

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,  
KUMASI- GHANA**

**THE USE OF JUTE SACK AS A POTENTIAL MATERIAL FOR FASHION  
ACCESSORIES IN GHANA**

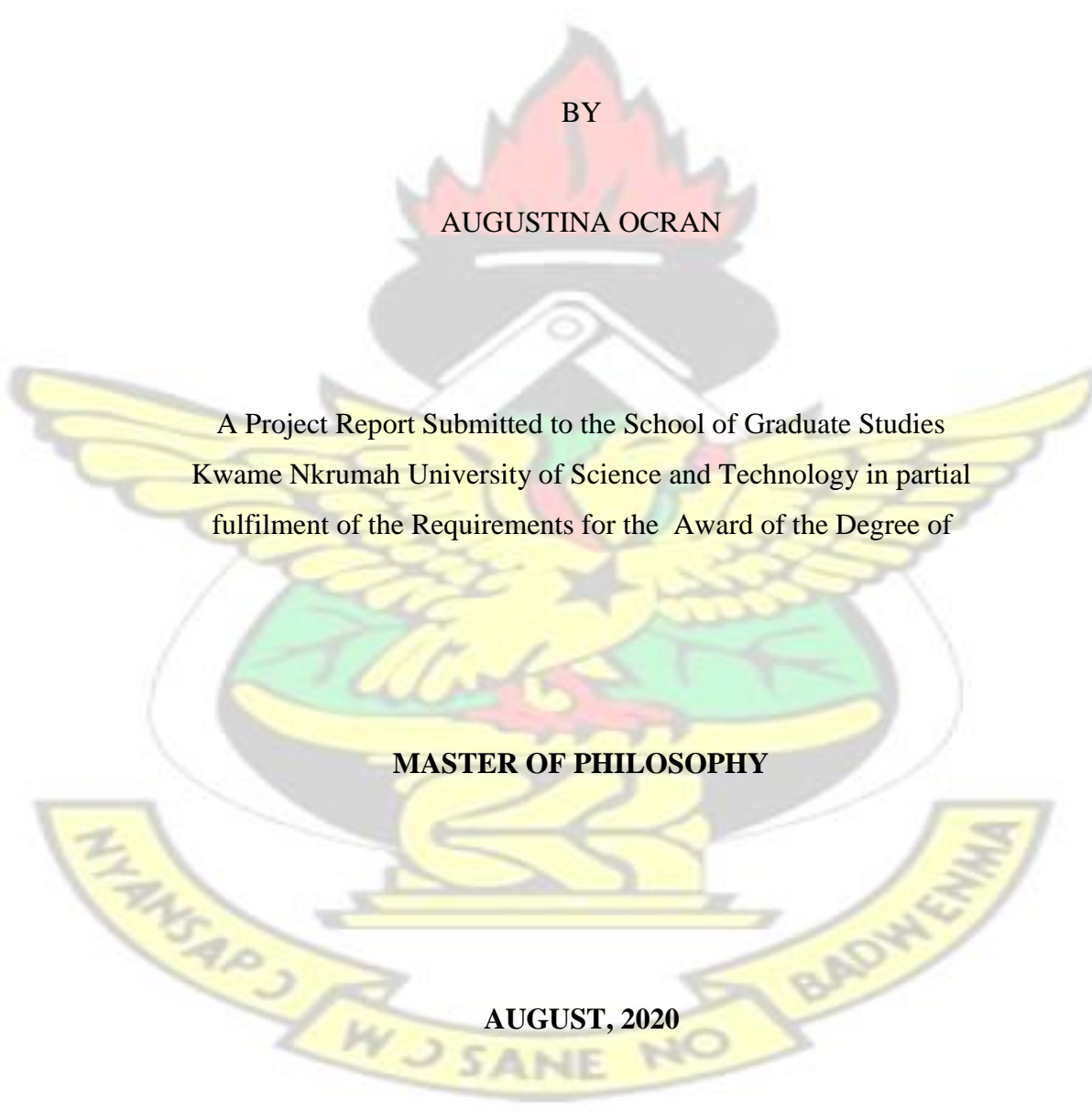
**BY**

**AUGUSTINA OCRAN**

A Project Report Submitted to the School of Graduate Studies  
Kwame Nkrumah University of Science and Technology in partial  
fulfilment of the Requirements for the Award of the Degree of

**MASTER OF PHILOSOPHY**

**AUGUST, 2020**



**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,**

**KUMASI- GHANA**

**THE USE OF JUTE SACK AS A POTENTIAL MATERIAL FOR  
FASHION  
ACCESSORIES IN GHANA**

**By**

**AUGUSTINA OCRAN**

**(B.A. INTEGRATED RURAL ART AND INDUSTRY)**

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**Kwame Nkrumah University of Science and Technology, Kumasi**

**in partial fulfilment of the requirements for the Degree of**

**MASTER OF PHILOSOPHY INTEGRATED ART**

**(FIBRES AND FABRICS TECHNOLOGY)**

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## DECLARATION

I hereby declare that this submission is my own work towards the Master of Philosophy Degree and that to the best of my knowledge, it contains no materials previously published by another person, nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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## ABSTRACT

In view of the global concern for the environment, jute being natural and eco-friendly has the potential to be used for the production of numerous items in place of other materials that cause harm to humans and the environment at large. Jute is less used in the Ghanaian fashion industry though much is seen in the fashion industry of other countries. The fine textured jute material is expensive and not common in the Ghanaian market. On the other hand, jute sacks are cheaper, available in the market and have some qualities similar to materials for the production of fashion accessories. However, its roughness to skin and limitation in colour and texture deter its usage in the fashion industry. Hence, the aim of this research is to enhance jute sack through various colouring methods and surface treatment to promote its usage in the production of fashion accessories in Ghana. The research idea focused on identifying and analysing the characteristics and types of jute sacks appropriate for fashion accessories. Various colouring techniques such as screen-printing, batik, tie-dye, *konkonte* resist and spraying with the auto base paint were explored on the identified jute sacks to enhance its aesthetic appeal and usage. The enhanced jute sacks were used to produce five bags for various purposes such as shopping, dressing, travelling, backpack and briefcase to ascertain its effectiveness and usage. The researcher employed the qualitative research method coupled with the descriptive and exploratory designs and adopted observation and semi-structured interview to help draw meaningful analysis and conclusion for the success of the research. The population of the study was limited to jute sack sellers, jute sack users, fashion accessory producers and fashion accessory users in the Ashanti Region specifically *Alabar, Adum, Asafo, Ayigya*, Central Market and *Aboabo*, all in Kumasi. The research revealed that the application of the selected surface treatment and colouration techniques on the jute sacks with less stains, dirt and compact weave structure yielded a unique aesthetic value to the original colour of the jute sack. This study will encourage fashion accessory producers to use the enhanced jute sacks to produce interesting accessories thereby improving on their products and also to expand its usage in other fields. Government and other stakeholders should help in the revival of the jute factory in Ghana so that jute cultivated in some parts of the northern Ghana for food and the stalks used for ropes, mats, hats and other domestic purposes can as well be processed into sacks in Ghana. This will create employment and eradicate the cost of importing the jute sacks into the country.

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## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Overview**

This chapter commences with the background to the study, followed by the statement of the problem, objectives of the study, research questions, delimitation, definition of terms, the significance of the study, and organization of the rest of the study.

#### **1.2 Background to the Study**

Man's quest for improvement in the world of fashion has introduced the exploration and usage of diverse materials such as leather, fabrics, metal, wood, bamboo to mention a few in the production of items to meet modern demands.

Jute, also known as Golden fibre is an internationally traded major commodity second to cotton in the world in terms of usage, global consumption, production and availability. It is a cash crop in countries such as Bangladesh, India, China, Myanmar, Nepal and Thailand which are the major cultivators (Dukur, 2002). Jute fibre has been widely explored both in the industry and other sectors, as well as in the manufacture of numerous value added materials for domestic purposes. Its unique properties such as high tenacity, bulkiness, sound and heat insulation, low thermal conduction, anti-static, environmental, economical, eco-friendly, coolness, highly breathable, high moisture absorbency, roughness, resistant to abrasion and stain, ability to blend with other fibres and to name a few, contributed to its versatile uses thus the name versatile fibre.

In Ghana, jute comes in a form of sacks that serve as containers or bagging for varied uses both domestic and environmental. Fashion designers search for new type of fabrics to make affordable and sustainable clothing accessories and other items ranging from sophisticated to simple.

Jute sacks can be explored in the Ghanaian fashion industry since it has the potential in the accessories industry. This project seeks to explore on some surface treatment and colouring techniques on selected jute sack.

### **1.3 Statement of the Problem**

Jute is one of the most versatile, cheap and chiefly grown materials in the world after cotton. The versatility of jute is because of its astonishing ranges of applications, and its unique characteristics. Jute production is normally for packaging items such as bags, sacks, wrapping material, decorative and furnishing items such as lampshades, curtains, carpets, rugs, wall covers and upholsteries; for twine, ropes, coarse cloth and fine cloth; Geotextiles and technical textile purposes and other industrial applications. Jute is a tough, durable, colourful and light fast fibre, pliable, antistatic, anti-bacterial and eco-friendly.

In Ghana, the most common and available jute are the jute sacks and cords. They are used widely for a number of purposes such as the packing of cocoa and coffee beans, maize, millets, onions, rice, charcoal, beans; as a mat for sitting and sleeping, for display of goods, covering of food items; the jute ropes are used for tying, making of rug, hats mats and other art works. The woven jute sacks found in Ghana are wholly from lower grades of jute fabrics, available in plain and twill weave, of hundred percent (100%) jute material that is purely from natural jute fibre, not blended with any other fibre, coarse and hairy. These jute sacks though mostly imported are being cultivated in some parts of northern Ghana. The jute fibre used in the production of ropes, mats for burial, doormats, traditional bags and other forms of containers, which are in limited supply and less consumed because of another influx material taking its place.

Jute fabric is less used in the Ghanaian fashion industry, though much is seen in the fashion industry of other countries. The available jute, which is the sack for bagging of goods, has certain setbacks in terms

of limitation in colour and roughness to the skin. Though fashion designers believe in the uniqueness of the jute in fashion products, these limitations deter the interest.

Thus, the purpose of this study is to explore and expand the uses of the available jute in Ghana by enhancing its surface appearances, improve on the aesthetic appeal as well as performances and uses.

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#### **1.4 Significance of the Study**

The aim of the study is to enhance jute sack through colouring methods for the production of fashion accessories in Ghana.

#### **1.5 Objectives of the Study**

1. To identify and analyse the characteristics and types of jute sacks appropriate for fashion accessories.
2. To explore the various colouring techniques on the identified jute sacks to enhance its aesthetic appeal and usage.
3. To ascertain its effectiveness and usage by using it to produce fashionable accessories.

#### **1.6 Research Questions**

1. What are the characteristics and type of jute sack appropriate for fashion accessories?
2. How will the colouring technique, be employed to improve its aesthetic appeal and usage?
3. What can the enhanced jute be used for, to produce fashionable accessories?


#### **1.7 Delimitation**

The research is focused on enhancing jute sacks as a potential material for fashion accessories by exploring on various colouring techniques such as dye methods, screenprinting, batik, tie-dye, konkonte resist and spraying method to enhance the aesthetic appearance of jute sacks

and also focused on improving the quality of products made with jute sacks. In view of this geographically, the research is limited to jute sack sellers, jute sack users, fashion accessory producers and fashion accessory users in the Ashanti Region specifically *Alabar, Adum, Asafo, Ayigya, Central Market and Aboabo*, all in Kumasi. Fig 1.1 shows the map of the Ashanti Region with areas covered by the researcher indicated.



Figure 1.1: Representation of area of study on the map of Ashanti region

Key:  area covered by the researcher as indicated on the map.

### 1.8 Significance of the Study

- The enhanced jute sacks for fashion accessories will boost the fashion industry in Ghana locally and globally.
- The research will serve as an avenue for job creation for small scale artisans in Ghana.
- The research will also be a referrer for fashion accessory designers, fashion designers and textile designers to come out with innovative ideas in relation to other uses of the jute sack and its aesthetic enhancement and value.

### 1.9 Organization of the rest of Text

The rest of the research is as follows; Chapter Two elaborates on the theoretical and empirical literature review. The methodology is presented in Chapter Three. Chapter Four comprises the

data presentation, analysis and interpretation of findings. Finally, Chapter Five presents the summary of the entire research, conclusions and recommendations.

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## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.1 Overview**

This chapter outlines related literature review that has direct linkages to the study, which is, aimed at building in-depth understanding towards establishing facts from information gathered for the progress of the study. These topics are, classified under the theoretical and the empirical basis for further understanding of the research work. The theoretical foundation for the study was, based on the Formalism theory, which is a branch of aesthetics.

## 2.2 Formalism Theory

Hevel (2006) and Weitz (1956) explain formalism as a theory that emphasis or stresses on the visual qualities of an artwork that focus on the effective arrangement of elements of art and principles of art and design. This theory of aesthetics focuses on the design quality of an artwork. Further insight explains the theory may or may not be associated with realistic works of art or abstract, although they can be, described as a formalist work and considered successful when the creator or the artist creates a simple visually interesting design, shape and form. Formalism in its general perspective refers to the view in the philosophy of art that the properties in virtue of which an artwork is and in virtue of the fact that it is determined typically by a sense of sight or hearing alone (Dowling, 2012).

The most important aspect of a work of art is its form, thus, the way it is made and its purely visual aspect rather than its narrative context or its relationship to the visible environment or world (Dowling, 2012). In view of Dowling's explanation on formalism, Dziemidock, (2017) also states that the formalistic approach instructs that art be analysed by studying form and style. Elements like shapes, colour, texture and lines coupled with the principles of design are emphasized while the context of the work is de-emphasized and made a secondary character and at times taken completely out of consequence. The context of the work, including the reason for its creation, the historical background and the life of the artist that is its conceptual aspect is considered to be external to the artistic medium itself and therefore of secondary importance. More often than not, much of the basis of formalism as an evaluation theory is founded on Plato's theory of form developed with the idea that everything whether tangible or not has a form.

Formalism in its broader perspective is used in other forms such as liberal art (music and literature) where the theory was used to explain that music is judged based on the basic composition of the notes and only intellectual understanding is of value when assessing

musical pieces. The listener's emotional reaction is of no value to the music's worth. Furthermore, in literature, formalist view was more scientific and perhaps logical in nature, putting emphasis on how writing could express language and discounted how a reader would react to the subject of the writing.

Various views expressed on formalism above show that the use of elements and principles of design contributes greatly to the beauty of an artwork and there is the need for artists to give attention to it in their composition. Colour is an element of design and the jute sacks were, enhanced with colour. Besides the use of colour in enhancing the jute, other elements such as lines, dot, shape, and texture guided by the principles of design such as unity, contrast, proportion, balance to mention a few were organized on the surface of the jute sack towards establishing a good physical aesthetic appeal.

Fashion accessories as by Evans (2017) on a wider perspective, demonstrate items that individuals adorn to add up to their aesthetic outlook and to complete their outlook. The aesthetic appeal of materials used for the production of fashion accessories play a very vital role in the selection of a particular accessory since that is what actually draws the consumers' attention to the product before other vital areas too are considered. Therefore, there is the need to enhance jute sack; a potential material in the fashion industry with some colouring techniques, which is the main objective of this study. This will encourage fashion accessory producers to use the enhanced jute to produce interesting accessories thereby improving on their product and expand the uses of the available jute sacks in Ghana.

### **2.3 Concept of jute**

Jute described as a natural fibre by Laxman (2018) with golden silky shine and thus called '*The Golden Fibre*'. Jute obtained from the plants *Corchorus Olitorius* and *Corchorus Capsularies* are mainly associated with the Indians and has been widely accepted by individuals in the world. It is cultivated in areas endowed with tropical rainfall, warm weather and high humidity. Unlike

cotton, jute can grow well, irrespective of the non-application of pesticides or fertilizers (Laxman, 2018). In some areas of the world, Scalise (2018) affirmed that jute is currently being preferred over materials like cotton and wool because the plant is easy to grow and requires little water or fertilizer and that explains why the cultivation process is fairly simple. Jute is extremely popular in India, Pakistan and China but has recently gained international use. According to Laxman (2018) jute is considered not only a major textile fibre but also as a raw material for non-traditional and value-added non-textile products and it is used extensively in the production of different types of traditional packaging fabrics, manufacturing Hessian, carpet backing, mats, bags, tarpaulins, ropes and twines. Recently, jute fibres used are in a wide range of diversified products: decorative fabrics, chic-saris, soft luggage, footwear, greeting cards, moulded door panels and other innumerable useful consumer products. Supported by several technological developments today, jute can be used to replace expensive fibres and scarce forest materials.

#### **2.4 History of Jute**

The history of jute dates back in the era of the great Mughai emperor Akbar in the period of 1542 – 1605, where poor villagers of India used to wear simple clothes made of jute. During this period, ropes and twines used by these individuals were also made of jute (white jute) for varied household applications (Dill, 2006). Sahapedia (2011) affirmed that, clothes used to be made from hand-spun fabric woven of such threads. Indians especially Bengalis, have been using jute threads and other light-spun fabric thread in their daily activities. The Middle East and many African countries used a special kind of jute leaf called '*Tosha*' for medicinal purposes. The jute industry was one of the most prominent industries in undivided Bengal. Though jute was available in entire Southeast Asia, the use of jute products was more widespread in the entire Bengal. The main reason for the growth of jute cultivation and its production is that Bengal is a reference state, which is congenial for jute cultivation. That is why the British East India Company started jute cultivation commercially and used jutewoven

bags to distribute food grains all over the world. As mentioned, jute is one of the prized industries of Bengal and for several decades, it created a special socioeconomic environment, which still prevails. The economy rests on the growth of the jute industry, which is reflected in the culture of Bengal.

