

# **PANICUM MAXIMUM (GUINEA GRASS) FOR INTERIOR DECORATION**

By

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## ABSTRACT

The purpose of the research work was to work with the grass *Panicum maximum* to see how it could be used for interior decoration. The study revealed that the material can be used for diverse works of art, from the making of hats, bags, and mats to basket. The problem was exploring and developing other uses for *Panicum maximum*. The researcher used the following objectives for the study: 1. To identify materials and models commonly used in making interior designs. 2. To design the identified materials and models for construction in *Panicum maximum*. The researcher used qualitative research design and employed observations and interviews to identify, describe and experiment with *Panicum maximum*. This study used the descriptive research method to analyse the data. The results of the findings indicated that *Panicum maximum* could be used for making interior decorative models such as ceiling panel, door panel, floor mat, wall hanging, wall picture, corner vase, wall vase, lamp shade, window blind and wall panel.

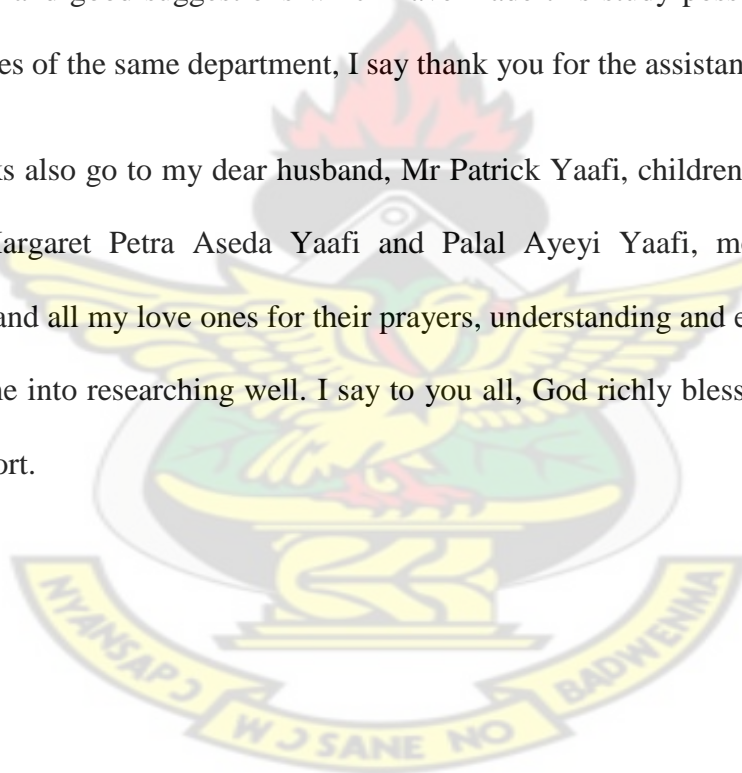
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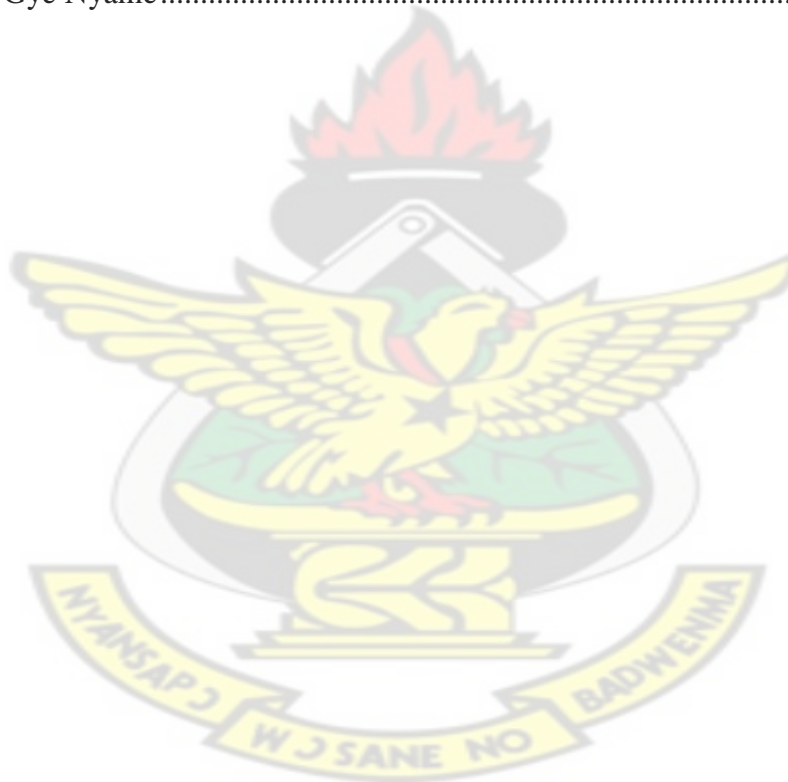
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## LIST OF ABBREVIATIONS

Pm: Panicum maximum

KNUST: Kwame Nkrumah University of Science and Technology

# KNUST



# **CHAPTER ONE**

## **INTRODUCTION**

### **1.0 Overview**

This chapter provides the basic framework of the study. It comprises the background to the study, a statement of the problem, purpose of the study, objectives of the study, research questions, the importance of the study, limitation delimitation, definition of terms, and organization of the study.

### **1.1 Background of the Study**

*Panicum maximum* is a material that has been used in basketry for the production of hats; table mats and other domestic products. Most of these products have gained recognition on the international markets. Among these products is the famous Bolga Baskets. *Panicum maximum* is traditionally identified as Guinea grass and it is the main food for several grazing animals like goats, sheep and cows. By the roadside along the forest roots Guinea grass has its efflorescence serving as food for birds and weeds as material for their nest. This material is of great importance to both man, animals and birds.

### **1.2 Statement of the Problem**

Guinea grass as traditionally called has been used in the production of a variety of products, its utility value remains underutilized. Although it is a fibrous plant material like jute, cotton and kenef, it has not been adopted in areas like interior decoration where jute, cotton, kenef and other plant fibre products have been used. This is so because users of *Panicum maximum* do not have adequate knowledge for processing the material and fabricating it into models and items for interior decoration. Studies

made in this area suggest the possibility of processing and fabricating Panicum maximum into models of Art for interior decoration.

### **1.3 Purpose of the Study**

The purpose of this study is to process and fabricate Panicum maximum into models of Art for interior decoration.

### **1.4 Objectives of the Study**

1. To identify materials and models commonly used for interior decoration.
2. To design and construct models with Panicum maximum for interior decoration

### **1.5 Research Questions**

1. What materials and models are commonly used for interior decoration?
2. How can the models be designed and constructed with Panicum maximum for interior decoration?

### **1.6 Significance of the Study**

- The study has introduced new ideas into the use of Panicum maximum into designing and construction of interior decoration models in terms of creativity, exploration of material and as an alternative material.
- It will add to the socio-economic development in Ghana through exhibitions at National and Regional Cultural Centre's, Museums and Galleries by generating income to the individual and the nation.
- The report of the study made will serve as a document for further studies in Rattan and Bamboo Technology.
- The study has provided the following interior decoration models, ceiling

panel, door panel, floor mat, wall panel, corner vase, wall vase, window blind, wall pictures and lamp shade with Panicum maximum which has reduced the cost of material being imported.

### **1.7 Limitation**

The researcher was limited to equipment such as industrial sewing machine; machine for pressing the Panicum maximum, and others to enhance the works for a good finishing was not available in the department so some parts of the works were made in private studios outside the university campus making the production too costly. Therefore, most of the executed work was made manually and proved time consuming, which adversely affected the finished works.

