets are depreciating, the liabilities they have and the damages made and therefore provide solutions on how to reduce these liabilities. However respondents with a standard deviation of 1.10292 do not agree with the statement that all day-to-day activities of the business are recorded in the books.

4.5.5 Employees are well trained on how best they can carry out record keeping so that it becomes easy for them

The findings evaluated that respondents with a mean of 3.3359 agreed with the statement that employees are well trained on how best they can carry out record keeping so that it is eased for them. This makes record keeping system to be simple to use, easy to understand, reliable and consistently provide information on a timely basis. However, respondent with a standard

deviation of 1.18718 disagreed that employees are well trained on how best they can carry out record keeping so that it is made easy for them, to them it is not only training them how record keeping is done that makes it easy for them. They consider other factors that can make record keeping easy.

Table 4.9 Correlations analysis between record keeping and profitability

Details		Record keeping	Profitability
Record keeping	Pearson Correlation	1	.887**
	Sig. (2-tailed)		.000
	N	131	131
Profitability	Pearson Correlation	.887**	1
	Sig. (2-tailed)	.000	
	N	131	131

****.** Correlation is significant at the 0.01 level (2-tailed).

Source: Primary data (2017)

The study findings revealed a correlation value of ($r = 0.887^{**}$ $p < 0.01$) which means that there is a positive moderate and a significant relationship between record keeping and profitability of manufacturing organizations. This implies that the success of Mukwano group of companies depends on its record keeping activities and how the organization can make effective use of it.

4.6 Equipment and profitability

Table 4.10 Descriptive Statistics on equipment and profitability

Statement	N	Minimum	Maximum	Mean	Std. Deviation
Equipment does not utilize a lot of space, leaving room for new material coming in.	131	1.00	5.00	2.5191	1.23008
Equipment is easy to deal with in moving material from one place to another.	131	1.00	5.00	3.4046	1.07973
Equipment helps the organization in reducing costs and saving time	131	1.00	5.00	3.6565	1.02860
Equipment that has worked for three years is disposed off since it becomes slower.	131	1.00	5.00	2.9924	1.19290
Equipment eases material handling thereby making it more efficient and effective for timely delivery to the customers	131	1.00	5.00	3.7405	1.09956
Valid N (list wise)	131				

Source: Primary data (2017)

4.6.1 Equipment does not utilize a lot of space, leaving room for new material coming in.

Findings estimated that a mean of 2.5191 disagreed with the statement that equipment does not utilize a lot of space. This is not in line with what Meaning that in the organization, equipment utilizes a lot of space in the storage rooms, leaving no space for the new material and equipment

that come in. this is a disadvantage to the organization as it may lead to double handling and other related disadvantages. However, a standard deviation of 1.23008 agreed that equipment does not utilize a lot of space and this in line with what Gurgel (1996) says that the equipment should be selected based on some preliminary considerations: take into account the utilization of the factory floor and its load capacity. Meaning that the organization clearly specifies the space that will be utilized by the equipment coming in and if they find that it utilizes a lot of space, and then they find ways of how to deal with it.

4.6.2 Equipment is easy to deal with in moving material from one place to another.

The research findings indicated that respondents with a mean of 3.4046 agreed that equipment is easy to deal with in the movement of materials from one place to another. This means for the organization to achieve this, they must use equipment that is up-to date and has high technology characteristics that make movement easy and this is in line with what Dias (1993) says because according to him, movement of materials should be in terms of using equipment that is able to adapt to the changing technologies. However, respondents with a standard deviation of 1.07973 disagree with this. To them, equipment is not the only thing that makes transportation of material easy, they consider other factors that can ease the movement of materials from one place to another.

4.6.3 Equipment helps the organization in reducing costs and saving time

The findings estimated that a mean of 3.6565 of the respondents agreed to the statement that equipment helps the organization in reducing costs and saving time. This is in line with what Kulak (2005) says that decreasing lead times and costs are some of the most important factors influencing selection of material handling equipment. This means that if an organization is to select equipment, it should put into consideration its ability to reduce lead time and costs so that

profitability can be achieved. However a standard deviation of 1.02860 represents respondents that do not agree that equipment helps the organization to reduce cost and save time, they consider other factors that can be used to reduce costs to minimum and save time at the time.