Phil (2011) elaborated that, from the 17th to the middle of the 20th century, the British was tasked by the British East India company known as the first jute trader to be responsible for jute related commodities where the raw jute was traded by this company for the generation of income. By the 1790, a larger business was developing in the Scottish city of Dundee. Jute was difficult to process mechanically until a revolutionary process for batching it with whale oil and water along with a modified spinning machine for flax and jute was developed (Gynnar, 2009). Margaret Donnelly I during the early part of the 20<sup>th</sup> century was a jute mill landowner in Dundee who set up the first jute mill in India. The East India Company then exported the first consignment of jute in the year 1793. In the beginning of the year 1830, Dundee spinners have determined spinning of jute yarn by transfiguring their power-driven flax machinery leading to increase in the export and production of raw jute from Indian subcontinent, which was the single supplier of jute. Plates 2.1 and 2.2 show jute fibres being processed into yarns manually and mechanically.



**Plate 2.1: Jute being processed into yarns manually.**



**Plate 2.2: Jute being processed into yarns mechanically.**

(Source: Worldofjuteassertions.com)

## 2.5 Properties of Jute

According to Hasan (2018), jute is known by many as golden fibre due to its golden silky shine colour and is second to cotton in terms of usage, production and global consumption. In addition, jute was once upon a time before liberation the main exporting goods and was, sold in raw and finished goods towards revenue generation and nation development. Jute has many properties that give it the edge over the other fibre-based material. Sakthivel *et al*, (2012) identified that jute fibre has some unique physical properties like high tenacity, bulkiness, sound and heat insulation property, low thermal conductivity and antistatic property. It is further, established by Hakim (2010) that jute has numerous uses such as nonwoven textiles, geo textiles and many others. This natural product is versatile, that is, said to have thousands of uses with more uses discovered each day. Certainly due to it being environmentally friendly, it is likely to replace some of the synthetic products, which are creating hazards to our earth.

### 2.5.1 Physical Properties of Jute

Some unique physical properties of jute as stated by Sakthivel *et al*, (2012) are outlined below:

**Length:** The reeds of jute fibre vary from 3 to 14 feet long, depending on the grade, and they appear taper from root to end. Thicker reeds contain coarse fibre and thin reeds contain finer fibre. It constitutes with ultimate fibres of average length of 2.5mm

**Tensile Strength:** Fibres are not so strong when compared with some other bust fibres but have good tensile strength. Fibres are naturally hard and brittle and break off with abrasion. Resistance to mechanical wear is low and not durable, especially with exposure to moisture reduces its strength.

**Colour:** The best quality fibres are pale white or silver grey, with common qualities as brownish and greenish, which are inferior. The roots are usually darker without any lustre. Better quality fibres shows matt and pitted surface with very poor strength.

**Porosity:** It refers to the void fraction or total space within the volume of the prosthesis wall and serves as a useful measurement for tissue growth (Gajjar et al, 2013). Jute naturally has a very porous fibre structure and thus making it appropriate for products that need air in their usage.

**High Tenacity:** The strength of jute as a natural fibre based material is, referred to as their tenacity and the force needed to cause a break in the fibre determines this. This as required is directly, linked to the length of the polymers, degree of polymerization and strength in dry and wet conditions.

**Flexibility and Cohesiveness:** Plant base fibres possess and maintain a certain amount of flexibility (pliability) in order to be, processed into yarns and fabric at large. This also encompasses the ability of the fibre to stick together properly during the yarn manufacturing process since natural fibres have inherent anomalies in their longitudinal section which allows them to be glued to each other.

### 2.5.2 Chemical Properties of Jute

Jute is cellulosic fibre composed of cellulose, hemi-cellulose, natural lignin, fats, wax, and water. The physical and chemical properties of jute can vary from region to region depending on the atmospheric condition and temperature.

**Heat Insulating Property:** This property looks at the burning characteristics of jute and its ability to stand the heat. Jute's reaction to flame can be looked at in terms of their behaviour when exposed to (when approaching the fire, when in the fire and when removed from the fire) where the fabric's retention capacity towards burning is highly resistant and does not undergo rapid burning.

**Low Thermal Conductivity:** This characteristic is expedient in textile applications such as apparel, blanket and sleeping bags to mention but a few. As established by Swapan et al, (2016), this property is fundamental to the heat transfer through fabrics and it is important for both its thermal comfort and protection against challenging weather conditions. The thermal

insulation related properties mainly depends on the availability of amount of air pores in the textile structure. This air trapped in fabric pores makes the fabric act as thermal insulating media (Debnath, 2016).

**Acid and Alkaline Base Property:** Jute fibre has good affinity for basic dyes and its components. Jute in its natural state provides room for chemical reactivity to play a key role in its manufacturing process and finishes, hence its ability to resist microbiological attacks from microorganisms. It also exposes the cellulosic resistant to acid, but are cushioned from alkalis.

## **2.6 Types of Jute Sacks and Uses in Ghana.**

The availability of jute types in the Ghanaian market comes in two major forms known as the White jute (*Corchorus Capsularis*) and the Tossa jute (*Corchorus Olitorius*) with Tossa jute dominating widely. Adkins, (2015) detailed that, this type of jute is used for jute sacks with compact weave structures and jute sacks with loose weave structure. Jute is not only a major textile fibre but also a raw material for non-traditional and value added non-textile products. It is used extensively in the manufacture of different types of traditional packaging fabrics, manufacturing hessian, sacking, carpet backing, mats, bags, tarpaulins, ropes and twines. Recently jute sack fibres used are in a wide range of diversified products: decorative fabrics, chic-saris, soft luggage, footwear, greeting cards, molded door panels and other innumerable useful consumer products. Supported by several technological developments today, jute can be used to replace expensive fibres and scarce forest materials (Dukur, 2002).

The Ghanaian market makes enormous use of jute sacks in diverse ways to promote the economic value of individuals and it is well established that jute sacks formed the basic containers or packages for the transportation of cocoa beans for export into other parts of the world at large. Akwa (2017) explained that, far from the simpler uses of the jute sack as known to Ghanaians, jute sack has become a regular addition in many industries. It is being used for furniture, decorative curtains, bedding, and paper and for automobiles. Jute sacks have also been explored and used widely in the field of exterior and interior decoration, an art well known

and practiced with second-hand jute sacks amongst local Ghanaian artisans (Mahama, 2011). For the purposes of this research, the researcher automatically categorized the uses of jute sacks into two, namely; Primary usage and Secondary usage which is aimed at critically identifying the basic fundamental reasons and for their consideration.

### **2.6.1 Primary Usage of Jute Sack in Ghana**

Interview responses of some market women and other users of jute confirmed that the sack is often used because they are cheaper, available and durable making it very useful in their line of work. Cocoa, cashew and other legumes form an integral part of the importation of jute sacks, which are used for the packaging of cocoa seeds towards exportation to other countries.

Plate 2.3 shows jute sacks containing cocoa beans.



**Plate 2.3: Cocoa beans bagged in jute sacks**

(Source: [sewport.com](http://sewport.com))

### **2.6.2 Secondary Usage of Jute Sack**

With the massive production of jute and jute yarns on the continent, especially with the South Asian countries, the growth and expansion of the industry is on the rise with the material being able to produce artefacts such as lampshades, tablemats, penholders, decorated photo frames and candleholders, wall hangings, coasters and footwear. There is no end to how innovatively; jute is being, used in the making of all kinds of accessories. Talking about bags, tote and sling

bags and clutches made from jute have been quite the trend for the collegegoing crowd, with these painted in bright shades, modern prints and motifs, touched up with fancy embellishments (Akwa, 2017).

Other secondary uses for jute sacks are for bagging onion, for bagging charcoal, as a support on the ground for the sales of food items such as yam, onion, and used for covering the food during the preparation stages. The following are image representations of some secondary usage of jute in Ghana as shown in plate 2.4 (a), (b), (c) and (d)



**Plate 2.4 (a): Jute sack as support for displaying foodstuffs**



**2.4 ( b): Jute sack for covering of drum during cooking of *fante kenkey***

(Source: Author's fieldwork)



**Plate 2.4 (c): Bag produced from jute sack and leather**



**Plate 2.4 (d): Jute sacks for covering the National Theatre in Ghana.**

(Source: Authors fieldwork)

(Source: <https://publicdelivery.org>)

## **2.7 Colouration in Textiles**

Colouration in textile as stated by Renzo (2014) can be described as the uniform application of colorant to a colouring medium as a means of causing a change in colour. The colouring of textiles may one way or the other involve mass pigmenting, dyeing and printing processes and the colouring medium in this regard may take numerous physical forms such as; loose fibre, yarn, tow, top, woven, non-woven and knitted subs. It was also identified that colouration in textiles however, is not limited to the immersion of textile fibre into dye bath that occurs during the initial phase of the dyeing process as a result of the chemical or physical interactions between the colorant.

Renzo (2014) further talked about the dyeing process as a complicated process with many different phenomena happening concurrently that need a good level of control. When textile fibre is exposed to a medium having an appropriate dye in a conducive space, the fibres become coloured, then the colour of that medium decreases and that of the fibre increases.

### **2.7.1 Colouration Process**

Most textile dyeing processes initially involve transfer of coloured compound from aqueous solution onto a fibre surface. Shang (2013) explains the concept as the interaction between a dye and a fibre as well as the movement of dye into the internal part of the fibre. Shang's research also brought to light the fact that in addition to direct absorption, dyeing may also involve the precipitation of dyes (vat dyes) inside the fibre or chemical reactions with the fibre (reactive dyes). Shang further expressed that printing can be considered as partial dyeing with different colours or same colour on fabric to form an attractive pattern. The dyeing process as established is one that takes time. The transfer of a dye molecule from the dye solution into a fibre considered is usually to involve the initial mass transfer from the bulk dye solution to the fibre surface, adsorption of the dye on the fibre surface, followed by diffusion of the dye into

the fibre as depicted in figure 2.1. This method considered was also on jute since it is a fibre base material.

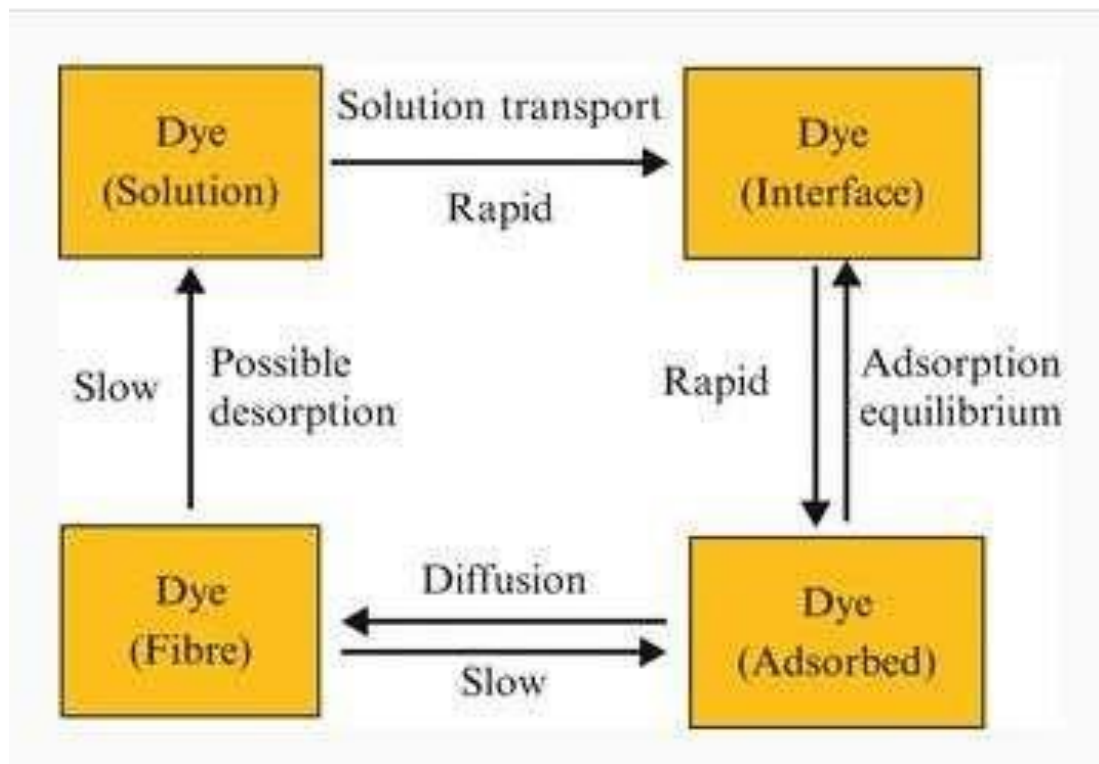


Figure 2.1: Dye transfer from bulk solution into fibre.

(Source: [www.link.springer.com](http://www.link.springer.com))

### 2.7.2 Dyes

A dye is a substance capable of imparting its colour to a given substrate, such as a textile fibre.

A dye must be soluble in the application medium usually water at some point during the colouration process. Below is the classification of dyes according to chemical constitution and textile usage as shown in fig 2.2.

Classification of dyes according to chemical constitution	Classification of dyes according to textile usage
Azo	Direct
Anthraquinone	Azoic
Heterocyclic	Vat
Indigoid	Sulfur
Nitro	Reactive
Phthalocyanine	Acid
Polymethine	Basic (cationic)
Stilbene	Disperse
Sulfur	Mordant (metal complex)
Triarylmethane	

Figure 2.2: Classification of dyes according to chemical constitution and textile usage  
(Source: [www.link.springer.com](http://www.link.springer.com))

When a fibre base material is immersed in a dye bath, the transfer of dye from that concentrated bath onto the fibre surface is fast and the rate generally increases with increasing the flow rate (Shang, 2013). There are numerous factors involved in the selection of dyes for colouring textile materials in a particular shade. Some of these are:

- The type of fibres to be dyed; the form of the textile material and the degree of levelness required is less critical for loose fibres which are subsequently blended than it is for fabric.
- The fastness properties required for any subsequent manufacturing processes and for the particular end use
- The dyeing method to be used, the overall cost, and the machinery available
- The actual colour requested by the customer

The approximate relative annual consumption of the major types of fibres and dyes estimated in the year 2000 indicates that dyes used for cotton (the most widely used natural fibre) and for polyester (the most widely used synthetic fibre) dominate the market. In the case of cellulosic fibres including cotton, reactive dyes due to possessing excellent fastness properties upon fixation and demonstrating bright and brilliant shades occupy the lion's share of the market for this fibre category. Disperse dyes also occupy a large sector of the market due to

their use of polyester fibres. Other colorants occupy smaller sections of the market and their applications are specific and less common.

## 2.8 Fashion

Steele (2006) explains fashion as a cultural construction of embodied identity; it may be the way things are made. Fashion may also be, defined as a style of clothing or a way of behaving that is popular at a particular frame. Kaiser (2018) further explained that fashion is an aesthetic expression in a certain time and context, especially in clothing, footwear, lifestyle, accessories, and make-up, hairstyle and body proportions. The fashion industry evolved from the Roman and the Egyptian regime where they took great interest in the appearance and spent a lot of effort and money in fashion and styling of themselves (*looking aesthetically appealing*). They mostly exhibited a particular type of clothing as a means of communicating one's status, occupation and wealth respectively. During the Renaissance era, the idea of fashion in the two regions had expanded and shifted focus from Roman and Egyptian territory to the shores of Burgundy to Italy and then to France. These contributed greatly to the transformation of the fashion world through the Dark ages, the medieval period and the Renaissance periods. Plate 2.5 shows some fashion accessories used in the late 1800s -1900s



**Plate 2.5: Some fashion accessories used in the late 1800 – 1900.**

(Source: [www.sewguide.com](http://www.sewguide.com))

During the periods of the 20<sup>th</sup> century, many women preferred more clothes and it coexisted with the elaborate style of dressing of early days (Leino, 2012). More so, fashion magazines started to be popular and influential because these magazines started to cover the fashion scene accompanied by photographs as it had a great impact to spread news on new fashion trends.

## 2.9 Fashion Accessories

Fashion accessories play an important role in one's appearance as they help in complimenting the look of the wearer. Fashion accessories as by Evans (2017) on a wider perspective demonstrate items that individuals adorn to add up to their aesthetic outlook and to complete their outlook. Another school of thought defines fashion accessories as the fashion items that

individuals adorn coupled with their pieces of clothing to make them look great and complete in their outfit (Smith, 2009).

Generally, fashion accessories are for adornment, attraction and also show ones status, rank and wealth in the society. Accessories are mostly seen in the areas of religion, tradition and for day-to-day usage. Fashion accessories in the area of religion include crucifixes, Islamic headscarves, skullcaps and turbans. Accessories as a means of adornment and to show social status are normally seen with chiefs in our traditional setting. Examples of accessories in this regard are beads, rings, necklaces, bracelets, sandals, hats, walking sticks and to name a few. Fashion accessories do not often form an integral part of a style. This means one can do away with them but will end up not looking complete and attractive and hence accessories add taste to one's appearance. Choosing the right accessories to complement simple clothes makes one appear so sophisticated.