### **1.8 Delimitation**

- This study is limited to the designing and construction of models with Panicum maximum for interior decoration (ceiling panel, door panel, floor panel, wall panel, corner vase, wall vase, window blind, wall pictures and lamp shade).
- The study was limited to the use of Panicum maximum, cotton yarns and the traditional loom.

### **1.9 Definition of Terms**

To aid in the understanding of the project, technical terms used in the study are explained as follows:

**Grass:** This is narrow-leaved green herbage; they are mostly grown as a lawn.

**Design:** This was seen as a creative guide for doing something else or replicating same.



**Panicum maximum:** Also called guinea grass is a tall ornamental narrowed grass, of about 1.5m

**Interior decoration:** This refers to the beautification and furnishing of interior spaces in homes, offices, schools and public places.

**Rhizome:** A horizontal plant stem with shoots above and roots below serving as a reproductive structure.

**Fertility:** The property of producing abundantly and sustaining vigorous and luxuriant growth.

**Perennials:** A plant that lives for more than two years. (Botany) a plant lasting for three seasons or more.

**Tufted:** A short cluster of elongated strands, as of yarn, hair, or grass or growing close together. / A dense clump, especially of trees or bushes.

**Fabricate:** To make or build (something).

**Tensile:** Capable of being stretched or extended; ductile.

**Robust:** (of a process, system, organization, etc.) Able to withstand or overcome adverse conditions.

**Ornamental:** A plant or tree for its attractive appearance

**Efflorescence:** To flower out .The state or a period of flowering.

**Model:** The finished artefacts of the works made.

**Beautification:** Is the process of making visual improvements to a person, place, or thing.

**Furnishing:** Furniture, fittings, and other decorative accessories, such as carpets, for a house or room.

**Sanding:** To polish or scrape with sand or sand paper as done for the wooden frames before spraying.

### **1.10 Organization of the Study**

Sequentially, this dissertation has been arranged in five chapters to give logical meaning to the study conducted. Chapter one contains the introduction, Chapter two contains literature reviewed. The methodology is presented in chapter three. Chapter four comprises results and discussion of findings. Finally, the summary of the entire research, conclusions and recommendations made are presented in chapter five.



## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.0 Overview**

Interior decoration from the Encarta dictionary is the art or process of planning the decoration and furnishings of a room or building. This involves the selection of models and items that can be composed to harmonize to make a room or place pleasing. Some of the models and items, mostly used for interior decoration include window blinds, wall vases, mats, lamp shades, etc. Most of these items are made in fabric, leather, wood, metals rubber and plastic.

#### **2.1 Guinea grass**

Guinea grass (*Panicum maximum*) is an exceptional material for innumerable applications ranging from handicrafts and utility items to industrial products. With such wide applicability, it offers marvellous livelihood potential for communities where guinea grass grows bountifully and business opportunities for industry. Although the advantages of Guinea grass are well known, its wider utilization is hampered by differences in cultures and need of the society where this material grows bountifully.

Akin to harvesting and processing of grass like bamboo, guinea grass is harvested, dried and processed for use in most rural industries which in most cases meet domestic needs. In most cultures, processing is by appropriate technology, which has been developed over several years of encounter with the material. Although such practices have been in use for some time, related information on the various procedures is not sufficiently widely available.

The use of Guinea grass has been studied by some researchers and their views and methods have been documented in the literature reviewed in this chapter. From compiled notes on complementary material for bamboo and rattan, Baah (2004) said that Guinea grass grows wild in all regions of Ghana. He described it as a tall perennial grass that grows up to about 2 meters high. Steiner (2014) in a personal communication said guinea grass is mostly located around ponds in the Northern regions of Ghana. According to him, from ancient times, guinea grass has been linked to human livelihood, fulfilling the needs for beds, containers for grains, and feed for cattle in most cultures. Gibbs Russell et al (1991) explained that guinea grass (*Panicum maximum*) is a perennial tufted grass with a short, creeping rhizome. They said that the stems of the grass are robust and can reach a height of up to 2 metres. As the stems bend and nodes touch the ground, roots and new plants are formed because of its seeds.

In other personal communication with Baah (2014) and Steiner (2014), both researchers agreed that the size of the material is relied on soil fertility and climatic conditions under which the plant grows. Russell et al (1991) opine that Guinea grass prefers a fertile soil and is well adapted to a wide variety of conditions. It grows especially well in shaded, damp areas under trees and shrubs and is often seen along rivers. Baah (2004) affirms that another grass, common reed that bears close resemblance to guinea grass, *Phragmites karka*, preferred for its relatively tougher quality. Steiner (2014) again said, bleaching is done to improve material colour quality and dyeing with suede dye to add colour, affect the strength of the material.

## **2.2 Worldwide species of Guinea grass**

Several species of Guinea grass have been identified and named. *Panicum maximum* is a large genus of about 450 species of grasses native throughout tropical regions of the world, with a few species extending into the northern temperate zone. They are often large, annual or perennial grasses, growing to 1–3 metres tall. However the nature and culture have created differences in the materials and the products made out of them are deeply influenced by need, encounter and culture. Like bamboo Steiner (2014) said different technologies have been developed by the people in different locations of the globe to meet the need for processing and fabrication.

According to Daasaah (2009) there are about 600 species of *Panicum maximum* worldwide. It is widely distributed in South Africa, except for the greater part of the Western Cape. It originates from Africa, but is presently found and cultivated in almost all tropical parts of the world. This was also confirmed by (Lazarides, 1980). He said *Panicum maximum* has economic importance as a major forage grass, which is cultivated and grown throughout the tropics. It is a hardy, vigorous plant producing high yields of nutritious fodder, which is suitable for grazing or cut as green feed, he further explained and agreed with Alderson et al, (1993) in saying that the nutritive value of *Panicum maximum* declines, so rapidly with age and over time, it dies if continually grazed over close to the ground by cattle, goats and other animals that depend on it

## **2.3 Guinea Grass in Ghana and its Uses**

Daasaah (2009) states that *Panicum maximum* is known in Ghana as Guinea Grass (straw) and can be found in most regions in the country. They grow along roadsides, forest, farms and any open field. It generally grows along ponds and the banks of



streams and rivers. It is a raw material known in the country, for producing straw hats, “Bolga” bags, hats, fans, hay for feeding cattle. Steiner (2014) opined that Guinea grass is very flexible and can be manipulated into useful products such as window blinds, sleeping mat, bags, and ceiling panel among others. Steiner explained that when Guinea grass comes into contact with water, it gains more strength to support twisting, improves durability, and it is non-toxic and environmentally friendly. Baah (2004) explained further that straw or guinea grass has outstanding properties which allow it to be used for the production of several items for the home. Below are pictures of *Panicum maximum*.



**Plate 2.1: Cluster of *Panicum maximum***  
**(Source: researcher)**



**Plate 2.2: Harvested and dried straws (Pm)**  
(Source: researcher)

#### **2.4 Fabrication with Guinea Grass (*Panicum maximum*)**

Guinea grass as traditionally known has been processed and fabricated into baskets in the Northern regions of Ghana. It is one of the non-traditional export products that bring foreign exchange to the country. The main products made from guinea grass include sun hats, (Plate 2.4) fruit baskets, (Plate 2.3) shopping bag, ladies' hand bag, baby rattles and hand fan. Baah (2004) Steiner (2014) in a personal communication alleged almost the products cited by Baah are made from twisted straw and therefore have very high tensile strength.