4.6.4 Equipment that has worked for three years is disposed off since it becomes slower.

The research findings evaluated that 2.9924 is the mean of the mean of the respondents that disagree with the statement that equipment is disposed off after three years. Meaning that equipment works for more years than years before being disposed off or some equipment does not even reach three years and is disposed off. However, some respondents with a standard deviation of 1.19290 agreed that equipment is disposed off after three years of being used by the organization.

4.6.5 Equipment eases material handling thereby making it more efficient and effective for timely delivery to the customers

Research findings indicated that a mean of 3.7405 agreed that equipment eases material handling thereby making it more effective and efficient for timely delivered to the customers. This is so because with equipment in place, the organization can be able to move material from one place to another easier compared to when man power is used for movement, mechanization of the operations to improve operational efficiency, and increase predictability, meaning errors and mistakes can be predicted and therefore avoided, equipment can also improve standardization among other things and all these increase the effectiveness and efficiency of material handling and reduces time that would have been spent when using manual material handling. However some respondents do not agree with this, meaning other factors can be considered in leading to effectiveness and efficiency of material handling and these can lead to timely delivery of the required material to the customers.

Table 4.11 Correlations analysis on equipment and profitability

Details		Equipment	Profitability
Equipment	Pearson	1	.915**
	Correlation		
	Sig. (2-tailed)	.000	
	N	131	131
Profitability	Pearson	.915**	1
	Correlation		
	Sig. (2-tailed)	.000	
	N	131	131

****.** *Correlation is significant at the 0.01 level (2-tailed).*

Source: *Primary data (2017)*

The study findings revealed a correlation value of ($r = 0.915^{**}$ $p < 0.01$) which means that there is a positive moderate and a significant relationship between equipment and profitability of manufacturing organization. This implies that the performance and success of Mukwano group of companies depends on its equipment performance and how the organization can make effective use of it.

4.7 Material handling and profitability

Table 4.12 Descriptive Statistics on material handling and profitability

Statement	N	Minimum	Maximum	Mean	Std. Deviation
Efficient material handling enhances profitability through reduction in cost	131	1.00	5.00	4.0763	.88246
Maintaining optimal stock of materials enhances profitability	131	1.00	5.00	3.8321	1.13105
Material handling has helped the organization acquire/ gain competitive advantage	131	1.00	5.00	3.6107	1.14066
Material handling increases availability of working capital	131	1.00	5.00	3.8931	1.10420
Material handling has a significant effect on profitability	131	1.00	5.00	4.0153	.86811
Valid N (list wise)	131				

Source: Primary data (2017)

4.7.1 Efficient material handling enhances profitability through reduction in cost

The findings estimated that respondents with a mean of 4.0763 agreed that effective material handling enhances profitability through reduction in cost and this is in line with what Sule (1994) Sujono & Lashkari (2006) said, that efficient material handling can be responsible for reducing the manufacturing system operations cost by 15–30%. This means that the organization has to

put material handling into consideration because if materials are handled with care, costs can be reduced in the manufacturing process and when costs are less, profitability is likely to increase. However, a standard deviation of 0.88246 disagrees with this. It may not be efficient material handling alone that can enhance profitability.

4.7.2 Maintaining optimal stock of materials enhances profitability

The research findings indicated that a mean of 3.8321 of the respondents agreed with the statement and this is in line with Burton (1999). In his view, he said that stock tacking is among the essential issues under effectiveness of material handling. Impartial of doing so will cause a huge and unimaginable loss to the organization. This means that the organization has to make sure they have the right stock in place because, if they over stock, the stock may get damages and if they under stock, the organization may be reliable enough to the customers and they may end up losing them. However, some respondents with a standard deviation of 1.13105 disagree with all this because it may not only be optimal stock that can enhance profitability, the organization can use other means to boost its profitability to the maximum

4.7.3 Material handling has helped the organization acquire/ gain competitive advantage

The findings evaluated that a mean of 3.6107 are the respondents who agree with the statement. This means that material handling helps the organization to compete in the market, hence giving it a competitive advantage over the competitors. This is so because with efficient and effective material handling comes time delivery to the customers, which will also attract more customers to the organization leading to high profitability. However, some respondents with a standard deviation of 1.14066 do not agree with the statement, meaning the organization can use other means that are not material handling to gain competitive advantage.