Fashion accessories used are often to complete an outfit and chosen specifically to complement the wearers look. In effect to the above statement, any kind of embellishment or accessory that one picks ought to have the capacity to demonstrate ones disposition and identity. Fashion accessories come in various colours, shapes and are used for any type of outfit be it plain, designed, heavy or light. Accessories are produced from a wide range of materials ranging from metal, wood, fabrics, leather, beads, plastics jute and many others. As time has evolved, fashion accessories have become more prominent in the immediate fashion world ranging from the runway to street wear. Today's generation of fashion has adopted a new way of wearing certain items to complete an outfit (Leino, 2012). Plate 2.6 shows some examples of fashion accessories.



**Plate 2.6: Some examples of fashion accessories**

(Source: [www.fashion2apparel.blogspot.com](http://www.fashion2apparel.blogspot.com).)

## **2.10 Types of Fashion Accessories**

Enam (2018) explained that fashion accessories means something which are used as a secondary manner besides the wearer outfit. This in other jurisdictions refers to the conscious effort to complement clothes with other desirable artefacts or materials that exhibits good aesthetic values in a wearer. Fashion accessory is in two major categories; Worn Accessories and Carried Accessories (Evans, 2017).

### **2.10.1 Worn Accessories**

These accessories are used mainly by wearing and seen often on the body of an individual. Accessories worn include jacket, boot, neckties, shoes, cravats, ties, hats, bonnets, belts and suspenders, gloves, necklaces, bracelets, muffs, pins, sashes, watches, shawls, scarves, socks, pins, rings, piercing, stockings, and sunglasses. Plate: 2.7(a), (b) and (c) show some examples of worn fashion accessories.



**Plate 2.7 (a): Sunglasses**



**Plate 2.7 (b): Wristwatch**



**Plate 2.7 (c): Bracelet**

(Source: [www.sewguide.com](http://www.sewguide.com))

### 2.10.2 Carried Accessories

Carried accessories as explained by Smith (2009) refer to all products that couple dresses and do not have a direct contact with the body when used for a while. Some of the fashion accessories seen are mostly not on the body of the person, however, they are carried. Examples include purses, handbags, wallets, canes, umbrella, handkerchiefs, and hand fans as shown in plate 2.8 (a), (b) and (c) below.



**Plate 2.8 (a): Umbrella**



**Plate 2.8 (b): Canes**



**Plate 2.8 (c): Handfan**

(Source: [www2apparel.blogspot.com](http://www2apparel.blogspot.com))

### 2.11 Fashion Accessories Produced in Ghana

Ghana's contribution to the fashion world cannot be overlooked following the tremendous effort made through the introduction of *Kente*, *kete*, *tani* and other traditional fabrics into the world of fashion. Also, Sasa (2018) affirmed that fashion in Ghana has gradually evolved over

time and one of the common fashion related materials being *Kente*, and *fugu* (smock or *Batakari*) has always been the original traditional regalia of the Ghanaian people.

In Ghana, there is always a high demand in the fashion industry. Generally, Ghanaians always want to look good for every occasion regardless of the person's status. In this regard, fashion accessories play a very important role as they complement one's outfit and hence enhance the look. There are some basic fashion accessories used by everyone and almost every day. An example is footwear. Other accessories may be used depending on the person's choice. An example is earring. Almost every Ghanaian dresses up with at least one or two fashion accessories

The inventors of *Kente* and *Tani* (*fugu* fabrics) gradually and meticulously have integrated these fabrics into the production of some fashionable items such as dresses, bags, footwear, bracelets and even anklets (Sasa, 2018). In Ghana, there is a huge sustainable fashion industry where brands are opening up small production shops to make their goods. Formerly, most fashion accessories used in Ghana were imported but recently fashion designers have been producing variety and interesting fashion accessories using local materials such as *fugu* fabrics, mummy cloth example GTP and ATL, beads, leather and many other suitable materials for the production of bags, foot wears, ties, purse, sandals and other interesting fashion accessories. Though jute sack is a common material seen in Ghana and widely used, it is rarely seen in accessories making. The available jute in the form of sacks poses certain limitations when used for fashion accessories though it has the characteristics as other materials for accessories making. The fine textured jute fabrics have a better condition with the accessories, but quite expensive and not common in the Ghanaian market. The purpose of this study is to enhance the common and less expensive jute sacks available in Ghana for accessories making in the fashion industry. Plate 2.9 (a), (b) (c), (d),

(e), and (f) are some fashion accessories produced in Ghana.



Plate 2.9 (a): Clutch bag    Plate 2.9 (b): Ladies purse    Plate 2.9 (c): Bow tie



Plate 2.9 (d): Dressing bag    Plate 2.9 (e): hand fan    Plate 2.19 (f) hat and dressing bag

(Source: [www.pinterest.com](http://www.pinterest.com))



### CHAPTER THREE

### METHODOLOGY

#### 3.1 Overview

This chapter deals with the methodology of the study. This includes the research design used, study population and sampling technique, data collection instruments, data collection procedure and data analysis plan.

### **3.2 Research Design**

Research design as defined by Kirshenblatt (2006) is the general method that one chooses to incorporate the components of the study in a coherent and logical way thereby certifying effectively and addressing the research problem; it adds up to the plan for the collection, measurement, and analysis of data. Research design as further affirmed by Bhat (2010) is the chosen framework of techniques by a researcher to combine various components of research in a reasonably logical manner so that the research problem is handled sufficiently. This provides insight about how to conduct research using a particular methodology. The researcher considered the use of qualitative research method for the purposes of building a substantive analysis and knowledge on the topic.

### **3.3 Qualitative Research Methods**

DeFranzo (2011) explains qualitative research as primarily an exploratory research used to achieve meaning of the underlying reasons, opinions and motivations. Qualitative Research as also described by Bhat (2009) is a market research method that focuses on obtaining data through open-ended and conversational communication. This method was used by the researcher to accumulate information needed to tune towards understanding the in-depth of what people think and why they think so. The aim of qualitative research as stated by Mcloed (2013), is to understand the social reality of individuals, groups and cultures as nearly as possible as its participants feel it or leave it. Qualitative research uses a variety of methods to develop deep understanding of how individual perceives their social realities and in consequence how they act within the social world. This method employed was for the

researcher to describe effectively and comparative study the various identified jute sacks sold in Ghana in terms of usage, size, weave structure, colour, and texture and analyse the various colour techniques appropriate in enhancing the raw natural jute in Ghana for use in fashion accessories making.

### **3.3.1 Descriptive Research Design**

Descriptive research design aims at describing “what exists” by answering questions such as “what is”, “what was”, “why” and “how” of a situation with respect to variables or conditions in the situation. According to McCombes (2014), descriptive research is the best method for collecting information that will demonstrate relationships and describe situation, as they exist. Shuttleworth (2008) also explains descriptive research design as a scientific procedure, which involves critical observation and description of behaviour of a subject without affecting it in any way. The descriptive method employed was to describe the processes followed chronologically in executing the project and analysing the effectiveness and usage of the enhanced jute sack for fashion accessories.

### **3.3.2 Exploratory Research Design**

Exploratory research seeks to find out information about a particular issue or a phenomenon (Shuttleworth, 2008). Exploratory research seeks to explore the problem and not actually derive a conclusion from it. This design helps a researcher to set a strong basis for exploring ideas, selecting the right research design and finding variables needed for the analysis.

This method was however selected to explore various colouring methods possible on jute sacks, gather requisite information on jute dyeing processes and data gathering on the various types of jute sacks used by Ghanaians. The jute sacks were taken through specimen colouration processes such as auto-base spraying, screen printing and dyeing to ascertain suitable techniques for the application of colour on the jute sacks for surface enhancement.

### 3.4 Population for the Study

This is the totality of elements upon which the study was based on. Population also known as research population is a well-defined collection of individuals or objects that are the focus of a scientific query (study) and have similar characteristics (Wilson, 2016). Other school of thought have their basic definition of research population as a large collection of individuals or objects that is the focus of a scientific query. Another school of thought suggests that, population is a study of group of individuals taken from the general population who share a common characteristics such as age, sex, or health condition (Kenton, 2014). In relation to this project, the population is made of a group of people who have information in relation to jute sacks and uses of jute sacks. The target population for this study which according to Wilson (2016) is the entire group of individuals or objects to which the researcher is interested in generalizing their conclusions includes jute sellers and users and fashion designers in Ashanti region, Ghana, specifically Kumasi, in areas such as *Alabar*, Central market, *Adum*, *Asafo* and *Ayigya*. Jute sacks sellers at *Alabar* and Central market, fashion accessories producers at Central market, *Ayigya*, *Asafo* market and *Adum* for the sole benefit of this research were respectively observed and interviewed.

### 3.5 Sampling Technique

Sampling is the way toward selecting a bit from a populace of interest so it can be considered for a reasonable speculation of the result of an exploration particularly when the measure of the planned populace would be excessively awkward making it impossible to work with (Cohen, 2007). Sampling techniques are delegated either probability or non-probability. In probability sampling, every individual has a non-zero likelihood of being, chosen from the populace. Probability strategies incorporate arbitrary testing, methodical inspecting and stratified examining. In probability sampling, individuals are chosen from the populace in some non-random way. The benefit of probability sampling figured can be through inspecting

blunder. Examining mistake is the degree from which a sample may vary from a populace. In non-probability sampling, there is a cognizant push to focus on particular individuals during selection for the study. Examples of non-probability sampling are purposive and strategic sampling (Shang, 2013).

In Shang (2013) submission, he indicated that purposive sampling is based on the sole judgement of the researcher where the populace selected are individuals believed to have the requisite knowledge needed for the progress of the research. The purposive sampling method by Leedy and Ormrod (2005) selected is based on specific purposes of a study. Within this project, jute sack sellers at *Alabar* and Central market were purposively selected for this study. Central market is the biggest market in the Kumasi metropolis where many business activities and sales of different and varied products are found and the *Alabar* market is known for the large sales of all kinds of sacks and bags and other uncommon products respectively. In addition, *Ayigya*, *Adum* and *Asafo* markets were selected since these places are known for the production and sales of many fashion accessories respectively. Since the population were in different categories, the stratified sampling method was also used. The accessible population within this study was therefore grouped into four strata; the jute sack sellers, jute sack users, fashion accessory producers and fashion accessory users. Stratified sampling is the division of a population into smaller sub-groups known as strata. A total number of 120 individuals were accessed with 30 representing jute sack sellers, 30 representing jute sack users, 40 also representing fashion accessories producers and 20 individuals representing fashion accessory users. Table 3.1 is the schematic overview of the sampling design.

**Table 3.1: The Schematic Overview of the Study Sample Design**

<b>Target Population</b>	<b>Stratum (ST)1 Jute Sellers</b>	<b>30</b>
	<b>Stratum (ST) 2 Jute Users</b>	<b>30</b>
	<b>Stratum(ST) 3 Fashion Accessory Producers</b>	<b>40</b>

	<b>Stratum (ST) 4</b>					<b>20</b>
	<b>Fashion Accessory Users</b>					
<b>Equalization of Sampled Population</b>	ST 1 30	+ ST 2 30	+ ST 3 40	+ ST 4 20	=	120
<b>Random Sample of Jute Sellers, Jute Users, Fashion Accessory Producers, Fashion Accessory Users.</b>	100 × 100	ST 1 30	ST 2 30	ST 3 40	ST 4 20	
<b>Total Randomized Sample of Jute User, Jute Sellers, Fashion Accessory Producers, Fashion Accessory Users</b>						120
<b>Data Level</b>						120

### 3.6 Data Collection Instruments

Data collection instruments are conventions, applicable procedures or tools that help gather and measure information on variables of interest in an established systematic fashion, enabling researchers to answer research questions, test hypotheses or evaluate outcomes. The main purpose in conducting a qualitative research is to collect and generate data that answers the research questions. Leedy and Ormrod (2005) are of the view that researchers normally make use of multiple forms of data in any single study through observation, interview, objects, written documents, audiovisual materials, electronic documents (e-mail, websites). However, the main data collection instruments used for the research were observation and interview.

#### 3.6.1 Observation

Observation refers to the systematic analysis of real-time processes and operations with the goal of identifying needs or challenges or improving processes and practices of all that can be seen (Bhat, 2006). The researcher based on direct observation to objectively record information. The various jute sacks types and uses were observed in the selected markets towards analysing and categorising the jute types in terms of thickness or porosity, weave structure, durability, usage, colour and compactness.

### **3.6.2 Interview**

This refers to a one-on-one direct conversation with an individual using a series of set questions designed to elicit extended responses. Interviews allow participants to express their thoughts using their own words and organization; thus, they are particularly valuable for gaining insight (Bhat, 2006). The semi-structured form of interview was used for this study. According to Stefanie et al. (2014), semi-structured interview is a type of interview where the interviewer asks few predetermined questions while the rest of the questions are not planned and given room for a spontaneous free flow of conversation geared towards attaining a firsthand in-depth understanding. Cohen et al. (2006) further elaborated that this type of interview is best used since it provides a clear set of instructions for participants. In the semistructured form of interview questions asked are mostly open-ended questions which allow for a discussion with the interviewee rather than a straightforward question and answer format. It is a combination of both structured and unstructured interviews. The semistructured form of interview used was to create room for interactive discussion and create that flexibility of allowing the interviewer to swerve from the prepared interview guide as necessary. Furthermore, using the semi-structured form of an interview guide was prepared by the researcher, which was an open-ended question format.

Farrel (2016) explained open-ended questions as questions designed to encourage respondents to give a free-form answer with no restrictions. This method allows a full, meaningful answer using the subject's own knowledge or feelings. The open-ended approach used was to allow the interviewees to elaborate more on the responses given for better understanding and provision of in-depth feedbacks.

### **3.7 Sources of Data**

Sources of data refer to a collection of resources and origin of information that are specific to planning a related research; thus, helping the researcher's effort to develop from quite substantial levels to ones that are more efficient (Parker, 2003) Hence, researcher's categorization of data sources is into two main types; the primary and secondary data sources. The primary source of data refers to the origin of information collected at first hand and usually termed "raw data". Personal observation and interview used to obtain information from sellers of jute sacks and users in the Ghanaian market formed the primary data for the study.

Secondary data sources refer to information gathered by other researchers and recorded in books, articles and other publication platform (Richard, 2014). The following constitutes secondary data sources for the study internet, journals, theses and books with needed information for the study.

### **3.8 Data Collection Procedures**

This study drawn is towards enhancing the surface of jute sack using various colouring techniques and further using the enhanced jute to produce fashion accessories. The research made use of direct observation and interview coupled with semi- structured interview with questions set being open-ended. The interviews were conducted in the local Ghanaian language (*Twi*) because the populace consisted of individuals who are fluent in the language and understand it well. Some of the interviews were also conducted in English for other interviewees who were not fluent in *twi* The observation and interview covered jute sack sellers, jute sack users, fashion accessory producers and fashion accessory users. Three major types of jute sacks were identified and explored by meticulous analysis prior to the colouring methods appropriately selected for the jute sack. The researcher selected jute sack with compact weave structure and free from stains and dirt as this type helped in easy colour penetration on the surface of the jute. The jute sacks surfaces were, given various treatments

such as surface sizing and singeing to facilitate easy colour absorption and for clarity of design impression on the jute. The colours were, applied by means of spraying, printing and dyeing.

### **3.9 Data Analysis Plan**

Data gathered were, described, analysed, interpreted and presented in a discussion form. Data collected on jute types and their characteristics were categorised for an in-depth analysis and interpretation. The researcher also presented other data on the colouration of jute and designing of selected fashion accessories in photographs and illustrative images.

## **CHAPTER FOUR**

### **PRESENTATION AND DISCUSSION OF FINDINGS**

#### **4.1 Overview**

This chapter presents data obtained through interview and observation on the jute sacks; the types of sacks in the market, uses of the sacks, characteristics of these sacks, its potential for bag production and usage of bags.

#### **4.2 Outcome of Interviews and Observations**

The interview conducted focused on the jute sack sellers, jute sack users, fashion accessories producers and fashion accessory users. The questions asked were based on jute sacks, its appropriateness for bags and how best jute sack could be enhanced to improve upon its aesthetic appearance and other properties of the jute and usage for other products.

##### **4.2.1 Interview Outcome of the Jute Sack Sellers**

Thirty, (30) jute sellers were interviewed at the Kumasi central market and *Alabar*. The interviews were based on the types of jute sacks available in the market, demand for these sacks, uses of these sacks and other unconventional uses, where the sacks are, gotten from, prices sold at and who supplies them.

From the interview, it was realized that most of jute sacks were imported into the country from Bangladesh by the Ghana Cocoa Board. These have the inscription (PRODUCE OF GHANA COCOA BOARD) printed on them. The Cocoa Board branded jute sacks are sent to various Licenced Buying Companies (LBC) who buy cocoa beans from farmers and pack the cocoa beans bought from the farmers into the jute sacks before sending them to the harbour. The bagged jute sacks with the cocoa beans are off- load from the sacks at the port.

The empty jute sacks are then sold to individual agents who are in the sales of jute sacks. These agents purchase the sacks in large quantities and then supply them to other jute sellers in various markets. These jute sacks bought are for bagging of other food crops such as cashew, onion, maize, garden eggs, sand bags and many other purposes mostly known to the users. Some of the jute sacks from Bangladesh are not branded. These types are, imported into the country by individual businesspersons who deal in sacks.

Aside the Cocoa Board branded jute sacks and the unbranded ones; there are other jute sacks from Cote d'Ivoire. These sacks are slightly bigger in size than the ones imported from Bangladesh.