Steiner (2014) in another communication, Concluded that, traditionally most of the local craftsmen working with Guinea grass, practice off loom weaving, this he further explain as an interlacing technique used by the local craftsmen for fabrication of straw



bags. He said loom process requires the use of the loom and the laying of warp yarns. This process and technique employ the Guinea grass as weft in weaving on the loom.



**Plate 2.3: Bolga basket**

**Source: Tamale cultural centre**



**Plate 2.4: Bolga hat**

**(Source: Tamale cultural centre)**

## **2.5 Interior Decoration**

According to Encarta (2009), interior decoration is the art or process of planning the decoration and furnishing of a room or building. This involves the selection of decorative items specially fabricated, usually one of a group, attached to something to make it look more attractive. This is done to enhance the beauty of a place or room. Some notable items used for interior decoration include, curtains, furniture and decorative pieces. In some cases items identified or selected to perform dual roles as functional objects and at the same time as decorative models (Plate 2.5) and (Plate 2.6).

From a survey conducted, materials used in the production of items for interior decoration include wood, metals, plastics, textile fabrics, leather, bamboo and clay. Very little can be said of Guinea grass (*Panicum maximum*) or straw and other weeds of the grass group, although they are sometimes used as complementary materials in art production.



**Plate 2.5: Wall vase for interior decoration**  
(Source: [www.wayfair.com](http://www.wayfair.com))



**Plate 2.6: Functional and decorative bedside lamp**  
(Source: lampsplus.com)



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.0 Overview**

This chapter describes and explains the procedures in executing the project.

#### **3.1 Research design**

The study adopted the qualitative research paradigm. In this, the descriptive and experimental methodologies were used to collect data for the study. Pre-experimental approach was used, because it takes care of a single group and although it has a disadvantage of lower validity, it also sets the stage for further research or study in the same area. The experimental method was used in the designing and the general processes in executing the project and the descriptive method was used for giving descriptions of the entire process in the study.

#### **3.2 Library research**

Documented literature was gathered from the following libraries

KNUST Main, Library

Faculty of Art Library KNUST

Department of General Art Studies Library KNUST

Our Holy Rosary Catholic Church

K.N.U.S.T Library

### 3.3 Population for the Study

The concept of population fundamental to descriptive research. The researcher assumes that population is a group of persons having information on Pm. Within this context, users of Pm such as Experts in Rattan and Bamboo in the Northern and the Ashanti Regions of Ghana, Artisans of interior decoration and harvesters and sellers of Pm are known as the entire population.

### 3.4 Target population

The target population included 100 Experts in Rattan and Bamboo in Kumasi, Artisans of interior decoration in Kumasi and Harvesters and sellers of Panicum maximum at Ayigya and K.N.U.S.T

#### 3.4.1 Accessible Population

The accessible population was forty five which was made up of Experts in Rattan and Bamboo, Artisans of interior decoration, harvesters and sellers of Panicum maximum. The criteria for selecting population was random based. The accessible population was divided into three parts.

A.	Experts in Rattan and Bamboo	20
B.	Artisans of interior decoration	15
C.	Harvesters and sellers of Panicum maximum	10
<b>TOTAL</b>		<b>45</b>

### 3.5. Sampling techniques and description

According to Trochim (2006), sampling is the process of selecting units (e.g., people, organizations) from a population from which they were chosen.



In this study, the purposive sampling was used for the selection of respondents who could give reliable and dependable data on *Panicum maximum*.

Convenience sampling was also used to collect data from respondents who were located within the proximity of the researcher's work place.

### **3.6 Instrumentation**

The researcher used unstructured interviews and observation for gathering data from the population selected. The interviews were conducted on students and teachers. On the spot observation of production techniques and manipulative skills in the industry was done to enrich the knowledge of the researcher.

### **3.7 Interview and observation**

Personal interviews were conducted with students, teachers and the rest of the sample population. Direct contact with the students and tutors created the opportunity for the researcher to observe the material used, as well as the actual weaving processes and techniques.

### **3.8 Execution of objective one**

#### **To identify materials and models commonly used in making interior decoration.**

Researcher visited local industries and institutions where models for interior decoration are made. Some of the industries visited include Uncle Pets, where varied forms of clay vases are produced for the market. Again the researcher visited the leather studio of the Integrated Rural Art and Industry Department where diverse decorative models are produced by both students and lecturers. The wood work, rattan and bamboo and metal studios were not left out of the observation sites. Basket weavers on the roadsides were visited to look at the models on display. The researcher

observed at the Department of Integrated Rural Art and Industry K.N.U.S.T Kumasi some of the materials which were used for producing interior decorative models. Based on the criteria above, the researcher identified some materials used for interior decorative models as follows Sisal, Jute, Leather, Wood, Clay, Cords (nylon and rayon), Panicum maximum, Cane/Rattan, Leatherette, Bamboo, Plastic, Reed, Corn Husk, Raffia, Cloth/Fabric and Raffia.

**1. Palm rachis:** The local materials, Baah (2000) identified as suitable weaving materials are palm rachis, fan palm, Cyprus reed and off-cuts (Plate 3.1). These are materials that the indigenous people in the study area use in weaving mats, baskets and other items. Palm rachis is the midrib that holds the leaves of the palm tree species which include oil palm, coconut, date palm, fan palm and raffia palm. Palm rachis has a round back and flat front. The back is usually harder than the front, but is more pliable and therefore used mostly by local weavers. The front is usually used for stakes and starting the basket.

**2. Palm leaves:** The leaves of some palm tree species are also used in basketry. These include raffia palm, date palm, oil palm and fan palm. In the local communities, these materials are used to weave traditional sieve, mat, basket, traps, etc.



**Plate 3.1: Palm tree - The source of palm rachis for weaving**  
(Source: researcher)



**3. Raffia palm:** The fibre of the raffia palm leaf is a versatile material for making assorted articles in basketry. Because of its characteristics of being strong and pliable, raffia is easily twisted, coiled, wrapped and plaited to make articles such as bags, belts, hats, mats, baskets, ropes and also used for stitching, tying and binding in basketry.

**4. Date Palm:** Date palm is a species of the palm family which is found in humid tropical areas. It needs considerable moisture to grow and is therefore found mainly in swampy areas. The tender shoot is ideal for basketry because of its quality of strength and flexibility. It is very pliable making it can bend and be twisted in any form. The leaves are used for baskets, plaited hats, bags and mats.

**5. Fan palm:** This is found usually in grasslands. The leaves are used for making baskets, mats, fans, hats and other articles.

**6. Pandanus:** This is a variety of the pine species, usually found in swampy areas. Both the leaves and roots are used for basketry. The leaves are used in binding, weaving, plaiting and coiling articles such as baskets, mats and fans. The roots produce fibre for weaving.

**7. Grass:** The stem and stalk of some grass species were identified to be used in making, basketry articles such as hat, mat, and baskets.

**8. Cyprus Reed:** These are found in swampy areas. They are round and soft nature makes them ideal for weaving mats and containers (Plate 3.2).



**Plate 3.2: Cyprus reed**

(Source: [en.wikipedia.org/wiki/Cyperus papyrus](https://en.wikipedia.org/wiki/Cyperus_papyrus))

**9. Corn Shucks:** This is a common material found in every corn producing community in Ghana. They are used for weaving hats, mats and baskets using the coiling, plaiting, tying and stitching processes. Corn husks can also be used in lieu of straw to make place mats, door mats, seat covers and throw rugs. (Plate 3.3)



**Plate 3.3: Corn shuck**

(Source: researcher)

**10. Fibres:** Fibre for basketry is got from sisal, pineapple, Pandanus root, banana and plantain stem and the barks of some trees.