4.7.4 Material handling increases availability of working capital

The findings estimated that respondents with a mean of 3.8931 agreed that material handling increases availability of working capital. This means that with proper material handling, working capital is always available so employees, managers and the organization at large won't find any hardships in issues concerning working capital. However, there are some respondents who disagree with this and have a standard deviation of 1.10420. They think material handling alone cannot provide the availability of working capital.

4.7.5 Material handling has a significant effect on profitability

The findings indicated that a mean of 4.0153 are the respondents who agree that material handling has a significant effect on profitability and this is in line with Groover (2001) who said that the cost of materials exceeds fifty percent of the total cost of goods produced. He continue to say that such a large investment requires considerable planning and control so as to minimize wastage which invariably affects the performance and profitability of organizations. He also said materials are the life blood and heart of any manufacturing system. This means that with insufficient materials in the organization, profitability cannot be achieved and this shows how the organization depends a lot on the materials for its survival and running of its activities. However, a standard deviation of 0.86811 disagrees with the statement, meaning that it is not only material handling that can have an effect on the profitability of an organization, other factors should also be considered.

Table 4.13 Correlations analysis between material handling and profitability

Details		Material handling	Profitability
Material handling	Pearson Correlation	1	.977**
	Sig. (2-tailed)		.000
	N	131	131
Profitability	Pearson Correlation	.977**	1
	Sig. (2-tailed)	.000	
	N	131	131

****.** *Correlation is significant at the 0.01 level (2-tailed).*

Source: *Primary data (2017)*

The study findings revealed a correlation value of ($r = 0.977^{**}$ $p < 0.01$) which means that there is a positive moderate and a significant relationship between material handling and profitability of manufacturing organizations. This implies that the performance and success of Mukwano group of companies depends on its material handling services and how the organization can make effective use of it.

4.8 Conclusion

The analysis of the primary data indicates that the independent variable through the predictor variables; storage, record keeping and equipment all have an effect on profitability as it has been seen in the findings of the study in this chapter.

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSION & RECOMMENDATIONS

5.0 Introduction

The chapter presents the summary of the main findings from the study, the conclusions and the recommendations which are based on the conclusions made by the study. The major objective of the study was to examine the effect of material handling on the profitability of manufacturing organizations.

5.1. Summary of major findings

The current study aimed to explore whether material handling had an effect on the profitability of manufacturing organizations. The study answered questions of, what is the effect between material handling and profitability of manufacturing organisations? What is the effect of materials storage on the profitability of manufacturing organizations? How does record keeping affect the profitability of manufacturing organizations? What is the effect of equipment on the profitability of manufacturing organizations?

5.1.1 Preliminary findings

The findings revealed that majority of the respondents were males with (55.7%). The findings further noted that (23.7%) of the employees attained bachelor's degrees (35.1%) have worked with the organization for 11-15 years and (29.8%) respondents belonged to the age group of 18-35. The study was guided by the specific objectives and data was collected using questionnaires and analyzed using descriptive analysis in tables and bar charts.

5.1.2 Storage and profitability

It was found out that among the effects of storage in Mukwano group of companies, carefulness in handling of materials which maintains accurate control over them to show how much materials are in the store ranked number one with a mean of 4.0229 and managers' effectiveness in managing issues relating to stores layout had the lowest mean and it was 3.6183. The study therefore noted that the organization depends a lot on how materials are handled and controlled to improve material handling and that is so because the storage facilities are reliable and help them to achieve that

5.1.3 Record keeping and profitability

According to the findings, the safety of the record for reference ranked number one with a mean of 3.7557 and the recording of day-to-day activities ranked number two with a mean of 3.6412. This shows that record keeping is an important aspect of material handling and should therefore be maintained and managed in a proper way. Employees and management therefore should put in mind that all materials should be recorded, the assets, liabilities, damages and any other thing to do with materials so that they can properly know how to deal and manage the records in a proper way.