There are mainly three grades of jute sacks in the market; the brand new sacks, that is, those not used for any form of bagging. The slightly used jute sacks are those firstly bagged with cocoa beans. The last one is the overly used Ones, which appear old. According to the sellers, the prices of the sacks differ. The slightly used sacks are a little more expensive than the overly used ones, whiles the brand new ones are the most expensive ones. The jute sacks are normally packed according to grades and displayed in the market for sales. Furthermore, the jute sacks are stored in a dry place as they become weaker when into contact with water.

According to most of the jute sellers, about eight to ten sacks are, sold in an average day.

#### **4.2.2 Interview Outcome of Jute Sack Users**

In identifying the various uses of the jute sacks both traditional and contemporary, the researcher realised that the uses of jute sacks in Ghana are enormous from packaging, shelter, erosion check, defence, building and many more. Traders of various food stuff in the markets store and bag food items such as maize, onion, beans, rice, garden eggs and other food items. Other traders also pack charcoal in the jute transported to other places. Some sellers then open up the jute sacks into large pieces of sacks as a covering to cover items left in the market after the hard day's work. Others traders also spread the sack on the table or on the ground to display their goods.

The researcher also visited some food vendors who prepare cooked food such as kenkey. It was, realized that they use the jute sacks to cover the drum of kenkey on fire during cooking. Bakers who use the traditional oven also use the jute sack to cover the opening of the oven when baking to prevent air from entering the oven and sustain the heat. In addition, the very old sacks are, bagged with coconut husk and sand to check road erosion. Jute sacks are used as canvas by some artists to display and express their art and in art installation expressions. The researcher also wanted to know the type of jute used and why. From the interview, it became known that some traders preferred the slightly used jute sacks for their food bagging, as these are less expensive and in good shape and durable as the brand new jute. These sacks are used to bag items and food crops, though other sellers may prefer the brand new jute sacks to bag food grains like maize and beans. However, traders who deal in onions often prefer the Ivory Coast jute sacks because these sacks have large openings which allow air to circulate to prevent the onions from rotting especially if the goods transported are being sent to distant places.

All the jute sack users affirmed that the colour of the sack changes from its original colour as time goes by because of its exposure to the weather conditions. Jute sacks used by food vendors

become weaker and wear off after continuous exposure to water for a period. Though jute is a durable material, its longevity also depends greatly on its protection from water and heat.

The usage of jute is enormous and the future of jute is bright, the interviewees believe that jute has many potentials and will be of a great benefit to Ghana thus the need to revamp the collapsed jute industry in Ghana and the cultivation of the plants.

#### **4.2.3 Interview Outcome of Fashion Accessory Producers**

Forty fashion accessory producers were interviewed. The interview was based on how the jute sacks have been used in the industry, products produced from the sacks, type of jute sacks used and why the sales of such products and consumers' reactions to such products. Out of the 40 producers interviewed, 30 of them were, said to have never used jute for any of their products. This is because customers do not request for it. Others also said that the common jute fabrics seen in the market are the sacks which are not finer in texture, while others also believe that using the sack might not give them the best result considering the hairy nature of the jute and the limitation in terms of colour.

Those who have used jute in their product said they used the jute by integrating with other materials to produce sandals, shoes and bags and there are times it was used solely in items making. Out of the ten producers who have used jute before, three of them said they used the fine textured jute material and that they bought it in Accra and two said they used the jute sack available at the market and cut them into appropriate sizes and shapes to produce their work. Their reason was that the fine textured jute material is not common in the market and it is expensive, thereby affecting the price of the accessories produced.

The interviewees mentioned some challenges encountered while working with a jute sack. Firstly, the edges of the jute sacks fray easily if not properly secured. Secondly, edges that are, folded become bulky distorting the design and the sewing of such edges is very difficult. Thirdly, as one works with the sack, some of the hair on the surface comes off. Fourthly, the sacks are limited to one kind of colour thus these sacks are combined with other materials to

enhance the product appearance and add more value. According to the interviewees, these challenges are gradually killing their interest in using the jute sack for their production and have reduced the demand since the outcome does not fully satisfy the customers. All the interviewees affirmed that jute sacks are suitable materials for the production of bags because jute possesses some of the characteristics similar to materials used for the production of bags and with the enhancement and improvements to some of the jute sack limitations, more enhanced bags could be produced.

#### **4.2.4 Interview Outcome of Fashion Accessory Users**

The researcher also interviewed twenty-(20) fashion accessory users and about twelve (12) of the interviewees said they have used accessories produced from jute before and the rest said no. The consumers mentioned items produced from jute such as bags, hats, sandals and shoes. The researcher further asked if the accessory used were produced from the jute sack or the fine textured jute, eight (8) of the respondents said theirs were produced from the fine textured jute and four said theirs were produced from the jute sack. Some said their accessories were, integrated with other materials like fabric and leather. The researcher further asked some challenges encountered in the usage of the jute sack accessories. According to them, products made from the jute easily become dirty, especially when used for footwear. In addition, it takes quite a long time to dry after washed. The hair on the surface of the jute sack fabric causes discomfort when in contact with the skin. The consumers express great interest in having to see and use bags from jute sacks enhanced and improved upon in terms of colours, the control of the hairiness and fray.

#### **4.3. Types of Jute Sacks in Ghana.**

As stated in chapter one, the researcher's first objective was to identify and analyse the characteristics and types of jute sacks appropriate for fashion accessories. The researcher

identified various forms of jute sacks in the market in the Ashanti region, which were categorised under these characteristics; origin, size or dimension, colour, weave type, compactness and uses.

#### **4.3.1 Origin**

Jute sacks available in the market were imported into the country mainly from Bangladesh and Cote d'Ivoire. There are two major types from Bangladesh (the branded and the unbranded). The branded ones are imported into the country by the Ghana Cocoa Board to meet their specification and the name of the Company is printed boldly on them. The unbranded ones do not have any inscription and individual businessmen who deal in jute sacks import them. The types from Cote d'Ivoire have the inscription (PRODUCE OF COTE D'IVOIRE) boldly printed on them and are also brought into the country by individual businessmen

##### **4.3.1.1 Jute Sack from Bangladesh (Ghana Cocoa Board branded)**

The Ghana Cocoa Board imports these sacks and they come with the inscription (GHANA COCOA BOARD \_PRODUCE OF GHANA) boldly printed in black colour on one side of the sack. There is also a serial number printed at the bottom of each sack.. This number identifies each sack of cocoa so that in case the content (cocoa) develops any problem, the region, district and the exact licenced buying company can be, traced easily. These sacks are, based on the Ghana Cocoa Board standard in terms of size, which is 105 by 64 centimetres, but the colour and the weave pattern are similar to other sizes produced from the factory. On the sack also are three violet vertical lines running from the top to the bottom of the sack with the middle line being slightly wider than the other opposite lines as shown in plate 4.1.



**Plate 4.1: Jute sack type from Bangladesh (branded)**

(Source: Author's fieldwork)

#### **4.3.1.2. Jute Sacks from Bangladesh (Unbranded)**

This type of jute sack is also from Bangladesh and has the same qualities like the branded ones. The only difference is that this type is imported into the country by individual businesspersons who deal in jute sacks. They are usually new and have no inscription on them. Some people prefer them to the used ones because they are free from dirt and stains.

Plate 4.2 shows the unbranded jute sack imported from Bangladesh.



**Plate 4.2: Jute sack type from Bangladesh (unbranded)**

(Source: Author's fieldwork)

#### 4.3.1.3 Jute Sack from Cote d'Ivoire

Sacks from Cote d'Ivoire also have the inscription (PRODUCE OF COTE D'IVOIRE) printed in black colour on the front side of the sack. The serial number is, printed on the right hand side of the sack as shown in plate 4.3.



**Plate 4.3: Jute sack type from Cote d'Ivoire**

(Source: Author's fieldwork)

#### 4.3.2 Size

The size refers to the dimension of the jute sack in terms of length and width. The sacks from the Cote d'Ivoire are bigger in size than those from Bangladesh. It measures about 107 by 73 centimetres. The sacks from the Bangladesh comes in various sizes however, the size that is usually imported by the Ghana Cocoa Board and readily available on the Ghanaian market measures about 105 by 64 centimetres with a capacity of 65kg. This type is smaller than the sacks from Cote d'Ivoire. The Bangladesh jute sack size of 105 by 64 centimetres is the standardized size required by the Ghana Cocoa Board for the bagging of cocoa beans. Each type of jute sack maintains the normal manufacturing size; however, there is slight variation in measurements with old jute sacks increasing with about five (5) centimetres in length and width

as old jute sacks turn to expand due to several usage. Plate 4.4 (a) and (b) show the sizes of each type.



**Plate 4.4 (a): Jute sack from Bangladesh**

**Plate 4.4 (b): Jute sack from Cote d'Ivoire**

(Source: Author's fieldwork)

### 4.3.3 Colour

There is variation in the colour of jute sacks on the market. The brand new jute sacks from Bangladesh (branded and unbranded) are brown. However, the colour becomes dirty brown when the sacks are, exposed to dirt and stains from the environment. Jute sack from Cote d'Ivoire are peanut

. The variation in colour is shown in the plate 4.5 (a), (b), and (c) below.



**Plate 4.5 (a) Bangladesh  
(New)**



**Plate 4.5 (b) Bangladesh  
(Used)**



**Plate 4.5 (c) Jute sack  
from Cote d'Ivoire**

**Branded and Unbranded  
(Peanut)**

**(Brown)**

**Branded and Unbranded**

**(Dirty Brown)**

(Source: Author's fieldwork)

#### 4.3.4 Weave Structure

Jute sacks from Bangladesh have the twill weave structure where the patterns are mostly of a diagonal parallel ribs. This structure has diagonal lines that run along the width of the fabric when viewed closely. On the other hand, jute sacks from Cote d'Ivoire have the plain weave structure, they have few yarn interlacing per an area with the warp and the weft yarns seen more clearly. The plain weave structure does not ravel easily but tend to wrinkle and has less absorbency than the twill weave pattern. The warp and weft yarns maintain a high level of durability. Each weave type of the sack maintain a strong and healthy condition, especially when they are new or slightly used. However, there are slight changes with the old ones. The old jute sacks used severally to convey products cause the weave structure to open up unlike

the new and slightly used ones. Plate 4.6 (a) and (b) depict the weave structure of each type of jute sack.



**Plate 4.6 (a) Plain Weave**



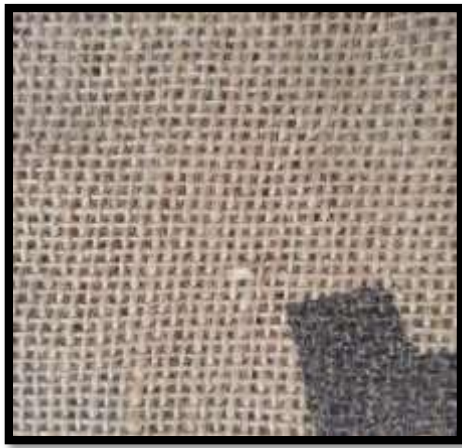
**Plate 4.6 (b) Twill weaves**

(Source: Author's fieldwork)

#### 4.3.5 Compactness

Sacks from Bangladesh have the twill weave structure which is of a very good compact. Both new and slightly used sacks from Bangladesh exhibit compactness due to the fact that it has not been exposed too much usage. Several usage of the sack affects the compactness level of the sack. Old jute sacks exhibit a less compact structure because of its use of several products activities. Sacks from Ivory Coast have the plain weave structure. They present a relatively less compact weave structure since the warp and weft yarns space out for more airing.

However, the fact that the weave structure is less compact does not affect its durability. Below are the variations in terms of compactness of each type of jute sack as shown in plate 4.7 (a) and (b).



**Plate 4.7 (a): Loose weave**



**Plate 4.7 (b): Compact weave**

(Source: Author's fieldwork)

#### **4.3.6 Uses**

As it is well established by Adkins (2015) that jute sack is eco-friendly, its usage for the bagging of food items does not pose health risk to end users. Jute sacks from Bangladesh are mostly, used for the bagging of cocoa seeds, cashew nuts, maize, beans and other leguminous products. They are, also used for checking erosion, bagging of charcoal and other domestic purposes. Jute sacks from Ivory Coast have loose weave structure, making it very suitable for bagging of perishable goods such as onion because it has larger holes that allows air to prevent vegetables especially onions from rotting.

Market women also use each of the jute sack types for other purposes like displaying of foodstuffs in the market, covering foodstuffs and other items after the day's activity. They are also used for covering the entrance of the traditional ovens for baking bread, covering of traditional pots and drums, as support for displaying foodstuffs at the market, for bagging foodstuff to mention a few as shown in plate 4.8 (a), (b) and (c)



**Plate 4.8 (a) covering a drum during the cooking of kenkey**



**Plate 4.8 (b) support for displaying foodstuff**



**Plate 4.8 (c) onions bagged in jute sack**

(Source: author's fieldwork)

#### **4.4 Characteristics of Jute Sacks as a Material for Fashion Accessories**

Fashion accessory is a decorative item that complements one's outfit or looks and used to complete an outfit. Such items include belts, shoes, ties, hats, scarves, handbag, sunglasses, pins, leggings, tights, stockings and to mention a few. Fashion accessories are mainly divided into two categories; worn accessories such as watches, shoes, gloves, hats, jewellery, belts and to name a few. The second category is the carried accessories including handbags, purses, umbrella, handkerchiefs, pocket squares and luggage. Fashion accessories come in varied materials, styles, forms and uses. Materials used for accessories differ from each other even the same accessory items might not be of the same material texture, colour, and type based on the specified design concept and the end use. Within this study, the focus of the project is to produce five bags for various purposes. These are briefcase, travelling bag, shopping back, dressing bag and backpack using the enhanced jute sacks. Materials are accessories used in making an artefact and they form part of the product. Materials play a very vital role in bag making. In fact, that is the first thing one should consider when deciding on producing a bag. The material used in this regard helps to know the features and the purpose the bag is going to serve. Materials used in making bags mostly are leather, fabric, vinyl, rubber, and

polypropylene. The qualities of these materials differ from each other which adversely influence the bag usage. Generally, materials used in making bags exhibit qualities such as good tensile strength, pliability, resistance to tear and wear, resistance to rust and corrosion, poor conductor of electricity, good ventilation property and environmentally friendly.

Jute sack has all these characteristics, making it an appropriate material for the production of bags. However, it has certain limitations like roughness to the skin and limitation in colour, which this study seeks to improve upon.

#### **4.5 The Colouring of Selected Jute Sacks to Enhance the Aesthetic Appeal and Usage**

Exploring the various colouring techniques on the identified jute sacks to enhance its aesthetic appeal and usage was the second objective. According to the fashion accessory producers interviewed, jute sacks used solely for the production of accessories do not really bring out the aesthetic appeal of a product. Therefore, they usually integrate jute with other colourful materials to enhance the look of the product. Five stages were outlined by the researcher in achieving the set objective. The first stage outlined is the selection of jute sacks suitable for usage, the second stage is the preparation of jute surface, the colouration methods to be employed is the third stage, drying being the fourth stage and lastly assessment of the colouration methods used as in figure 4.1.

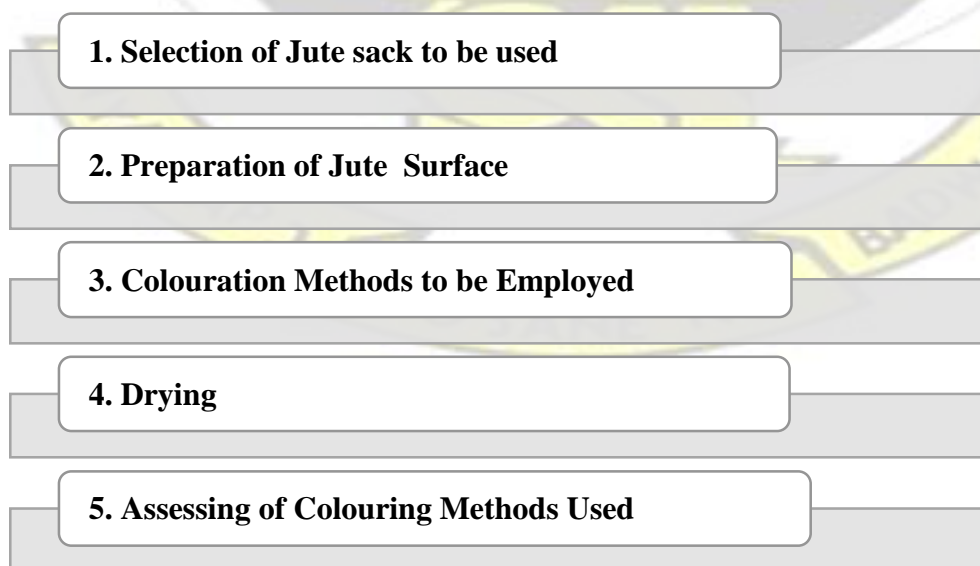


Figure 4.1: Stages outlined for jute colouring

#### 4.5.1 Activity One: Selection of Jute Sack to be Used

Jute sack is a natural material with a variety of visual texture and material compactness with difference in thickness and brightness. The researcher visited individuals with recognized expertise in jute material where material observation and analysis was paramount towards establishing the suitable jute sack for the study. Several jute sack types were, observed, namely; the branded and unbranded jute sacks from Bangladesh (new, slightly used and old) and sacks from Cote d'Ivoire. For better absorption of colour, the researcher used jute sack with compact weave structure and has less stains and dirt as this type of jute requires minimum preparation before colouring. Plate 4.9 shows the selected jute sack.