**11. Sisal:** Sisal (*Agave sisalana*), is a plant of the family Asparagaceae and its fibre, the most important of the leaf fibre group. The plant stalk grows to about 3 feet (0.9 metre) in height, with a diameter of approximately 15 inches (38 cm). The lance-shaped leaves, growing out from the stalk in a dense rosette, are fleshy and rigid, with grey to dark green colour. Each is 2 to 6 feet (0.6 to 1.8 metres) long, 3 inches (7.6 cm) wide at the base, and 4 to 7 inches (10 to 18 cm) across at the widest portion, terminating in a sharp spine. Within four to eight years after planting, the mature plant sends up a central flower stalk reaching about 20 feet (6 metres) in height. Yellow flowers, about 2.5 inches (6 cm) long and with an unpleasant odour, form dense clusters at the ends of branches growing from the flower stalk. Plants grow best in moderately rich soil with good drainage and warm moist climates. Young plants, propagated from bulbils or rhizomes (underground stems) of mature plants, are usually kept in nurseries for the first 12 to 18 months. To make sisal fibres, the leaves are cut from the stem and then beaten into pulp and soaked in water to decay. It is then washed to remove fibre from the pulp or decayed leaf and later dried in the sun before twisting into ropes and twines for weaving.

**12. Plantain and Banana Stem:** Fibre from the stem and stalk of plantain and banana plants are used in basketry.

**13. Clay:** One of the more popular uses of clay soil is in ceramics and pottery. The soil is easily combined with water and worked into a thick mass that is well suited to sculpt. Clay must be kept in a dark, moist environment in order to keep from drying out and to retain its ability to be moulded into different shapes. The moulded clay is

then fired in an oven to remove the moisture from the pot. This process takes several hours to complete, as the clay must be heated slowly in order to keep moisture from evaporating too quickly and causing cracks in the pottery.

**14. Leather:** Is a durable and flexible material created by the tanning of animal raw hide and skin, often cattle hide. It can be produced through manufacturing processes ranging from cottage industry to heavy industry.

Leather is used for various purposes, including clothing (e.g. shoes, hats, jackets, skirts, trousers and belts), bookbinding, leather wallpaper, and as a furniture covering. It is produced in a wide variety of types and styles and is decorated with a wide range of techniques.

**15. Jute:** For making twine, rope, and making matting are among its uses. Jute is used in the manufacture of a number of fabrics such as Hessian cloth, sacking, scrim, carpet backing cloth, and canvas. Hessian, lighter than sacking, is used for bags, wrappers, wall-coverings, upholstery, and home furnishings. Sacking, a fabric made of heavy jute fibres, has its use in the name.

### **Activity 1: Preparation of the *Panicum maximum***

**1. Harvesting of Guinea Grass:** The harvesting was done by grabbing the guinea grass stalks in the palm and then gently pull vertically upwards (Plate 3.4). The tassel at the tip of the guinea stalks were nipped off using a pair of scissors or a knife. In order to save time, the researcher harvested the needed quantity of guinea stalks before removing the tassels.





**Plate 3.4 a & b: Harvesting of *Panicum maximum* (Guinea grass)**  
(Source: researcher)



**Plate 3.5: Harvested *Panicum maximum***  
(Source: researcher)

**2. Drying of the Harvested guinea grass:** The harvested stalks were spread on a dried flat surface exposed to the sun to dry. Drying of the stalks took a week. The dried stalks were then gathered as Plate 3.6 and bundled ready for use as in (Plate 3.7)



**Plate 3.6: Drying of Panicum maximum**  
(Source: researcher)

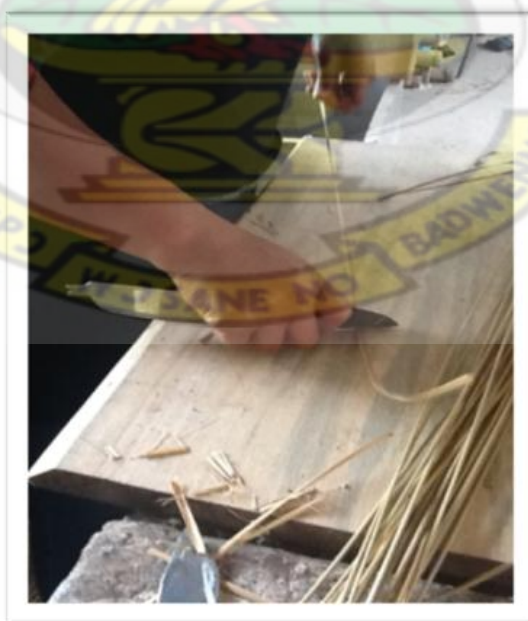


**Plate 3.7: Bundle of Panicum maximum**  
(Source: researcher)

**3. Splitting of the dried Guinea stalks and scrapping:** With the help of a needle, the dried stalks were pierced through its diameter, at about 4cm from the stem-end to the stalk. It is then split by running the needle sideways through the length of the stalk from the stem-end to tassel end, kept about 4cm intervals before splitting it as in Plate 3.8. The scraping (Plate 3.9) is done to remove the pith from the split *Panicum maximum* using a knife.



**Plate 3.8: Splitting of *Panicum maximum***  
(Source: researcher)



**Plate 3.9: Scrapping off the pith.**  
(Source: researcher)



**4. Pressing the guinea grass:** Pressing of the guinea grass stalks was then done to flatten the stalk to improve flexibility. A few stalks are placed parallel to each other on a table and with the help of a bottle the stalks are flattened. (Plate 3.10)



**Plate 3.10: Pressing of *Panicum maximum***  
(Source: researcher)

**5. Dyeing of the Guinea Grass:** For hot dyeing, it is necessary to obtain a metal vessel. To dye small quantities, an ordinary size 28, 30 or 34 galvanized buckets may be adequate. For larger quantities, it may be necessary to obtain a metal drum. Hot dyeing of untwisted stalks can best be done in custom made vat from aluminium or galvanized roofing sheets. The half-barrel container will be required for dyeing larger quantities.

The researcher filled the bucket with water to a level sufficient to cover the material and placed it over the fire. As the water approaches boiling point, Swede dye and salt were added. The stalks were placed in the hot dye solution and kept submerged in the dye until the material was adequately dyed. The dyed stalks were rinsed in fresh water after dyeing and spread out to dry in the sun; the dyeing process is shown in (plate 3.11).



**Plate 3.11: Dyeing of Panicum maximum**  
(Source: researcher)

### **3.9 Weaving Methods Used**

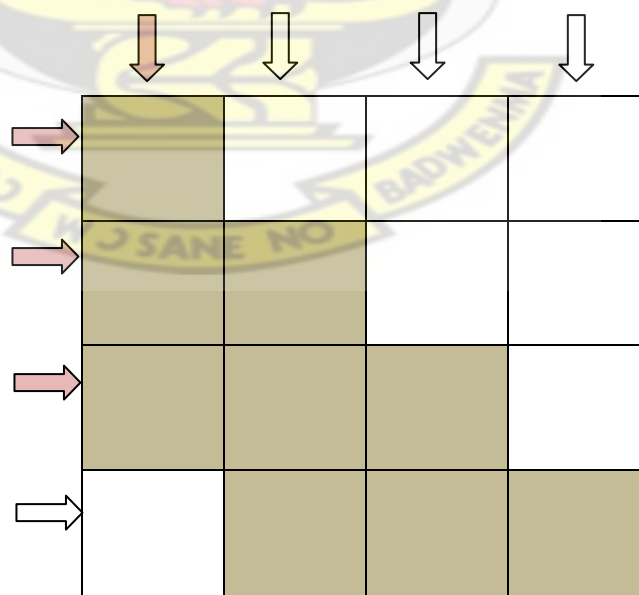
In this study, Panicum maximum was the materials used in the production of the interior decoration models. This project was done using plain, and twill weaving techniques. The articles made were lamp shade, flower vase, curtain, corner vase, ceiling panel, door panel, and wall vase, wall frame, floor mat, and window blind.