5.1.4 Equipment and profitability

It was found that equipment easing material handling to make it more efficient and effective for timely delivery to the customers ranked highest with a mean of 3.7405 and it also found that equipment utilizes a lot of space as this had a mean of 2.5191. This means that the employees or management do not know how well they can plan for equipment so that it does not consume a lot of space and costs. This should be put into consideration.

5.1.5 Material handling and profitability

The findings revealed that among the effects of material handling on profitability, efficient material handling enhancing profitability through reduction in cost ranked highest with a mean of 4.0763 and material handling helping the organization acquire/ gain competitive advantage ranked lowest with a mean of 3.6107. This shows/means that an organization can reduce cost to the minimum through material handling but also to a smaller extent, material handling helps the organization gain a competitive advantage.

5.2 Conclusions

This paper found out that there is a positive and significant effect of material handling on profitability. This paper has shown how profitability can be achieved through effective management of materials with particular attention to sourcing, receiving, storing and issuing materials. Prudent management of materials reduces depreciation, pilferage and wastages and ensures availability of materials. We would like to re-emphasize that for a firm to achieve profitability the goal of materials management should be properly planned.

5.3 Recommendations

Mukwano group of companies has justified its existence basing on its strategies of effectiveness of material handling.

However in order for the organization to reach the optimal and meet their expected objectives, the following mechanisms can be applied to minimize or remove the shortcomings or ineffectiveness observed from the study:

a) The organization should have constant principle on each and every activity available, such as on inspection of material or maintenance, issuing and other activities. Also the organization should keep on following the PPA 2005 for guidance on its activities.

b) Mukwano group of companies should have enough stores so as to meet every need of its members and staffs, so as to have guaranteed effectiveness of material handling. The other stores could be in other regions so as to be able to distribute to the nearer regions.

c) The organization should work hand in hand with the supplier to make sure the goods are delivered at right time and as agreed upon the contract. That can be able by reminding the supplier what to deliver and also the description.

d) When moving materials manually, workers should attach handles or holders to loads. In addition, workers should always wear appropriate personal protective equipment like gloves safety glasses and use proper lifting techniques.

e) Using mechanical equipment to move and store materials increases the potential for employee injuries. Workers must be aware of both manual handling safety concerns and safe equipment operating techniques. Employees should avoid overloading equipment when moving materials mechanically by letting the weight, size, and shape of the material being moved dictate the type of equipment used.

f) Stored materials must not create a hazard for employees. Employers should make workers aware of such factors as the materials' height and weight, how accessible the stored materials are to the user, and the condition of the containers where the materials are being stored when stacking and piling materials.

g) In addition to training and education, applying general safety principles such as proper work practices, equipment, and controls can help reduce workplace accidents involving the moving, handling, and storing of materials. Whether moving materials manually or mechanically, your employees should know and understand the potential hazards associated with the task at hand

and how to control their workplaces to minimize the danger. Because numerous injuries can result from improperly handling and storing materials, workers should also be aware of accidents that may result from the unsafe or improper handling of equipment as well as from improper work practices. In addition, workers should be able to recognize the methods for eliminating or at least minimizing the occurrence of such accidents. Employers and employees should examine their workplaces to detect any unsafe or unhealthful conditions, practices, or equipment and take corrective action.

h) Workers frequently cite the weight and bulkiness of objects that they lift as major contributing factors to their injuries. For example, more workplace accidents resulted in back injuries. Bending, followed by twisting and turning, were the more commonly cited movements that caused back injuries. Other hazards include falling objects, improperly stacked materials, and various types of equipment. The company should make employees aware of potential injuries that can occur when manually moving materials.

Consequently, employers and employees can and should examine their workplaces to detect any unsafe or unhealthful conditions, practices, or equipment and take the necessary steps to correct them.