**Plate 4.9: Jute sack with compact weave structure (unbranded).**

(Source: Author's fieldwork)

#### 4.5.2 Activity Two: Preparation of Jute Surface

This activity dealt mainly with secondary treatments rendered on the sample test jutes prior to their colouration. The test jute sacks samples were cut into a dimension of 34 by 24 centimetres pieces. Some of the sample jute pieces went through surface sizing and singeing as a pre-treatment given before colouring to prevent hairiness whiles other surfaces of the jute sample were untouched. The first process, which was singeing dealt with slight burning or scorching of hairs protruding out of the jute surface using flame from a lit candle. The flame was directed towards the loose fibres on the surface of the jute samples to burn off the hairs to ensure a

smooth surface for better dyeing or colouring characteristics, clarity during printing and reflection as shown in plates 4.10.



**Plate 4.10: Singeing of Jute surface using light candle.**  
(Source: Field Research, 2020)

The second process, which was sizing also aimed at decreasing the hairiness on the jute thus increasing the surface smoothness of the sample piece. The researcher used Polyvinyl Acetate (PVA) as a sizing agent diluted with water to a lighter consistency for easy application on jute samples. Instead of immersing the sample jute in the solution, a brush was used to apply the solution, which evenly spread on the surface. The brushing helped to direct the projected hairs to lie in one direction giving a smooth surface. The sized sample jute was, allowed to set and dry. Plate 4.11 shows the application of sizing agent (diluted PVA) on the surface of the jute.



**Plate 4.11: Sizing of jute using diluted PVA glue**  
(Source: Field Research, 2020)

For the purposes of achieving varied results towards analysing and selecting of the best, the third sample jute exposed was not to any surface treatment thus maintaining its natural texture as shown in plate 4.12.



**Plate 4.12: Raw jute cut to required measurement prior to colouring**  
(Source: Field Research, 2020)

#### **4.5.3 Activity Three: Colouration Methods to be employed**

Basically, six colouring techniques were identified (screen printing using acrylic, screen printing using printing paste, auto base spraying, tie and dye with the use of vat dye, batik using paraffin wax and *konkonte resist*). These colouring techniques were explored on nineteen treated jute sample pieces.

##### **4.5.3.1 Screen Printing Method of Colouration**

Screen-printing is a technique of printing images by forcing printing ink or paste with the help of squeegee through a prepared screen block to register a print on a substrate. The sized, singed and the untreated jute sample was screen-printed.

The researcher employed the following materials and tools: developed screen, acrylic paste, masking tape, clean water for washing of screen after printing and squeegee. The development screen was examined to block areas of pinholes impressing using masking tape and lacquer. The final stage of the printing is the pouring of paste and printing. This requires a consistent energy exertion on the squeegee to help in printing neatly and even distribution of the printing paste on the jute sack as shown in plate 4.13 below.



**Plate 4.13: Screen printing on the jute using acrylic and printing paste.**

(Source: Field Research, 2020)

#### **4.5.3.2 Auto Base Spraying Method of Colouration**

This process involved the use of chemically combined colour that can adhere on to jute surface using a designed lace to serve as a design template for this process. The sampled jute was laid on a flat board to serve as support for easy spraying and the lace laid over the jute and pinned to secure and prevent shifting during the spraying process. The spraying was done on sized jute, dyed jute surface and raw jute surface for easy analysis of results. Plate 4.14 (a) and (b) depict spraying using the auto based spray on the sized and dyed jute respectively.



**Plate 4.14 (a): Auto based paint**

**Plate 4.14 (b): Auto based paint**

**being sprayed on dyed jute being sprayed on the sized jute**

(Source: Field Research, 2020)

#### **4.5.3.3 Dyeing Method of Colouration**

The dyeing techniques employed in enhancing the surface appearance of jute samples were the tie-dye, complete or full dyeing and batik dyeing. Dyeing as explained by Farlex (2013) is simply the application or the adding of colour to any material (jute) to enhance its aesthetic appeal through a controlled or uncontrolled method.

#### 4.5.3.3.1 Tie-dye Method of Colouration

This method is defined as the process that consists of folding, twisting, pleating, and binding with strings or rope prior to the application of dye (Erin, 2013). The researcher employed the controlled method as the main technique for which dyeing was based upon. The colouration process involves the preparation of the jute surface and folding into required designs for dyeing. Tying of the jute samples to create a resist that prevent the applied dye from colouring the jute area tied and creating a desired design when immersed in or stained with vat dye. Plate 4.15 (a) and (b) show samples of jute folded and tied prior to dyeing.



**4.15 (a): Sample jute  
folded and tied evenly prior to**



**Plate 4.15 (b): Sample jute tied  
randomly prior to dyeing**

(Source: Field Research, 2020)

After tying of the jute samples into the required designs, the researcher then selected appropriate colours for dyeing of the samples and prepared a dye bath requisite for rendering colour on the jute sack. The ratio employed for this specimen experimentation was based on

the component mixture of vat dye, sodium hydroxide and caustic soda. Plastic gloves were worn to prevent the skin having direct contact with the chemicals. Plate 4.16 (a) and (b) show the adding of caustic soda and hydroxide to the dye bath.



**Plate 4.16 (a): Adding of caustic**      **Plate 4.16 (b): Adding of the soda to the dye**  
**solution.**                      **hydro oxide to the dye solution**

(Source: Field Research, 2020)

The jute specimens were immersed into the prepared dye bath and left for a maximum of ten (10) minutes for effective dyeing as shown in plate 4.17



**Plate 4.17: Jute sack samples immersed in a dye bath**

(Source: Field Research, 2020)

The dyed jutes were removed then rinsed in clean water to remove excess dyes, and exposed to air under normal room temperature to dry as shown in plate 4.18.



**Plate 4.18: Tie and dye jute**

(Source: Field Research, 2020)

#### 4.5.3.3.2 Full or Complete Dyeing

This type of dyeing by the researcher is the total immersion of jute sack sample into the dye bath in order to enhance the surface appearance of the jute sack. The dye was prepared into ratio of 10:7:6 where 10 represents 10oz of sodium hydrosulphite, 7oz for caustic soda and 6oz for dye against 3,200 ml of water to ensure even dye concentration and distribution of dye on a jute sack. Plate 4.19 (a) and (b) show the preparation of the dye bath and the immersion of jute sample respectively.



**Plate 4.19 (a): Preparation of the dye bath**



**Plate 4.19 (b): Immersion of jute sample into dye bath.**

(Source: Field Research, 2020)

#### 4.5.3.3.3 Batik Method of Colouration

Batik dyeing by Holdmann (2015) basically is explained as a method of applying dye to the surface through a resist process that consist of the use of wax or starch to prevent dye from penetrating thereby creating designs on the surface. The researcher used bee wax and *konkote* mixed with caustic soda as resist agents. In the usage of the bee wax, the following procedures were, used.

Firstly, the bee wax was, melted at a degree of about 220 – 230°F. The heat was regulated to sustain the temperature throughout the application stage so that the molten wax is neither too hot nor cold to prevent the spread out of the hot wax on the jute destroying the pattern and prevent the cold wax siting on the jute without penetrating and creating a partial resist respectively. The plate below shows melted wax prior to its application to the jute sample.



**Plate 4.20: Wax being melted prior to its application to the jute sample**

(Source: Field Research, 2020)

The jute sample was spread on a working table for waxing using stamps. The stamp dipped in the molten wax was pressed to the fabric to leave a print of the design that is on the stamp. The other side of the jute was checked to ensure that the wax has penetrated it. The motif was, arranged in a full drop repeat formation as shown in plate 4.21.



**Plate 4.21: Motif stamped on the surface of jute.**

(Source: Field Research, 2020)

The dye bath was then prepared in a ratio of 10:7:6; where 10 represents 10oz of sodium hydrosulphite, 7oz for caustic soda and 6oz for dye against 3,200 ml of water. The jute in the dye liquor in the dye bath was then, submerged for duration of five to ten minutes as depicted in plate 4.22.



**Plate 4.22: Submerging of jute sample in dye bath**

(Source: Field Research, 2020)

The dyed jute was, removed and allowed to oxidise before dewaxing. In plate 4.23 is the dewaxed batik jute sample.



**Plate 4.23: Batik technique executed on jute**

(Source: Field Research, 2020)

#### 4.5.3.3.4 *Konkonte* Printing Method of Colouration

This method is a type of resist process that involves the blocking off part of the designed jute with a viscous paste consisting of cassava flour (*konkonte* powder) and caustic powder. The cassava flour was cooked into a soft, smooth, pliable paste which was mixed with caustic soda and left to cool. The stamp was used to transfer the design on the jute by stamping as in plate 4.24 below.



**Plate 4.24: Stamping the motif on jute sample using the *konkonte* paste**

(Source: Field Research, 2020)

The dye bath was prepared in the same ratio similar to the batik jute making in page 61. Plate 4.25 (a) and (b) show the preparation of the dye bath and the immersion of stamped jute sample into the dye bath respectively.



**Plate 4.25 (a): Preparation of the dye bath**



**Plate 4.25 (b): Immersion of jute sample into dye bath.**

(Source: Field Research, 2020)

Dyed jute was allowed to oxidize in a cool dry place. The jute was allowed to dry and then washed in water to remove the *konkonte* paste and excess dyes as shown in plate 4.26 below.





**Plate: 4.26: *konkonte* resist technique executed on jute.**

(Source: Field Research, 2020)

#### **4.5.4 Activity five: Assessing Colouring Methods Used**

Table 4.1 presents detailed analysis of different colouring types on the jute sack samples.

**Table 4.1: The Analysed Results of the Various Colouration Methods used on the Jute**

<b>Finished Samples with Various Colouring Methods</b>	<b>Remarks</b>
<p><b>1. Tie and Dye method</b></p> 	<p>Jute sample of size 34 by 24 centimetres each were, used for this purpose. Raffia was, used to tie small stones randomly in the middle as resist for the sample that has rectangular and square images. The other sample was, folded lengthwise and raffia was, used to tie the folded jute leaving an interval of about 2.5 inches between each knot. The tied samples were then soaked in a violet dye bath for about 10 minutes.</p>
	<p>Raffia was, removed and dyed samples rinsed were dried under shade. This method as explored exhibited great exposure (richness) in colour, as the pores of the jute sack are very porous to accommodate enough dye requisite for colouring. The resisted areas also appeared very good.</p>

## 2. Screen Printing with Printing Paste



Jute size of the same measurement of size 34 by 24 centimetres was, used for this method. The sample was, first dyed in a vat dye bath and allowed to dry thoroughly. The sample was then, ironed to get a smooth surface for easy registration of the printing paste. Printing was, done using a designed screen and printing paste. Although the colours were not so bright, there was a clear representation of the colours and motifs making the outcome rich.

## 3. Auto Based Spray Method on Glued

Surface



The sample was sized using a mixture of PVA (230ml) and water of (350ml). A brush was, used to apply the solution on the surface of the jute. The jute sample was, spread on a flat board with a designed lace material spread over the surface. Auto base paint and thinner were, mixed into the right consistency and used to spray the entire surface. This method displays a unique characteristic as the paint applied rests well in the pores of the jute. The negative and the positive areas appeared

very good. Its further immersion in water for a period of 10 minutes also confirmed its durability and the affinity of the paint

<p><b>4. Auto based Spray Method on Dyed Jute</b></p> 	<p>The entire sample of size 34 by 24 centimetres dyed was in a vat dye bath and allowed to dry very well for about three days. Designed lace material was, spread on the surface and the auto base paint was, sprayed on the entire surface. The drying of the paint was very fast and the paint rested very well on the surface. The edges of the motifs were sharp. The outcome of this technique displays a good surface result.</p>
<p><b>5. Screen Printing Method with Acrylic Paint</b></p> 	<p>This sample was, not given any surface treatment. Printing was, done using a developed screen and an acrylic paint. The edges of the designs appeared well. Due to the quick drying nature of the acrylic, the paint just rested on the surface without entering the pores of the jute. Although the design appeared very well, the entire outcome shows faint and weak print projections.</p>
<p><b>6. Screen Printing Method with Acrylic Paint on Sized Jute</b></p>	<p>This sample was, given a surface treatment using a mixture of PVA (230ml) and water of (350ml). Printing was, done</p>

	<p>using a developed screen and acrylic paint. The motifs on the screen were very small and close to one another. A lot of bleeding was, experienced and printing did not appear well on some portions of the surface. Acrylic printing on a jute sack does not give good result because the paint does not rest well in the pores of the jute sack. In addition, the paint breaks off when dry.</p>
<p><b>7. <i>Kokonte</i> Resist Technique on Singed Surface</b></p> 	<p>The surface of this sample was, singed to reduce the hair on the surface. A mixture of cooked <i>kokonte</i> and caustic soda was, used as the resist agent. After the resist agent had dried very well. The sample was, dyed in a vat dye bath. Dewaxing was, done and the sample was, allowed to dry. The outcome of the <i>kokonte</i> technique was unique. This method takes more time in executing because each stage of the process demands a good understanding of the processes.</p>
<p><b>8. Batik Method using Paraffin Wax</b></p> 	<p>This sample went through the same process as the <i>kokonte</i> method. The difference is that paraffin wax was, used as resist agent. The sample became pale after dewaxing in hot water. Moreover, there were a lot of patchy effect and some parts of the motif did not register well on the jute.</p>
<p><b>9. Diluted Acrylic Paste Sprayed on Raw Jute</b></p>	<p>The sample was, not given any surface</p>



treatment. Acrylic paint and water were, diluted in the ratio 3:1 where the 3 represents 300 ml of acrylic paint and 100 ml of water. The quantity to be, used was, quite plenty, as it will be, on other samples also. The mixture was, used to spray the jute and the lace was, used as the resist medium for the spraying. With this technique applied on the jute surface, it exposes them to easy fading and bleeding when it is, exposed to water. Secondly, because of the consistency of the paint the colour does not appear rich.

**10. Diluted Acrylic Sprayed on Dyed Jute**



The sample was, dyed in a vat dye bath and allowed to dry prior to spraying. Acrylic paint and water were, mixed in the ratio 3:1 where the 3 represents 300 ml of acrylic paint and 1 is 100 ml of water to aid in easy permeability. The sample was, placed on a flat board; a lace material was spread over it and spraying done. The dilution of the paint affected the richness and clarity of the design. In addition, the sprayed jute is prone to bleeding when exposed to water as the dilution affected the binder content in the acrylic paint.

**11. Diluted Printing Paste Printed on Boiled Jute**

Jute sample was soaked in boiling water for ten minutes and allowed to dry for about three days. Printing paste and water were, mixed in the ratio 3:1 where the 3 represents 300 ml of printing paste and 100 ml of water. The quantity was quite plenty, to be, used on other samples also. Printing

	<p>was, done using the developed screen and the diluted printing paste. Due to the consistency of the printing paste, a lot of bleeding occurred, thereby making the outcome to be poor</p>
<p><b>12. Acrylic Paste Printed on Dyed Jute</b></p> 	<p>Sample was, dyed in the vat dye bath and allowed to dry thoroughly. The dried sample was, placed on a flat board. Developed screen was, placed over the jute and printing was, done. The printing of Acrylic paint on dyed jute does not bring a satisfactory result because the paint does not enter the pores of the jute as in the case of printing paste. The acrylic paint when dried on the surface of the jute sack eventually breaks off in time.</p>
<p><b>13. Diluted Printing Paste Sprayed on Dyed Jute</b></p> 	<p>This sample was, dyed and allowed to dry fully. Printing paste and water were, mixed in the ratio 3:1 where the 3 represents 300 ml of printing paste and 100 ml of water. The sample was, placed on a flat board and designed lace was, spread on the jute prior to spraying. This method did not bring out the richness of the colour due to the dilution of the printing paste. Moreover, the edges of the design were not sharp, thereby affecting the clarity of the design.</p>
<p><b>14. Diluted Printing Paste Printed on Boiled Jute</b></p>	<p>Jute sack size of 34 by 24 centimetres was soaked in boiling water for ten minutes and</p>



allowed to dry thoroughly. Printing paste and water were, mixed in the ratio 3:1 where the 3 represents 300 ml of printing paste and 100 ml of water. Printing was, done using a developed screen and the diluted printing paste. Although the edges of the motifs were not sharp, the motifs registered clearly on the jute. The pores in the jute were, more opened after the boiling process. This could have given good result, but the diluted paste made the work to appear dull.

**15. Printing Paste Printed on Raw Jute**




This sample was, not given any surface treatment. Printing was, done using a developed screen and printing paste. The raw jute exhibited more resistance with respect to accommodating the printing paste. The paste was not consistent on the surface of the jute after printing. This could be because of the presence of impurities and hair on the surface of the jute.