- 1. Mounting of split Panicum maximum for Weaving:** Mounting is also another essential procedure which cannot be left out of the execution process. The researcher cuts a strip of manila card horizontally to a length of 40cm. Panicum maximum was laid as warp as seen in plate 3.12 using either the plain or dyed material. The same material was used as weft for weaving.

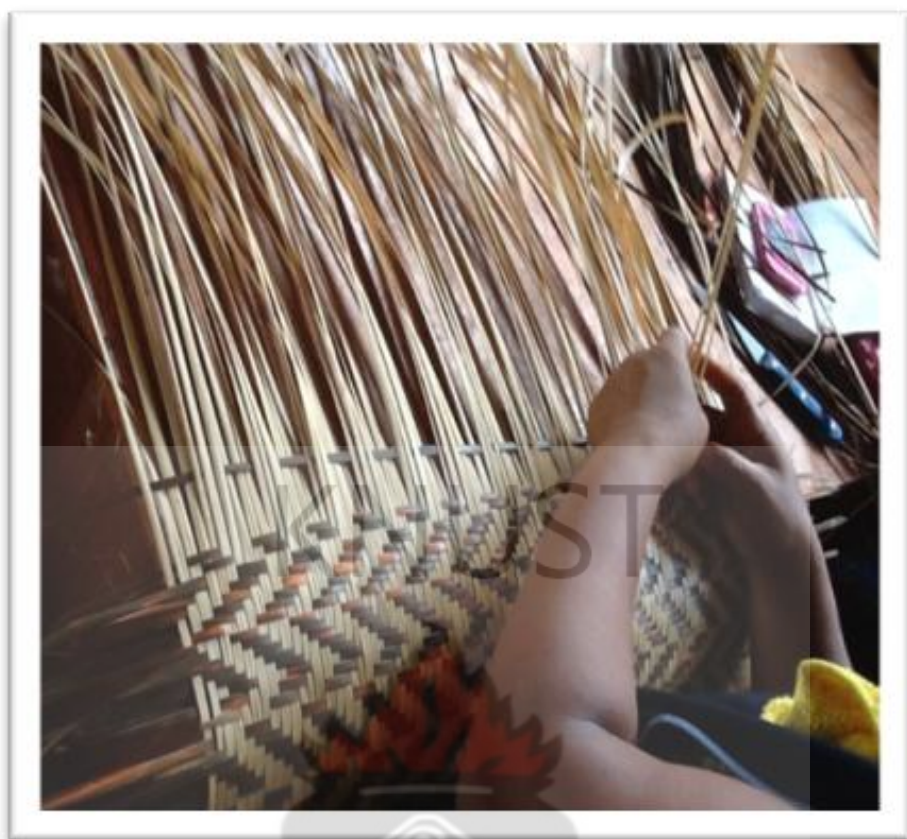


**Plate 3.12: Mounting of Panicum maximum on manila card**  
(Source: researcher)

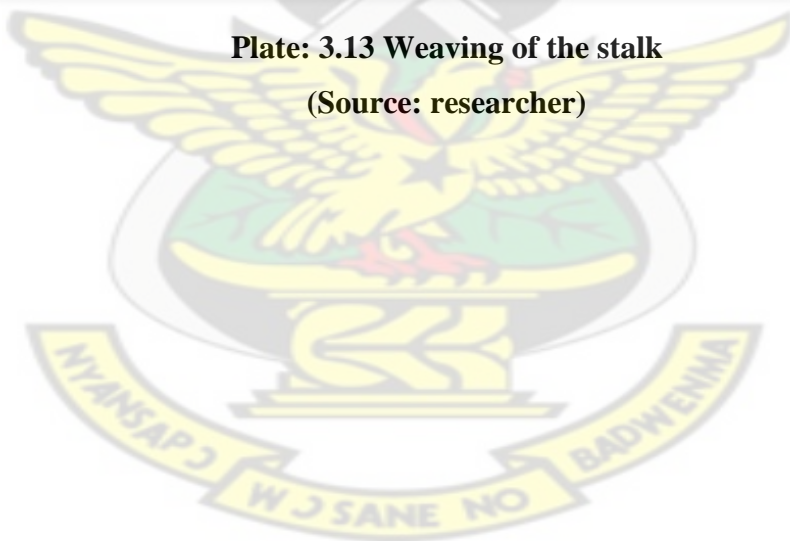
2. **Weaving:** Weaving of the Panicum maximum into a mat was done off loom and on loom.



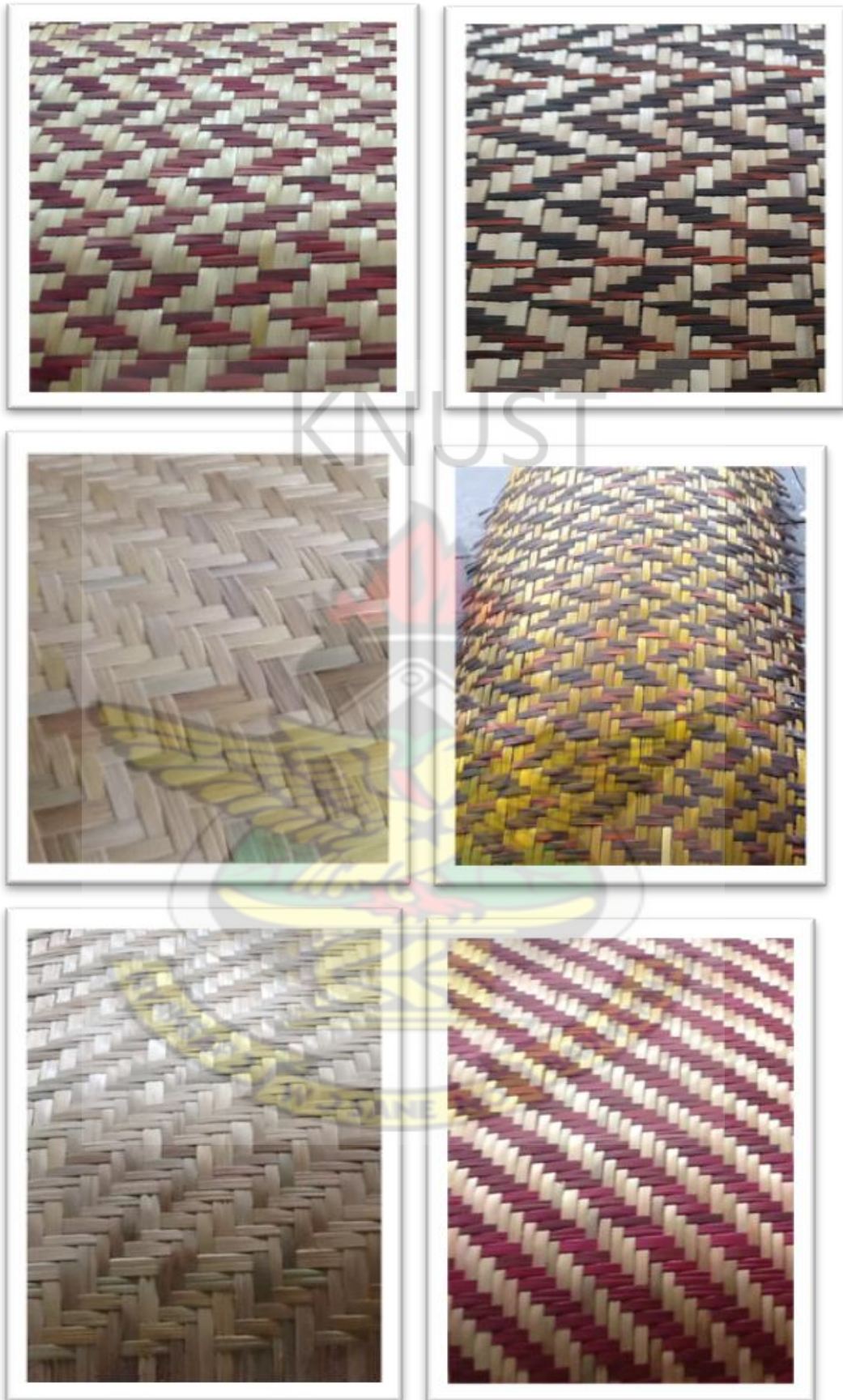
**Fig 3.1: Weave structure used in the study**