REFERENCES

- ASA & RIM (2011). Statement of Knowledge for Record Keeping Professionals, Prepared by the Australian Society of Archivists Inc. (ASA) and RIM Professionals Australasia, Australia.
- Altman, E. I., (1968), Financial ratios, discriminate analysis and the prediction of corporate bankruptcy, *The Journal of Finance*, Vol. 23, No. 4, p. 589 – 609.
- Asef-Vaziri, A. & Laporte, G. Loop based facility planning and material handling. *European Journal of Operational Research*, n. 164, 2005, p. 1–11.
- Atherton, J. (1985). From Life Cycle to Continuum: Some Thoughts on the Records Management-Archives Relationship, *Archivaria* 21:43-51.
- Anderson. T. A., (1967), The effect of size on profits in manufacturing industries, in Pfeiffer, I. (ed), *The financing of small business*, Macmillan, New York
- Apple, J.M., 1972, *Material Handling System Design*, New York: Ronald.
- Ballou, R. H. *Logística empresarial*. São Paulo: Atlas, 1993.
- Banjoko, S.A. (2000). *Production and Operations Management*, Saban Publishers, Lagos.
- Bellardo, L. J., & Bellardo, L. L. (1992). *A Glossary for Archivists, Manuscript Curators, and Records Managers*, Chicago: Society of American Archivists 18, Heartsill Young, ed
- Bowersox, D. & Closs, D. *Logistical management: the integrated supply chain process*. New York: McGraw-Hill, 1996.
- Burns, P. (1985), *Financial characteristics of small companies in the UK*, Cranfield School of Management.

Burton, J.A. (1999). Effectiveness Warehousing 2nd Edition, Mackmillan Publishing, United Kingdom

Carter R.J. (2006). Stores Management and Related Operation, (2nd Edition.), MacDonald Evans Ltd. pp. 67-85

Chan, F. T. S.; IP, R. W. L. & Lau, H. Integration of expert system with analytic hierarchy process for the design of material handling equipment selection system. Journal of Materials Processing Technology, n. 116, 2001, p. 137-145

Chakravorty, S. S. Improving distribution operations: Implementation of material handling systems. International Journal of Production Economics, n. 122, 2009, p. 89–106

Chandler GN, Jensen DA (1992). Gauging performance in emerging business: longitudinal Evidence and growth pattern analysis

Chopra, S. & Meindl, P. Supply chain management – strategy, planning and operation. Englewood Cliffs: Prentice-Hall, 2001

Cohen, W. A. (1989), The Entrepreneur and Small Business Financial Problem Solver, John Wiley & Sons, New York.

Dias, M. A. Administração de materiais: uma abordagem logística. São Paulo: Atlas, 1993.

Dobler and Burt, (1996). Purchasing and Supply Management (6th edition) McGraw-Hill, New York.

Dr. Saxena, J. P. (2003). Warehouse Management and Inventory Control, McGraw Hill Education, Pvt Ltd., Noida, India.

- Eastern, R. M. (1987). *Material handling*, 1st edition, Marcel Dekker Inc, New York
- Fitzgerald, L., Johnson, R., Brignall, S., Silverstro, R & Voss, C. (1991). *Performance Measurement in Service Businesses*, London (CIMA).
- Flynn, S. J. A., (2001). The Records Continuum Model in Context and Its Implications for Archival Practice. *Journal of the Society of Archivists*, 22(1)
- Frazelle, E., 2002, *World-Class Warehousing and Material Handling*, New York: McGraw-Hill
- Frolick, M. N., & Ariyachandra, T. R., (2006). Business Performance Management: One truth, *Information Systems Management*, 23 (1), 41-48
- Groover, M. P. *Automation, Production Systems, and Computer-Integrated Manufacturing*, 2nd ed. New Jersey: Prentice-Hall, 2001
- Gurgel, F. A. *Administração dos fluxos de materiais e de produtos*. São Paulo: Atlas, 1996
- Hughes. C., (2003). Opportunities for Records Managers Working in the Private Sector, *Records management society of Great Britain. Record management Journal*, 13(3), 117-122.
- Ioannou, G. An integrated model and a decomposition-based approach for concurrent layout and material handling system design. *Computers & Industrial Engineering*, n. 52, 2007, 459–485.
- Johnston, R. (1993). *Cases in Operation Management (3rd Edition.)*, London: Pitman Publishing.
- Kulak, O. A decision support system for fuzzy multi-attribute selection of material handling equipments. *Expert Systems with Applications*, n. 29, 2005, p. 310–319.
- Kulwiec, R.A., Ed., 1985, *Materials Handling Handbook*, 2nd Ed., New York: Wiley.