**16. Printing Paste Sprayed on Raw Padded Jute**



This sample was, padded using a light piece of cotton to ensure extra smoothness on the surface of the jute sack. Printing paste and water were, mixed in the ratio 3:1 where the 3 represents 300 ml of printing paste and 100 ml of water. The mixture was then, used to spray the entire surface of the lace. This method explored on jute exhibited a relative level of consistency in the paint application. However, it looks a bit pale and some portions of the motifs did not appear very

	<p>well. Hence, not the best to be used for artefact production.</p>
<p><b>17. Diluted Printing Paste Printed on Dyed Jute</b></p> 	<p>The respective size was cut and dyed using the vat dye. Printing paste and water were, mixed in the ratio 3:1 where the 3 represents 300 ml of printing paste and 100 ml of water. With the help of a developed screen, printing was, done. This method as shown in the picture exhibits fades on some parts of the print creating a patchy effect on the dyed jute sack. In addition, because the printing paste was, diluted there was some level of paint bleeding exhibited on the surface of the dyed jute sack.</p>
<p><b>18. Sprayed Design on Auto Base sprayed background</b></p> 	<p>Auto base paint was, used to spray the entire surface of the sample as the background colour. The sample was, placed on a flat board and designed lace was, spread over it, another spraying was, done to get the design on the jute. This method shows a high level of durability and creativity. The negative and the positive areas appeared very well, creating a unique design.</p>

#### **19. Screen Printing with Printing Paste on Sized Jute Sack.**



The sample was sized using a mixture of PVA (230ml) and water of (350ml). The sized jute was, allowed to dry thoroughly and printing was, done using the printing paste and a developed screen.

This method exhibits strong and firm projections of print patterns.

#### **4.6 Final Execution of Selected Colouration Techniques**

Based on the analyses, the following colouration methods; printing, using printing paste, dyeing using the vat dye and spraying using the auto base spray were selected and transferred onto large size jute fabrics for the production of the fashionable accessories. Six jute sacks of size 210 by 64 centimetres each were used which went through these three stages; surface preparation, colouration and finishing.

##### **4.6.1 Surface Preparation**

Three sacks with size 210 by 64 centimeters each were sized using a mixture of PVA (550ml) and water (760ml) to render the surface smooth and decrease hairiness for a good and a sharp print of the design motif. This surface preparation however, was only suitable for some specific colouring methods namely; auto based spraying and screen-printing method.

Plate 4.27 shows the application of the diluted PVA on the surface of the jute.



**Plate 4.27: Application of diluted PVA on the jute.**

(Source: Field Research, 2020)

#### 4.6.2 Tie and Dye Method

Execution of this method made use of vat dyes, caustic soda and sodium hydrosulphite. The jute sack was first tied using rope and stones as a means of preventing certain areas of the jute sack from dye absorption resulting in a pattern or design creation on the jute. The vat dye bath was prepared for the dyeing of jute for a period of five to seven minutes. Plates 4.28 (a) and (b) show jute sacks folded and tied evenly and randomly respectively prior to dyeing.



**Plate 4.28: (a) Jute folded and tied evenly prior to dyeing**



**Plate 4.28: (b) Jute tied randomly prior to dyeing**

(Source: Field Research, 2020)

The dye bath was prepared in a ratio of 10:7:6, where sodium hydrosulphite was 10oz, caustic soda was 7oz and 6oz of dye with 4 cups of 800ml warm water. This process was, repeated for the rest of the colours namely purple and brown as depicted in plates 4.9 (a), (b) and (c) respectively.



**Plate 4.29 (a): Pouring of dye**



**Plate 4.29 (a): Pouring of caustic soda**



**Plate 4.29 (a): Pouring of hydroxide**

(Source: Field Research, 2020)

The plate below shows jute being soaked in the dye bath.



**Plate 4.30: Jute being soaked in dye bath**

(Source: Field Research, 2020)

The tie-dye jute was, removed from the bath for oxidation, washed to remove excess dyes and dry under a shade as in plate 4.31.



### Plate 4.31: Dyed jute dried under shade

(Source: Field Research, 2020)

#### 4.6.3 Screen Printing with Printing Paste

The sized jute was used as a substrate for the screen-printing. The sized jute was spread on a table and the ends were stapled firmly on the table. Plate 4.32 shows the prepared screen for printing.



**Plate 4.32: Prepared screen for printing on the jute**

(Source: Field Research, 2020)

The prepared screen was placed on the jute for printing. The purple printing paste was poured into the reservoir on one end of the screen while holding the screen firmly in position. The paste was drawn across the screen with the squeegee held at an angle of 45 degrees under even pressure. Plate 4.33 (a) and (b) depict the placing of the prepared screen on the jute and printing on the jute respectively.



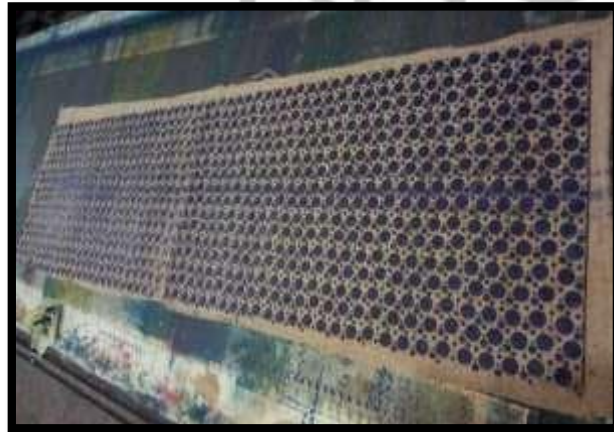
**Plate 4.33 (a): Developed screen  
on jute.**

**Plate 4.33 (b) Printing on the placed**

**jute.**

(Source: Field Research, 2020)

The printed jute was then allowed to dry completely as shown in plate 4.34 below



**Plate 4.34: Printed jute**

(Source: Field Research, 2020)

#### **4.6.4 Screen Printing Technique on Dyed Jute Surface**

In this screen-printing, the jute was dyed first before the screen printing process as shown in plate 4.35 below.



**Plate 4.35: Printing on dyed jute**

(Source: Field Research, 2020)

#### **4.6.5 Auto Based Spray Method on a Sized Jute Surface**

The surface of the sized jute was sprayed using the auto base colouring method. The colours were mixed with thinner to a lighter viscous consistency for easy permeation of the colour into the jute. The prepared jute was spread on a flat board with a lace laid over the surface. The lace served as the resist material where compact areas prevented colour penetration and opened areas permitted colour penetration into the jute. The lace was then firmly secured at the edges of the jute to prevent shifting during spraying as shown in plate 4.36 below.



**Plate 4.36: Secured lace on jute surface**

(Source: Field Research, 2020)

Spraying was done on the surface of the secured lace on jute as shown in plate 4.37 below



**Plate 4.37: Sprayed jute surface with auto base paint.**

(Source: Field Research, 2020)

The lace was carefully removed off the jute to reveal the design and the jute dried to ensure the permanent fixing of the colour on the surface as depicted in plate 4.38 below.



**Plate 4.38: Final auto base paint on the sized jute**

(Source: Field Research, 2020)

**4.6.6 Auto Based Spray Method on Dyed Jute Surface**

This method followed the same working procedure for the sized jute in pages 72 to 73. The only difference is that jute was firstly dyed before spraying with auto base paint as shown in plate 4.39 below.



**Plate 4.39: Auto based paint sprayed on the dyed jute.**

(Source: Field Research, 2020)

The lace was carefully, removed off the jute to reveal the design and the jute dried to ensure the permanent fixing of the colour on the surface as depicted in plate 4.40 below.



**Plate 4.40: Finished auto base paint on dyed jute**

(Source: Field Research, 2020)

#### **4. 7. The Use of the Enhanced Jutes for Fashionable Accessories Production**

The third objective was to ascertain the effectiveness and usage of the enhanced jute by using it to produce fashionable accessories. Various categories of bags were produced ranging from

the ladies' shopping bag, brief case, back pack, dressing bag and travelling bag. The production began with technical illustration of designs of bags and general working procedure.

#### 4.7.1 Activity One: Technical Illustrations of the Designed Bags

Series of illustrations of the various categories of bags were made in both 2D (two dimensions) with dimensions indicated and the Rhino rendition as shown in figure 4.2 to figure 4.11

##### 4.7.1.1 Two-Dimensional (2-D) illustration of Bags to be produced

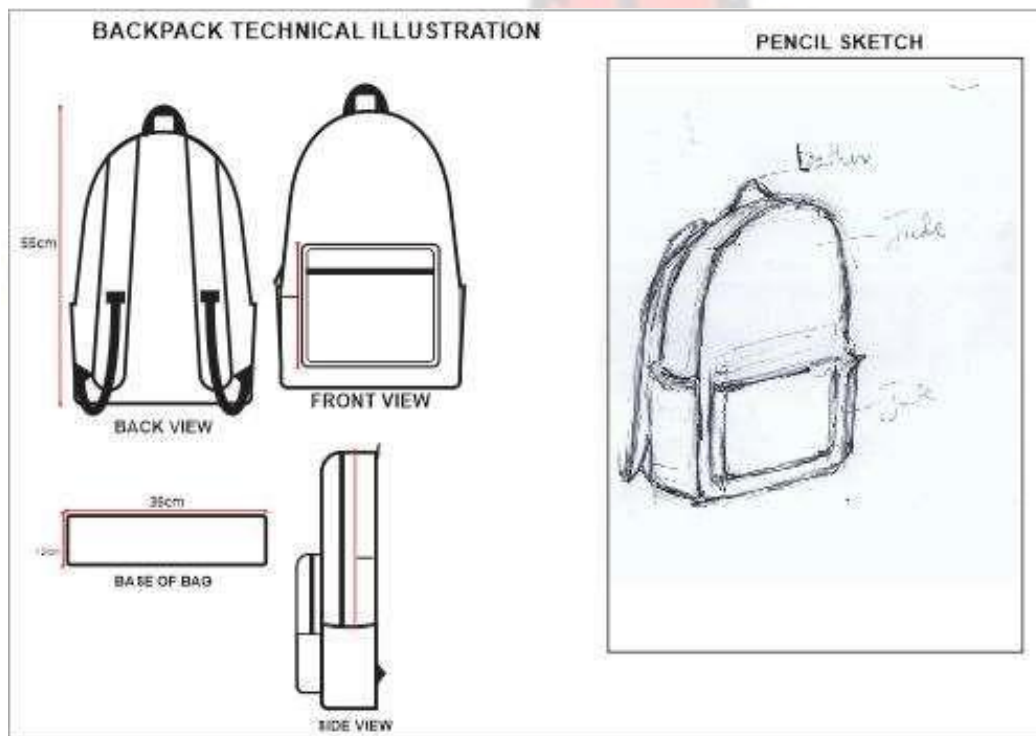
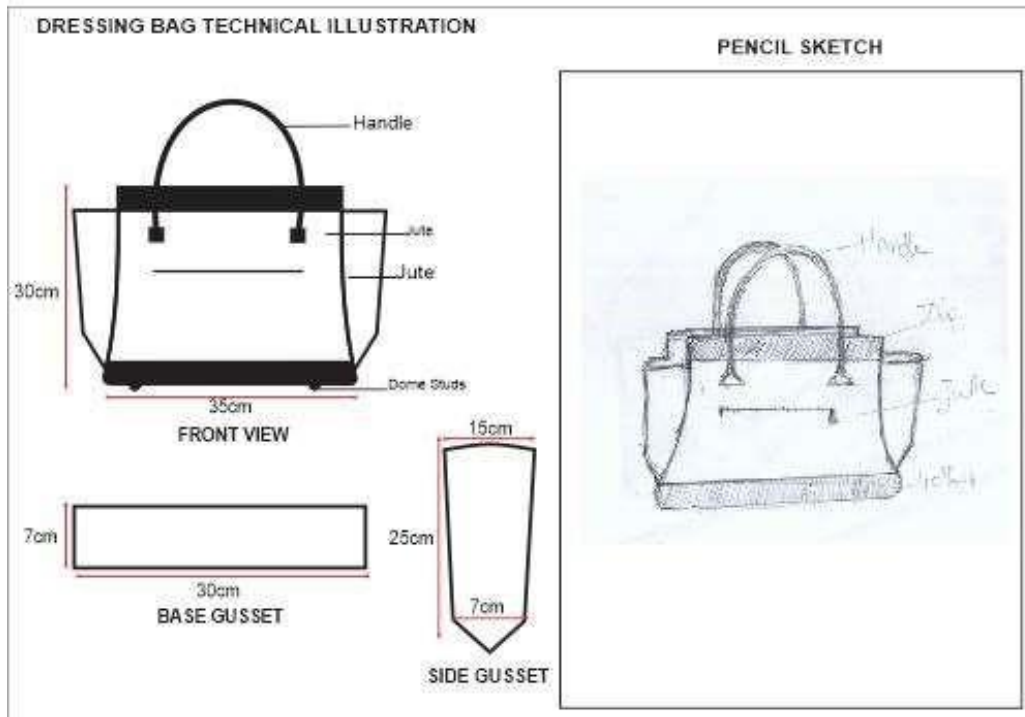
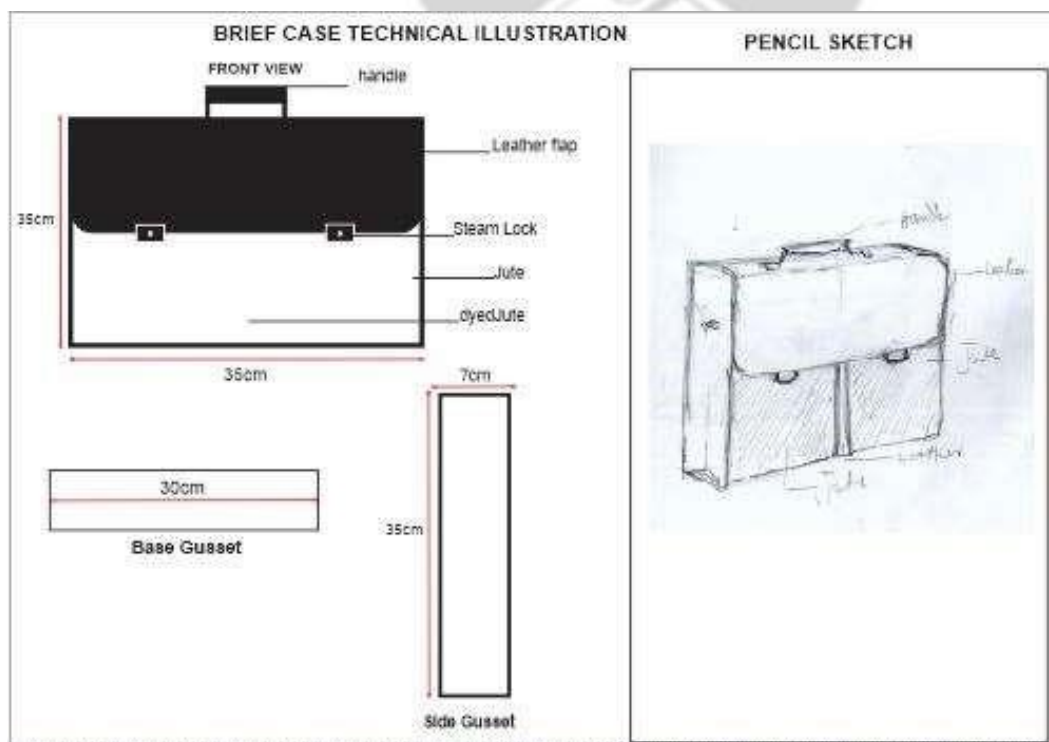


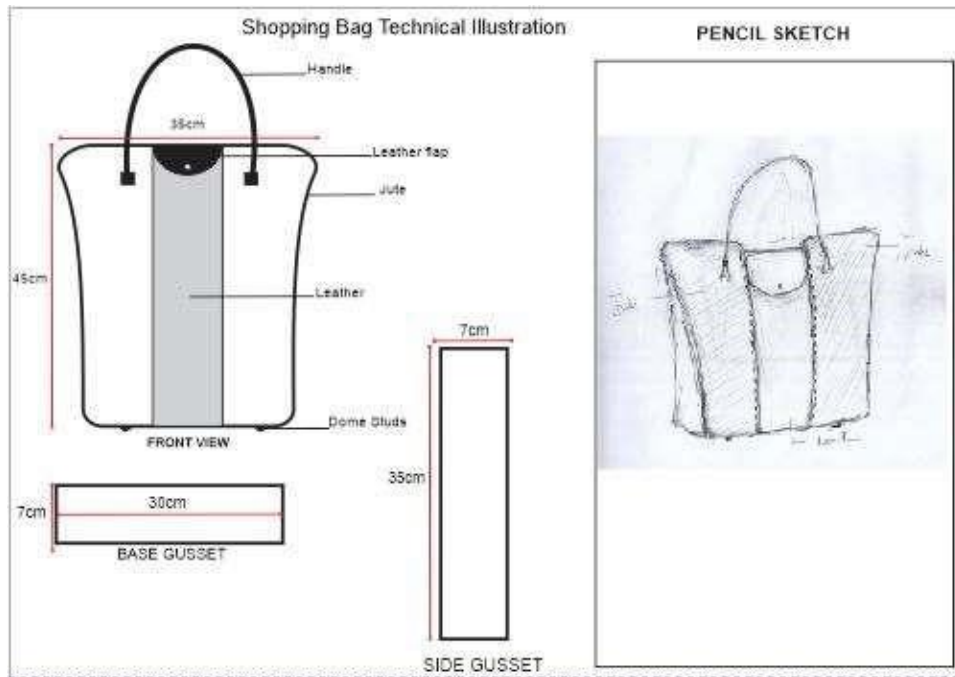
Figure 4.2: Front, back and side view of the backpack



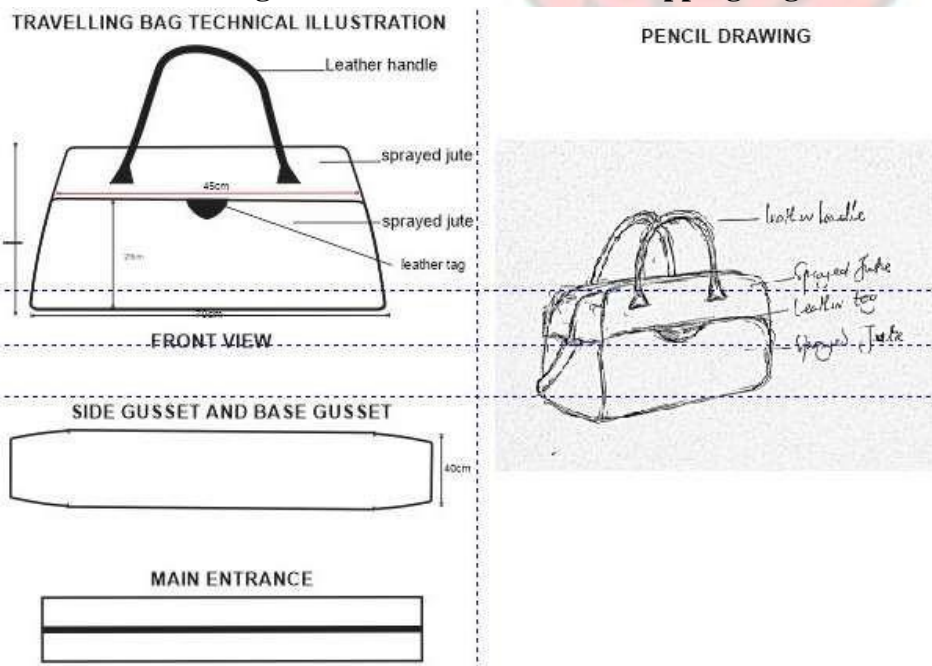
**Figure 4.3; Front view of ladies dressing bag**



**Figure 4.4: front view of the briefcase**



**Figure 4.5: front view of the shopping bag illustration.**



**Fig 4.6: front view of the travelling bag illustration**

#### 4.7.1.2 Three-Dimensional (3-D) illustration of Bags produced.

This stage of the project made use of three-dimensional (3-D) representations of the designed 2-D concepts. This reveals angles and new viewpoints associated with the designs.