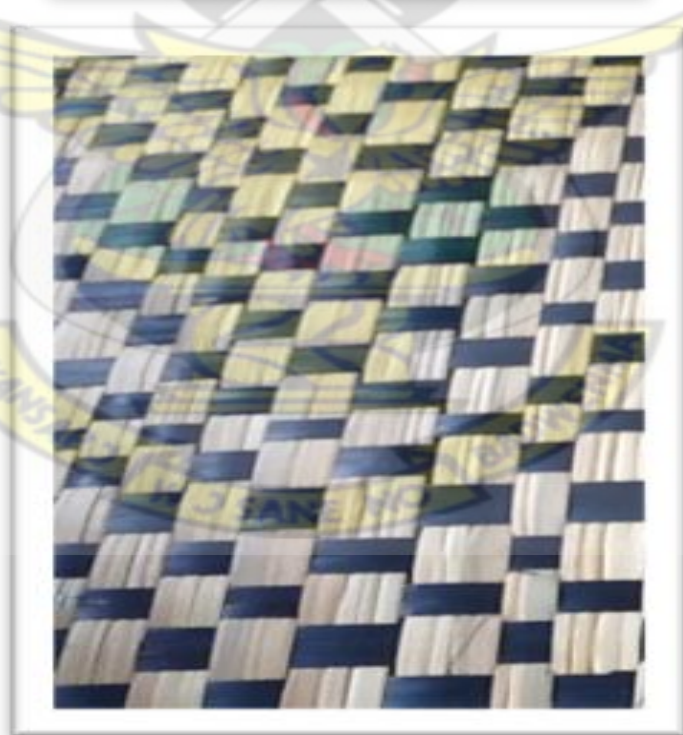
**Plate: 3.13 Weaving of the stalk**  
**(Source: researcher)**







**Plate 3.14: Variations of the twill weave**  
 (Source: researcher)

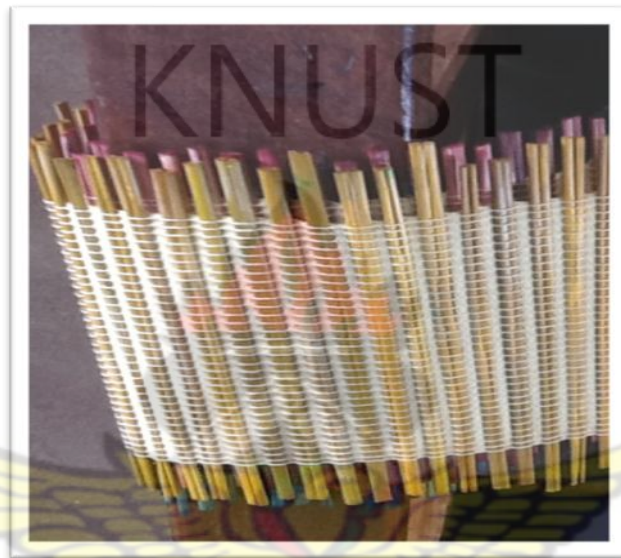


**Plate 3.15: Variations of the plain weave**  
(Source: researcher)

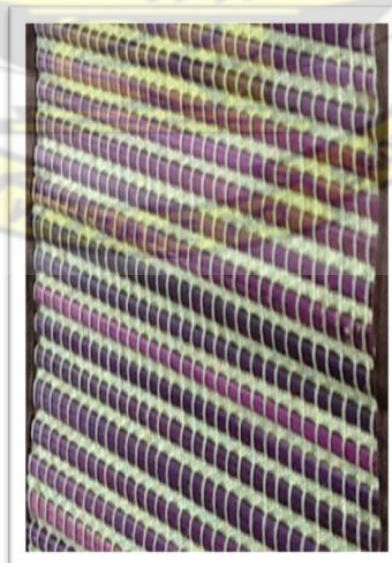


### 3. The Weaving of the *Panicum maximum* on the Traditional Loom

In this particular study, graphical presentation of the design was achieved due to the use of two un-identical weaving materials, *Panicum maximum* and cotton yarns. However the order of weaving on the loom was maintained. A set of yarns was laid as warp on the loom with the heddling order as that of the traditional Kente specifically (*babadua*).