Lee L, Dobler D (1997), *Purchasing and Materials*. TMH Publishers Inc. Pp. 138.

Laudon, K. C. & Laudon, J. P. *Management information systems*. 6th edition. Hardcover: Prentice Hall, 2006

Macey, S. (2001). *An Integrated Model for Performance Management Based on ISO9000 and Business Excellence Models*, Master's Thesis, Canada, Dalhous University.

Mairura, C. J., (2011). *The Influence of Business Records on Business Performance*, *Journal of Language, Technology & Entrepreneurship in Africa*, 3(1)

McLean, R. J., (1999). *Record Management: The Business Case*, *Records Management Bulletin*

McMahon, R. G. P., and Holmes, S., (1991), *Small business financial management practices in North America: A literature review*, *Journal of Small Business Management*, p. 19 – 28

McMahon, R. G. P. (1995), *Financial Management for Small Business*, 2 edition, CCH Australia.

McMahon, R. G. P. and Stanger, A. M. J. (1995), *Understanding the Small Enterprise Financial Objective Function*, *Entrepreneurship: Theory and Practice*, Summer, 1995.

Megill, Kenneth (2005). Corporate Memory: Records and Information Management in the Knowledge Age (2nd ed.). Munich: K.G. Saur/Thomson

Mulcahy, D.E., 1999, *Materials Handling Handbook*, New York: McGraw-Hill

Nimalathasan B (2009). Profitability of listed pharmaceutical companies in Bangladesh: An inter and intra comparison of AMBEE and IBN SINA Companies Ltd, Economic and Administrative series, 3:139148

O'Brien, J. A. & Marakas, G. M. Administração de sistemas de informação. São Paulo: McGraw Hill, 2007..

Ogbadu, E.E. (2009), Profitability through effective management of materials. Journal of economics and International Finance, 1(4): 099-105.

Okoli, B. E., (2011). Evaluation of the Accounting Systems Used by Small Scale Enterprises in Nigeria: The Case of Enugu-South East Nigeria, Asian Journal of Business Management, 3(4), 235 – 240

Ondiek, G.O. (2009). Assessment of materials management in Kenyan manufacturing firms – exploratory survey of manufacturing firms based Nairobi. Journal of Social Sciences, 22 (8).

Osisoma, B. C. (1996), Studies In Accounting: Text and Readings, Enugu: Acana publishers

Ramakrishna, R.V. (2005). Materials Management – profit centre. Indian Institute of Materials Management Knowledge Bank

Ross, S. A., Westerfield, R. W. and Jaffe, J. (1999), Corporate Finance, 5 edition, Irwin and McRaw-Hill, Boston.

Shingo, S. O sistema Toyota de produção: do ponto de vista da engenharia de produção. Porto Alegre: Bookman, 1996.

Stair, R. M. & Reynolds, G. W. Princípios de sistemas de informação. São Paulo: Thompson, 2006

Stevenson, W. J. Administração das operações de produção. Rio de Janeiro: LTC, 2001

Stock, J. R. & Lambert, D. M. Strategic logistics management. 4th edition. New York: McGraw-Hill, 2001

Subramaniyam A, Nimalathan B (2009). Measurement of operational performance. Through ratio analysis: A Case study of selected listed manufacturing Companies in Sri Lanka, J. IPM Meerut, 6:59-69

Sujono, S.; Lashkari, R.S. A multi-objective model of operation allocation and material handling system selection in FMS design. International Journal of Production Economics, n. 105, 2007, p. 116–133