**Figure 4.7: 3-D rendition of travelling bag in front and back view**



**Figure 4.8: Briefcase illustration rendered in 3-D**



**Figure 4.9: 3-D illustration of backpack showing the front and back view**



**Figure 4.10: Ladies bag illustration-exhibiting front and back view**

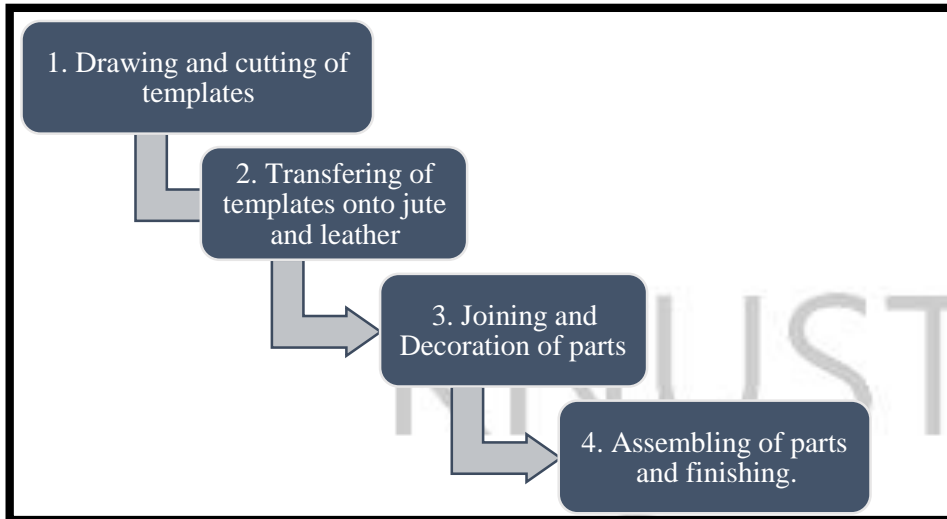


**Figure 4.11: Illustration of ladies shopping bag in 3-D rendition.**

#### **4.8.Activity two: Production of Bags**

The following materials and tools were used; enhanced jute, leatherette, shoe maker's cord, adhesives, pencil and pen, brush, ruler, cutter, needle and thread, glue, leather, punch set, scissors, pinking shears, magnetic press stud, mirror screws, metal domes and sand paper.

The production of the bags followed these five procedures as stated below.



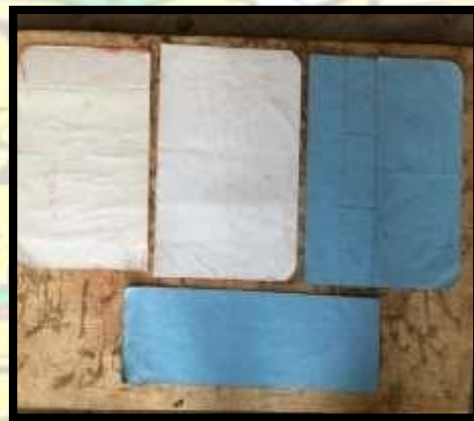
**Figure 4.12: Working procedure outlined for bag execution**

#### **4.8.1 Project A: Brief Case Production**

As outlined in the working procedure, a template of the design case was drawn and cut out with the precise measurement allocated for the specific bag sections as shown in plate 4.41 (a) and (b) below.



**Plate 4.41 (a): Marking out the various parts of the briefcase.**



**Plate 4.41 (b): Cut out templates**

(Source: Field Research, 2020)

The front and back of the bag, the flap, the inner compartment and the running gusset for the base and the side of the bag were cut-out. These parts carefully outlined were transferred onto the leather and the enhanced jute sack with the help of marking tool and then cut out. As part of ensuring that buckles fixed are well on the front of the briefcase, brown paper was, used to

line the jute with the help of glue as a form of reinforcement and preventing the jute from fraying as shown in plate 4.42.



**Plate 4.42: Glue application on jute prior to paper attachment.**

(Source: Field Research, 2020)

After the application of glue and the fixing of paper, the jute was then cut according to the template transferred on it. The edges of the pattern were then folded and hammered into flat, neat edges as plate 4.43 (a) and (b) below



**Plate 4.43 (a): Edges being glued  
prior to folding**



**Plate 4.43 (b): Folded and  
hammered edges**

(Source: Field Research, 2020)

After the preparation of the sides of the bag, the flap, handle and straps were, then created respectively. As part of assembling and decorating the bag, the researcher made use of decorative and fastening accessories such as rivets, buckles, dome studs and oval rings. Stitch

cord and glue were also, used as a means of fastening and reinforcing the designed bag. Plate 4.44 (a) and (b) show fixing of strap and fixing of rivets and oval rings.



**Plate 4.44 (a): Fixing of strap**



**Plate 4.44 (b): Fixing of oval rings and rivets**

(Source: Field Research, 2020)

The plate below shows the fixing of zip on the inner compartment of the briefcase.



**Plate 4.45: Fixing of zip on inner compartment.**

(Source: Field Research, 2020)

After the fixing of accessories and assemblage, the inner compartments and the gusset was created. The gusset for the briefcase as specified by the researcher in the design was a running gusset, which creates room for easy joining of it to the main bag. The plate below shows the fixing of the gusset.



**Plate 4.46: Fixing of gusset**

(Source: Field Research, 2020)

The other parts were assembled and joined with the aid of glue after fixing the gusset. A strip of leather was cut and used to cover the edges of the joints as a means of reinforcing and keeping the joints neat before stitching as depicted on the plate 4.47 (a) and (b) below



**Plate 4.47 (a): Joining the front side with glue prior to stitching**



**Plate 4. 47 (b): Covering the joint with a strip of leather**

(Source: Field Research, 2020)

The joints and the edges around the bag were hand stitched using stitching needle and nylon cord. The plate below shows the completed briefcase.

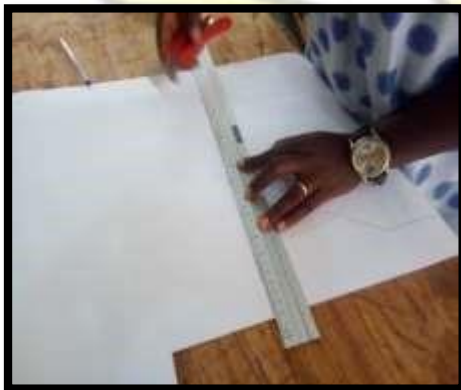


**Plate 4.48: Complete brief case**

(Source: Field Research, 2020)

#### 4.8.2 Project B: Shopping Bag

The second product produced was a shopping bag. The first stage of this procedure consisted of marking and cutting of templates as shown in plate 4.49 (a) and (b) respectively.



**Plate 4.49 (a): Marking out of the Plate 4.49 (b): Cut out templates various parts of the bag.**

(Source: Field Research, 2020)

The cut templates were transferred onto the leather and the jute as a means of ensuring that the actual size of the bag produced is accurate in size and design. The traced pattern on the jute and the leather were carefully w cut out and ready for joining and decoration. Plate 4.50 (a) and (b) show the transfer of templates onto the jute and marking out prior to cutting.



**Plate 4.50 (a): Transferring of**



**Plate 4.50 (b): Marking out of the  
Template on jute templates on jute**

(Source: Field Research, 2020)

The marked out areas on the jute and the leather were cut with scissors or cutting knife as shown in plate 4.51 (a) and (b) below.



**Plate 4.51 (a): Cutting of marked  
areas on jute.**



**Plate 4.51: (b) Cutting of marked  
areas on leather**

(Source: Field Research, 2020)

The cut out parts of the shopping bag were assembled with glue and the sewing machine. Studs and handles were fixed at the base of the bag to give it enough balance, stability and easy handling. The table below shows the joining of the parts and studs fixed at the base of the bag respectively.



**Plate 4.52 (a): Joining of parts of the bag.**



**Plate 4.52 (b): Studs fixed at the base.**

(Source: Field Research, 2020)

After the joining, the inner part of the bag was lined with a black conch. The joints assembled were then glued and hammered to ensure strong adhesion. All the edges were glued and the gusset was fixed at the sides. Plates 4.53 (a) and (b) show the lined inner part and the fixing of the gusset to the sides of the bag.



**Plate 4.53 (a): Lined inner part.**



**Plate 4.53 (b): Fixing of gusset**

(Source: Field Research, 2020)

The rough edges of the bag were covered with strips of leather and hammered to maintain the thickness and fine edges as shown in plate 4.54 (a) and (b) respectively.



**Plate 4.54 (a):** Covering the edges of the bag with a strip of leather



**Plate 4.54 (b):** Hammering to of the maintain thickness

(Source: Field Research, 2020)

Holes were punched around the edges of the bag for stitching, 1.5 millimetre drive punch and metal hammer was used in creating the holes all-round the bag prior to stitching as shown in plate 4.55 below.



**Plate 4.55:** Punching of holes all-round the bag prior to stitching.

(Source: Field Research, 2020)

The plate below depicts the completed shopping bag.



**Plate 4.56 (a): Front view of bag.**



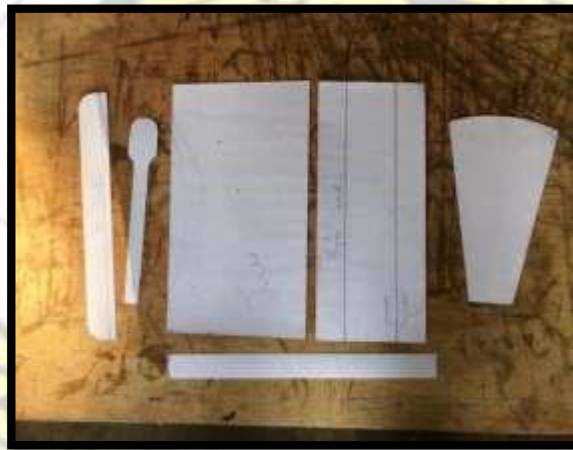
**Plate 4.56 (b): Front and side view**

**of bag**

(Source: Field Research, 2020)

#### 4.8.3 Project C: Dressing Bag

Similar to the other bags produced, templates of the various bag sizes were cut-out and transferred onto the jute and the leather as shown in plate 4.46 below.



**Plate 4.57: Templates cut into the required measurement.**

(Source: Field Research, 2020)

Templates were transferred onto the leather and jute as shown below.



**Plate 4.58: Transferring of templates onto leather and jute.**

(Source: Field Research, 2020)

The inner part of the bag was lined with conch and the studs and handle were, fixed as shown in plate 4.59 (a) and (b).



**Plate 4.59 (a): Fixing of the**

**Plate 4.59 (b) Handle, studs and**

**lining attached to the bag**

**handle**

(Source: Field Research, 2020)

The zip and gusset were also attached to the bag respectively as shown in plate 4.60 (a) and 4.60 (b) below.



**Plate 4.60 (a): Fixing of zipper.**



**Plate 4.60 (b): Joining of gussets**

(Source: Field Research, 2020)

Glue was applied to the sides and a strip of leather was used to cover the joint at each side of the bag as shown in plate 4.61 (a) and (b).



**Plate 4.61 (a): Application of glue**



**Plate 4.61 (b): Fixing of strips of**

**leather prior to punching.** (Source: Field Research, 2020)

After fixing of the strips, a punch was used to create stitch holes at the edges of the bags before the employing of hand stitching to reinforce the bag. The plate below depicts creating of holes prior to stitching.



**Plate 4.62: Creating of holes prior to stitching.**  
 (Source: Field Research, 2020)



**Plate 4.63 (a): Front and side view of bag**

**Plate 4.63 (b) Front, side and bottom view of bag.**

(Source: Field Research, 2020)

#### **4.8.4 Project D: Back Pack**

Akin to the ladies' bag, brief case bag and shopping bag produced, templates of the various bag sizes were drawn, cut out and transferred onto the jute and the leather. Various sections of the bag were glued and sewn together, the selected accessories, attached and the backpack bag decorated. Plate 4.64 (a) and (b) show the tracing of templates onto the jute and cutting out.



**Plate 4.64 (a): Tracing of patterns**



**Plate 4.64 (b): Cutting out of various parts.**

(Source: Field Research, 2020)

The handle of the bag was, cut and the edges were piped to prevent fraying. Buckles were, then fixed in the handle as shown in plate 4.65 below.



**Plate 4.65: Fixing of buckle on handle of the bag**

(Source: Field Research, 2020)

The handle was then, attached to the back portion of the bag.



**Plate 4.66: Handles attached to the bag.**

(Source: Field Research, 2020)

The various front compartments were attached with zip fixed at the ends as shown in plate 4.67 below.



**Plate 4.67: Joining of front compartments and fixing of zip.**

(Source: Field Research, 2020)

The gusset was then fixed at the base and the sides of the bag. Plate 4.68 shows fixing of the gusset to the bag.



**Plate 4.68: Sewing of the gusset to the bag.**

(Source: Field Research, 2020)

The plate below shows the completed bag.

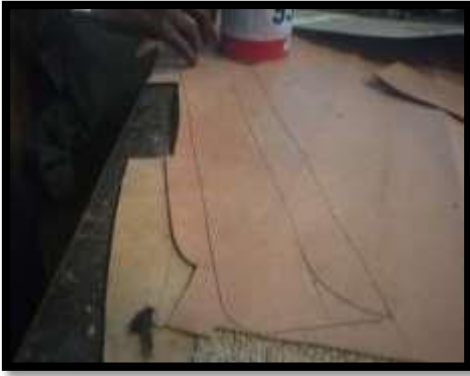


**Plate 4.69: Front and back view of finished bag**

(Source: Field Research, 2020)

#### **4.8.5 Project E: Travelling Bag**

The production of travelling bag followed the same working procedure used in the production of the other bags. Templates of the various sections of the travelling bag was drawn and cut based on the dimensions given as shown in plate 4.70 (a) and (b) below. The cut templates were then transferred onto the leather and jute, various sections sewn and some parts glued to obtain a complete finished travelling bag.



**Plate 4.70 (a): Transferring templates to leather.**



**Plate 4.70 (a): Cutting various parts prior to joining**

(Source: Field Research, 2020)

After cutting various parts to required shapes and sizes, they were then joined with glue and sewn together. This was to ensure that the parts are well, secured to gain enough reinforcement.



**Plate 4.71: Joining the parts together**

(Source: Field Research, 2020)

Because 98 percent of the parts of this bag were designed to be sewn by machine, the next stage of the production procedure which required the assembling of parts and finishing dealt with sewing as the main binding technique for the closure of the bag. Sewing of the handle and the top parts of the bag as shown in plate 4.71 (a) and (b) as shown below.



**Plate 4.72 (a): Sewing of the** **Plate 4.72 (b)Fixing of zip to top handle.** **part**  
**of bag.**

(Source: Field Research, 2020)

The back portion was lined with artificial leather and the front compartments were fixed. Plate 4.73 (a) and (b) show the lining on inner part and the fixing of the front compartment of the bag.



**Plate 4.73 (a): Lining the inner**  
**compartment.**

**Plate 4.73 (b): Piping and final**  
**sewing.**

(Source: Field Research, 2020)

The plate below shows the completed bag.