**Plates 3.16: Loom woven *Panicum maximum***  
(Source: researcher)



**Plate 3.17: Finished loom woven *Panicum maximum***  
(Source: researcher)

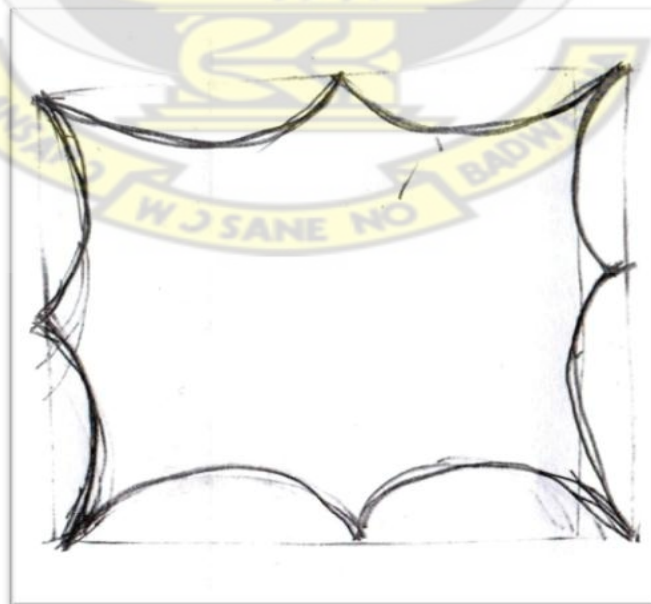
## CONCEPTS FOR THE PROJECTS

### CEILING PANEL

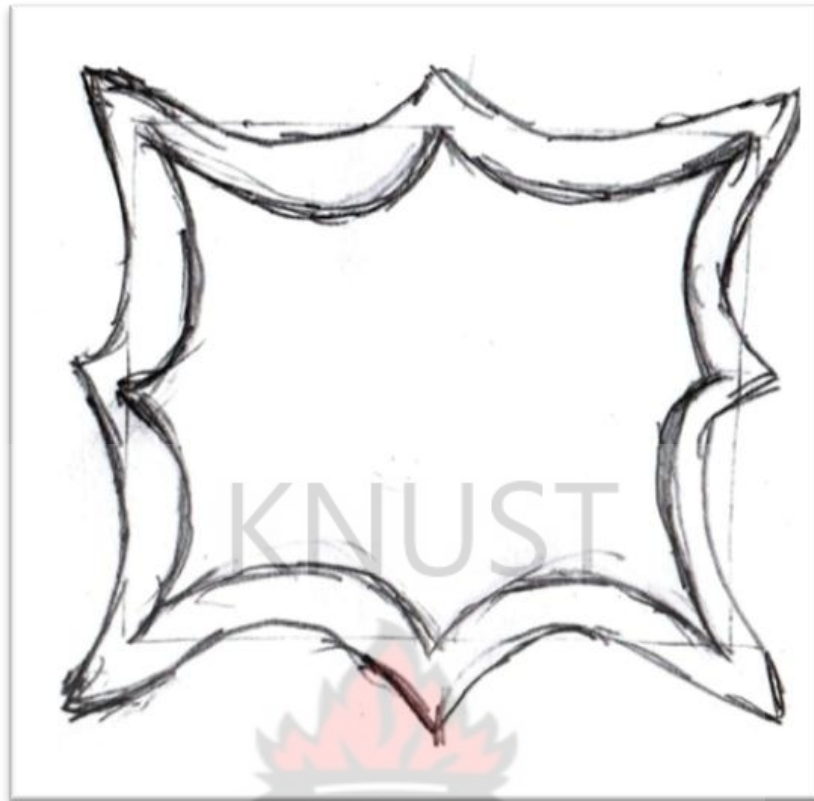
The researcher in this instance took inspiration from nature and things around him and identified three basic forms from which ideas were developed for the study. These include the spider web, the metal roofing sheets and the shield. This idea was developed for off loom weaving.



**Fig 3.2: The concept of spider web**



**Fig 3.3: Thumbnail sketch**



**Fig 3.4: Thumbnail sketch**



**Fig 3.5: Elaborating of design**



**Fig 3.6: Pencil sketch**

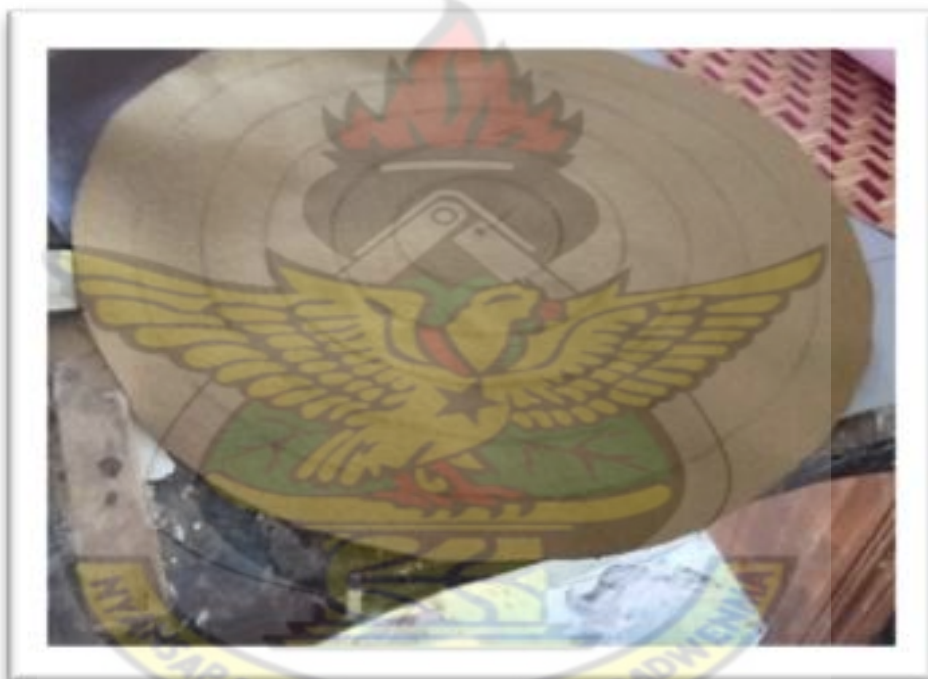


**Fig 3.7: Work in 3 dimensional view (Rhinceros drawing)**  
(Source: researcher)



The researcher marked out the required measurement 50cm by 50cm of the woven Pm mat. A template of a spider shape was cut out. The spider shape template was transferred onto the Twill weave Pm mat. Adinkrahene symbol was marked and cut out on the leatherette and was glued on the spider shape Pm. The Adinkrahene symbol was fixed by stitching technique. A frame with a size 53cm by 53cm was constructed, sanded and sprayed.

Framing of work was done by fixing the woven Pm firmly into the wood frame and supported it with plywood and nails.



**Plate 3.18 Marking of Adinkra symbol**

**(Source: researcher)**



**Plate 3.19 Gluing of Vilene (Stiff)**

(Source: researcher)



**Plate 3.20 Arranging of Adinkra symbol**

(Source: researcher)





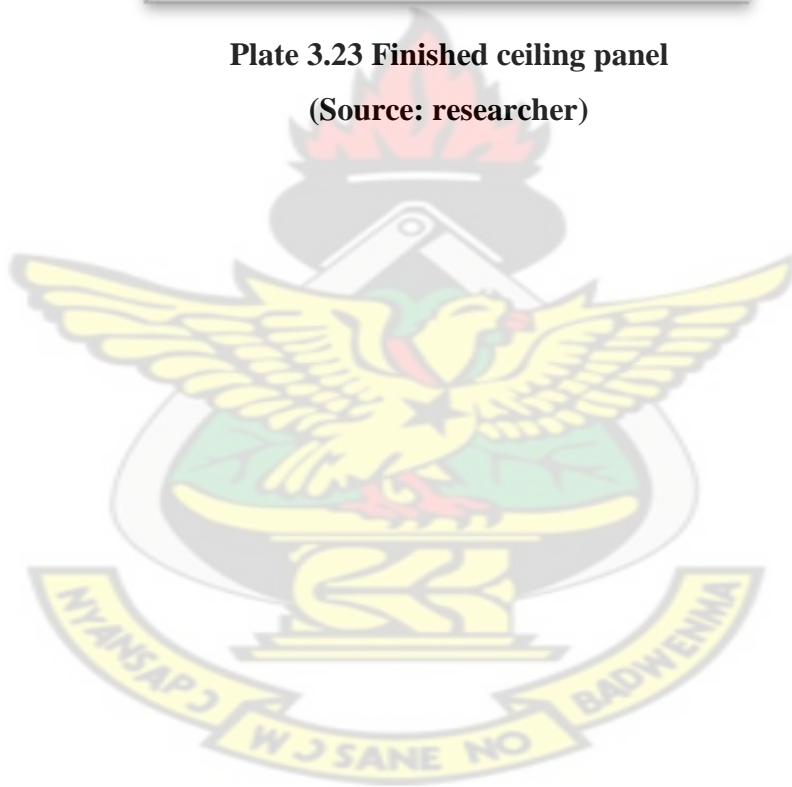
**Plate 3.21 Stitched Adinkra symbol**  
(Source: researcher)