Velnamby T, Nimalathan B (2007). Organizational Growth and Profitability

Walters, T. O., (1995). Rediscovering the Theoretical Base of Records Management and Its Implications for Graduate Education, Journal of Education for Library and Information Science,

Weston, J. F. and Brigham, E. F., (1981), Managerial Finance, 7th edition, Dryden Press, Hinsdale, Illinois

APPENDICES

QUESTIONNAIRE

Dear respondent, I am **Nassali Mary Margaret**, a third year student pursuing a Bachelors Degree (Business Administration And Management) at Uganda Martyrs University. I am conducting a research titled, **“The effect of material handling on the profitability of manufacturing organizations”** for the purpose of fulfilling the academic requirement and contributing to the development of our nation. I’m here by requesting your cooperation in answering the questions listed on this questionnaire. All information given in this questionnaire shall remain confidential, so please fill it freely and truthfully without hesitation. Thank you

SECTION A: BACKGROUND INFORMATION

(Indicate by putting a tick)

1. Sex:

a) Male

b) Female

2. Age of respondent

a) 18 - 35

b) 36 – 45

c) 46 - 50

d) 51 - 54

e) 55 - 60

3 Education level

a) Certificate

c) Bachelors

e) PhD

b) Diploma

d) Masters

f) Others

4. Work experience (years)

a) 0 – 3

b) 4 - 10

c) 11 – 15

d) 16+

SECTION B

In the section below, you are required/ requested to give your opinion in terms of agreeing or disagreeing to the proposed suggestions.

1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

STORAGE AND PROFITABILITY

Statement	1(SD)	2(D)	3(N)	4(A)	5(SA)
Proper storage reduces damages which will lead to profitability					
Managers effectively manage issues relating to stores lay out					
There is careful handling of material which maintains accurate control over them to show how much materials are in the store.					
Issue of materials from store to production department is properly authorized and recorded					
Materials acquired at the factory premises are adequately taken care of them to avoid losses					

How has the organization benefited from proper storage of the materials?

.....
.....

RECORD KEEPING AND PROFITABILITY

Statement	1(SD)	2(D)	3(N)	4(A)	5(SA)
Proper record keeping is maintained to ensure proper management of materials					
Record keeping can be used were needed to make a comparison between past and present and therefore make future decisions.					
All material records are kept safe by management and all employee s are aware of that for references.					
All the day-to-day activities, assets, liabilities, number of employees, damages and the like are recorded in the books.					
Employees are well trained on how best they can carry out record keeping so it becomes easy for them.					

How does the organization benefit from record keeping?

.....

EQUIPMENT AND PROFITABILITY

Statement	1(SD)	2(D)	3(N)	4(S)	5(SA)
Equipment does not utilize a lot of space, leaving room for new material coming in.					
Equipment is easy to deal with in moving materials from one place to the other.					
Equipment helps the organization in reducing costs and saving time so as to increase profitability.					
Equipment that has worked for over three years are disposed off since they become slower.					

Equipment eases material handling there by making it more efficient and effective for timely delivery to the customers					
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How important is equipment to the organization?

.....

.....

MATERIAL HANDLING AND PROFITABILITY

Statement	1(SD)	2(D)	3(N)	4(A)	5(SA)
Efficient material handling enhances profitability through reduction in cost					
Maintaining optimal stock of materials enhances profitability					
We examine our services/ products to find out which provide the greatest growth prospects					
Material handling has helped the organization acquire/gain competitive advantage.					
Material handling increases availability of working capital					
Material handling has a significant effect on profitability					

How important is profitability to the organization?

.....

.....

.....

Thank you for your cooperation

Interview guide

1. What advantages does material handling bring to the organization?

.....
.....
.....
.....

2. Does material handling affect productivity according to your view?

If yes, how?

.....
.....
.....

3. Discuss any issues that were not specifically addressed in this questionnaire that you feel we should be made aware of.

.....
.....
.....
.....

4. What are some of the challenges faced in implementing material handling?

.....
.....
.....
.....

5. What is your view about material handling and profitability?

.....
.....
.....