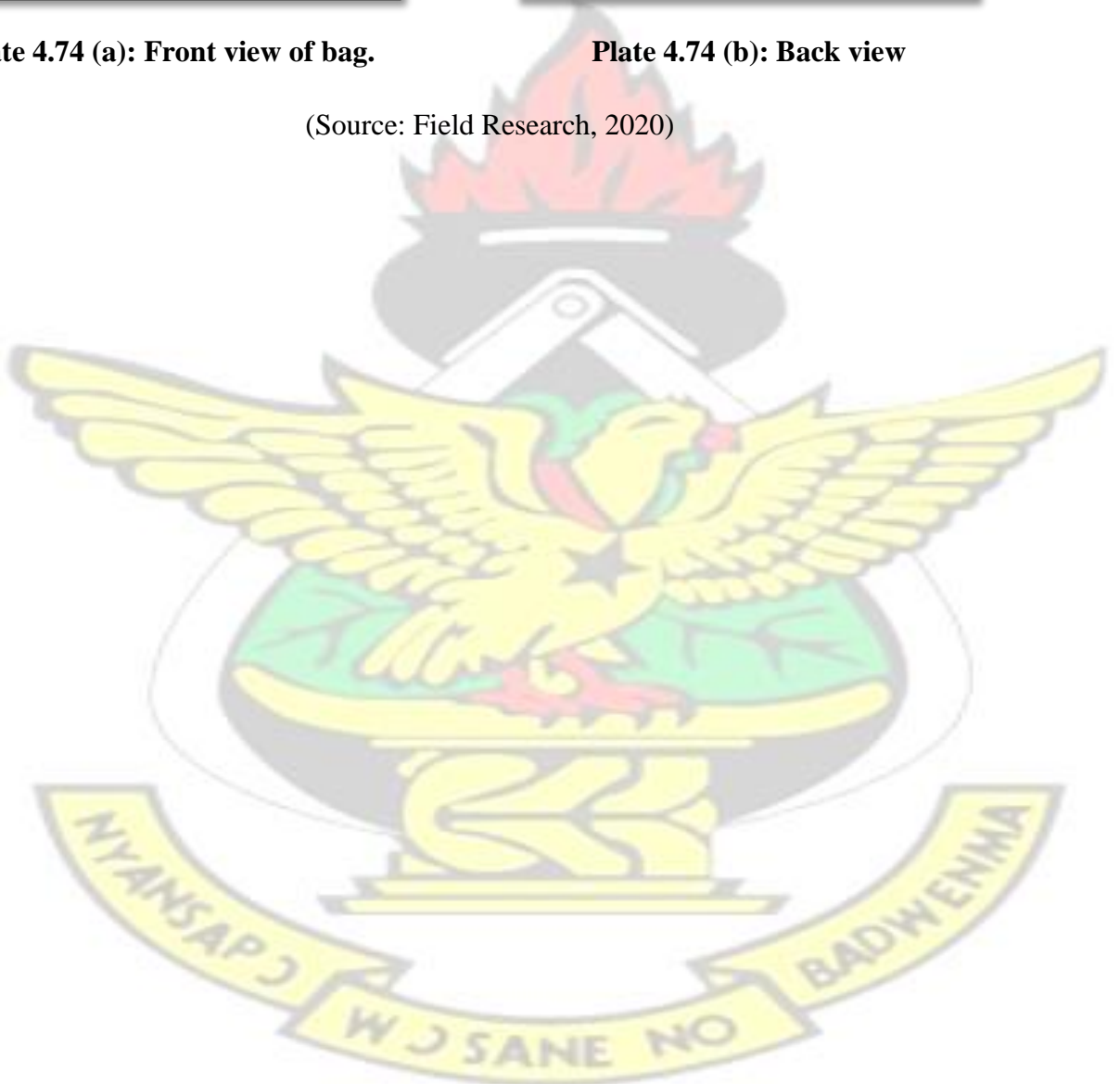


**Plate 4.74 (a): Front view of bag.**



**Plate 4.74 (b): Back view**

(Source: Field Research, 2020)



## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

## 5.1 Summary

Jute is commonly available in the form of sacks and cords in Ghana. It is natural, strong, durable, pliable, antistatic, anti-bacterial and eco-friendly. In Ghana, jute has enormous usages ranging from economic, domestic, art and craft to mention a few due to its unique characteristics. Interview responses of some fashion accessory producers confirmed that jute is a potential material for fashion products; however, there are certain limitations in terms of colour and roughness to the skin. These limitations deter the interest of fashion accessory producers in the usage of jute for their products.

Based on these challenges, three objectives were set thus;

(i) to identify and analyse the characteristics and types of jute sacks appropriate for fashion accessories, (ii) to explore the various colouring techniques on the identified jute sacks to enhance its aesthetic appeal and usage and (iii) to ascertain its effectiveness and usage by using it to produce fashionable accessories specifically five bags for various purposes. The research is limited to jute sack sellers, jute sack users, fashion accessory producers and fashion accessory users in the Ashanti Region specifically *Alabar, Adum, Asafo, Ayigya, Central Market and Aboabo*, all in Kumasi.

The researcher adopted the qualitative research method and used the descriptive and the exploratory design. A total number of one hundred and twenty (120) individuals were accessed with thirty, (30) representing jute sack sellers, thirty (30) representing jute sack users, forty (40) also representing fashion accessory producers and twenty (20) individuals representing fashion accessory users.

## 5.2 Findings

Data collected were analysed and interpreted to draw conclusion and make recommendations. Based on the data analysed, the following findings were drawn:

1. Jute sacks available in the Ghanaian market are imported mainly from Bangladesh and Cote d'Ivoire although jute is cultivated in some parts of the northern regions for food

and the stalks for ropes, mats, hats and for other domestic purposes. These jute products are in limited supply just as the fibers because the cultivation is mainly done by old men and women. The type from Cote d'Ivoire has a plain weave structure with size measuring 107 by 73 centimetres. All the type from Cote d'Ivoire has been used to bag cocoa beans earlier. On the other hand, the type from Bangladesh has the twill weave structure with size 105 by 64centimetres. This type has branded ones and unbranded ones as well. All the branded (PRODUCE OF GHANA COCOA BOARD) have been used primarily to bag cocoa beans. The unbranded ones are brand new sacks imported into the country by individuals who are in the jute sack business sold solely on the market and even online to individuals for various purposes. There is another type which is the fine textured jute fabric. This type is not common in the Ghanaian market and is also expensive. Jute sacks have characteristics such as good tensile strength, pliability, resistance to tear and wear, resistance to rust and corrosion, poor conductor of electricity, has good ventilation property and environmentally friendly. All these characteristics render the material suitable for the production of bags, especially the jute sacks with less stains, dirt and has compact weave structure since they required minimum surface preparation. Generally, jute sacks have limitations in colour, hence the need to explore various colouring methods on the material to enhance the aesthetic appeal and expand its usage.

2. Prior to the application of colour, the samples of jute were given various surface treatments to aid in the registration of colour on the surface. Sizing and singeing were explored on the samples that will go through the printing and spraying techniques to get more even surface for effective image print. However, the sized samples gave a better image print than the singed samples.
3. Based on the colouring method explored, the study confirmed that to get a good image print on jute sack, the colouring agent (dye bath, printing paste and auto base paint)

should be of the right consistency. Also, design on the resist material (printing screen and lace material) should be clear and well-arranged with the resist areas well defined.

4. Amongst all the colouring techniques explored, printing with acrylic paint didn't give a good image print on jute due to the fact that the paint does not rest well in the pores of the jute sack and eventually breaks off when dry.
5. The enhanced jute sack used for the production of the bags revealed a good level of possibility. However, to achieve a very good outcome certain measures needed to be taken into consideration such as reinforcing the edges of the patterns properly by gluing to the lining material and stitched to avoid fraying and piping the edges with a suitable material instead of folding to avoid bulkiness.

### 5.3 Conclusions

All the jute sack types available in the market were imported into the country. These sacks have unique characteristics that render it suitable for fashion accessory. Among all the jute sacks types identified and analysed by the researcher, the jute sack with compact weave structure, less stains and dirt has the characteristics that render it more appropriate for the production of fashion accessories. Besides the general characteristics that jute and other materials used for bags have in common, this type has the weave structure intact and free from dirt and stains which sometimes interfere during the application of colour.

The unique colour of jute sack can as well be enhanced with various colouration methods such as dyeing using the vat dye, printing using the printing paste and spraying using the auto based

spray in their right consistency. This will encourage fashion accessory producers to produce interesting accessories thereby improving on their products and expand the usage of jute.

Moreover, the enhanced jute sack can be used solely or integrated with other materials for the production of bags and other fashion accessories. It can as well be used to produce other artefacts and items in other fields.

#### **5.4 Recommendations**

1. The Government in collaboration with other private investor should help revamp the defunct jute sacks factory in Kumasi, also motivate the existing jute farmers, and encourage the youth in the large-scale farming of the jute fibre in most regions of Ghana by providing the best quality jute fibre seeds and other farming services for better produce. This will create employment and eradicate the cost of importing the jute sacks into the country.
2. For a better quality enhanced jute, sacks less of stains, dirt and of good compact weave structure is recommended for use in the various colouration enhancement techniques since such sacks required a minimum preparation prior to colouration and less or no interference in terms of colour absorption. Further research should be conducted on other surface treatments and colouring methods.
3. Further project in jute fibre integrated with other materials (both natural and synthetic) in the production of products that meets every day needs, sustainable, long lasting and able to attract both local and international buyers should be undertaken by interested artisans and researchers to expand areas of usage of the sacks leading to jobs creation for the youth

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## APPENDICES

### Appendix A

#### Interview Guide for Jute Sack Sellers

1. How are you able to secure jute sack for sale in the market?
2. What types of jute sacks are available in the Ghanaian market?
3. What are the main purposes for each?
4. How often do fashion designers buy jute sack for their projects?
5. How is market value for jute sack and how often do you sell to consumers?

#### Interview Guide for Jute Sack Users

1. What do you use the jute sack for?
2. Which type of jute sack do you use? Why
3. What are the challenges you encounter in using the sack?
4. How long have you been using jute sack?

5. How long did the sack last?
6. Do you think the sacks can be used to produce fashion accessories?

### **Interview Guide for Fashion Accessory Producers 1.**

Have you ever used jute to produce any accessory before?

2. Where did you get the jute material to use?
3. What type of jute do you use for your production?
4. What are some of the challenges you encountered while using jute for accessories production?
5. Do you think jute possesses some qualities that make its usage suitable for the production of fashion accessories?
6. How do you see the integration of jute material and other materials for fashion accessories?

### **Interview Guide for Fashion Accessory Users 1.**

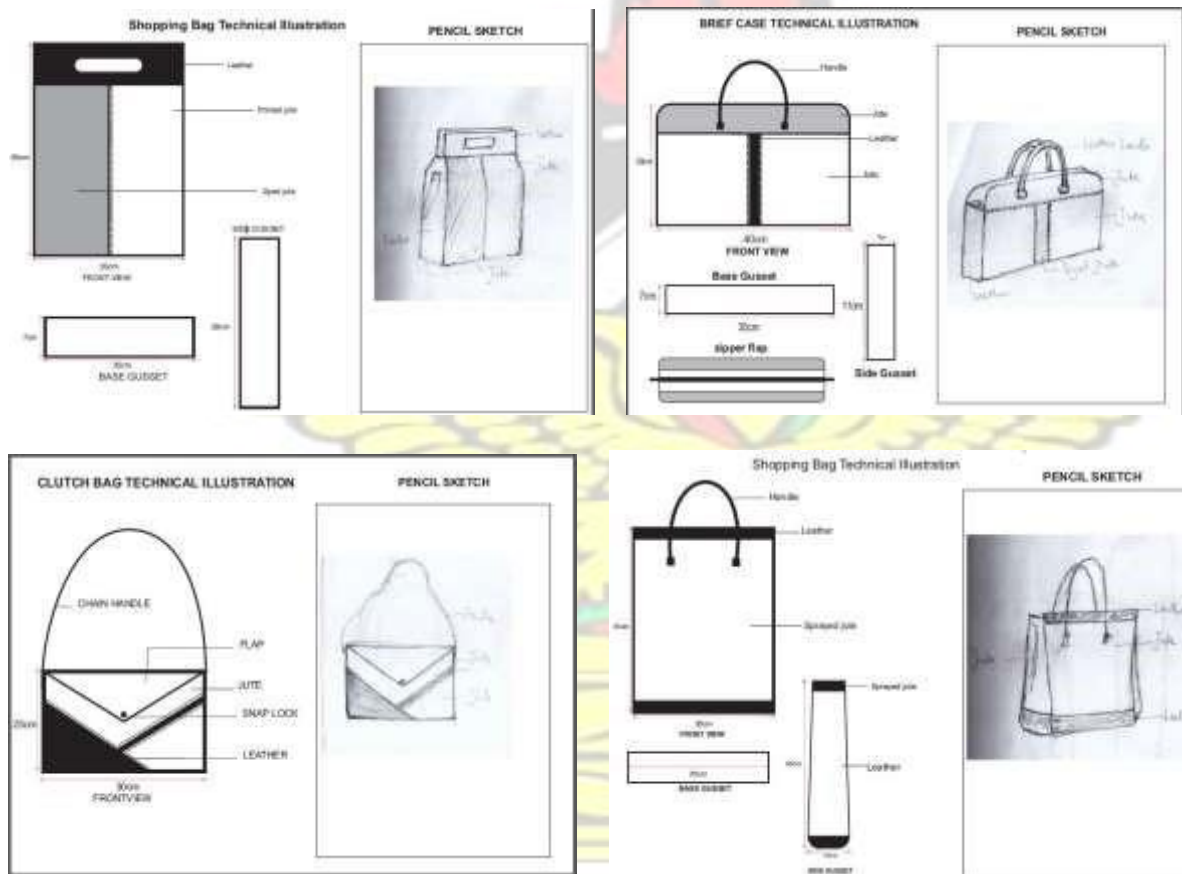
Have you ever used any accessory made from jute?

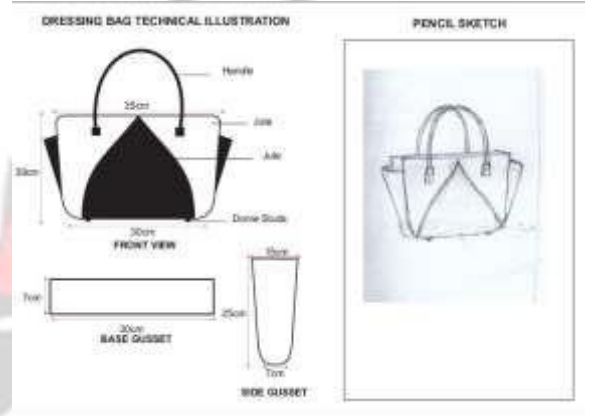
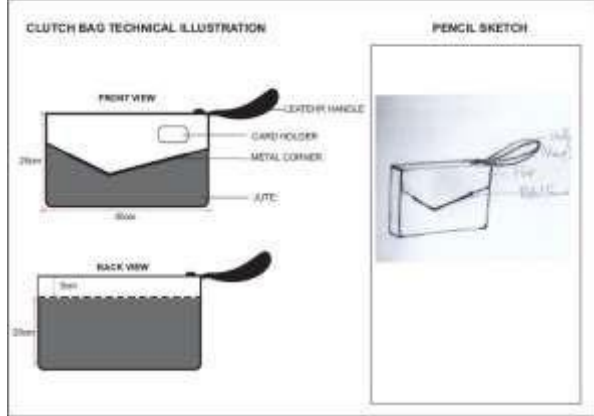
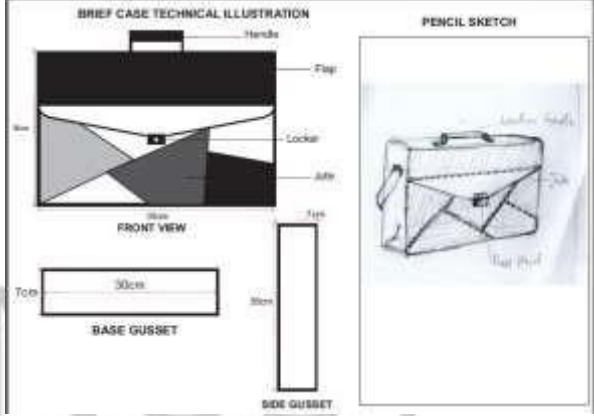
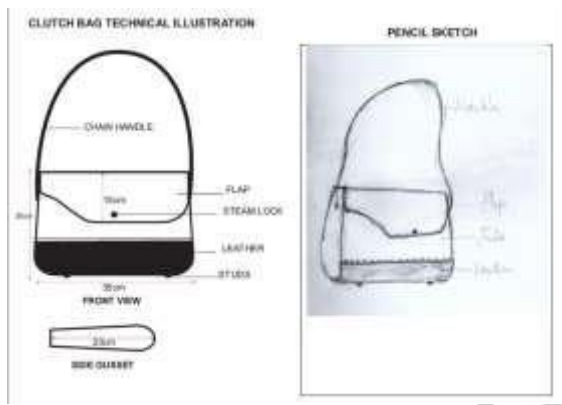
2. How long did the product last?
3. How was the surface appearance of the jute accessory after some time of usage?
4. How do you see jute being integrated with other materials for the production of fashion accessories?
5. Do you think jute possesses some qualities that make its usage suitable for the production of fashion accessories?

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## APPENDIX B

Sketches and 2D drawings of other designs of jute bags by the researcher





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APPENDIX C



PICTURES OF FINAL BAGS