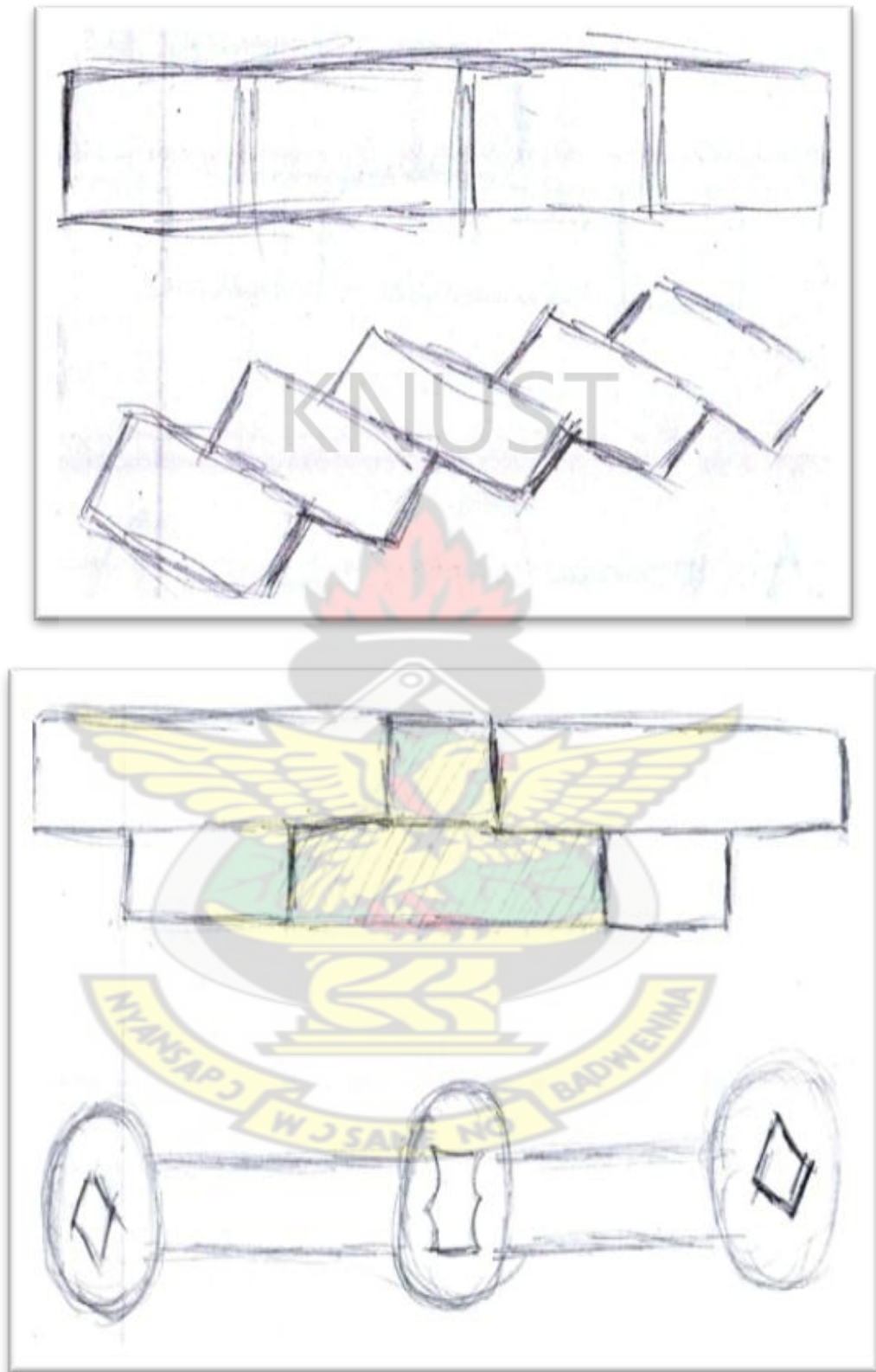
**Plate 3.22 Frame for ceiling panel**  
(Source: researcher)



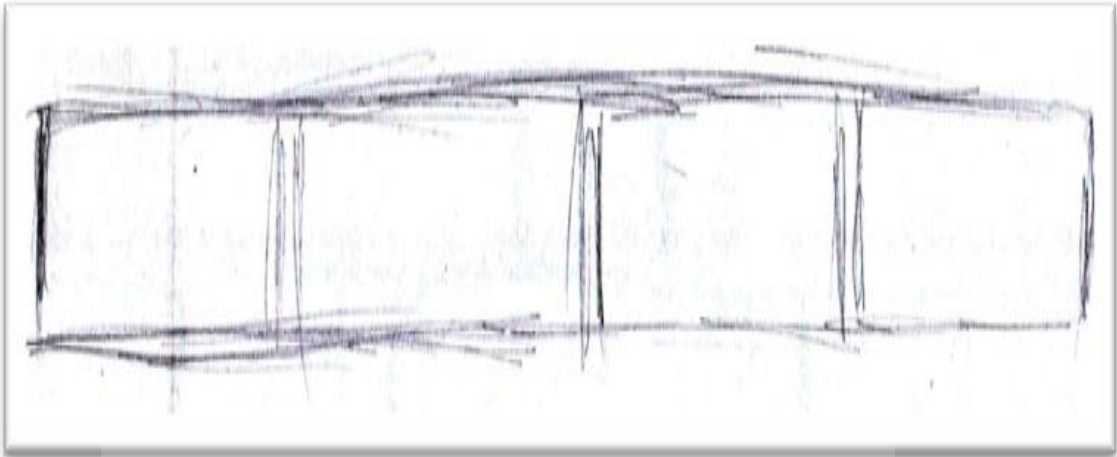
**Plate 3.23 Finished ceiling panel**  
(Source: researcher)



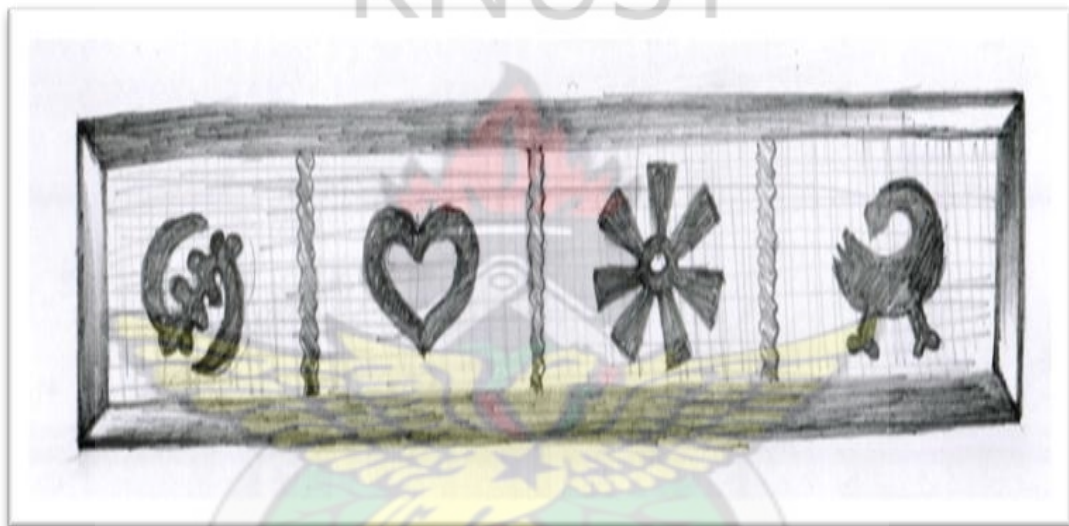
## WALL PANEL



**Fig 3.8: Thumbnail sketches of the wall panel**



**Fig 3.9: Selected design**



**Fig 3.10: Wall panel in a pencil sketch**



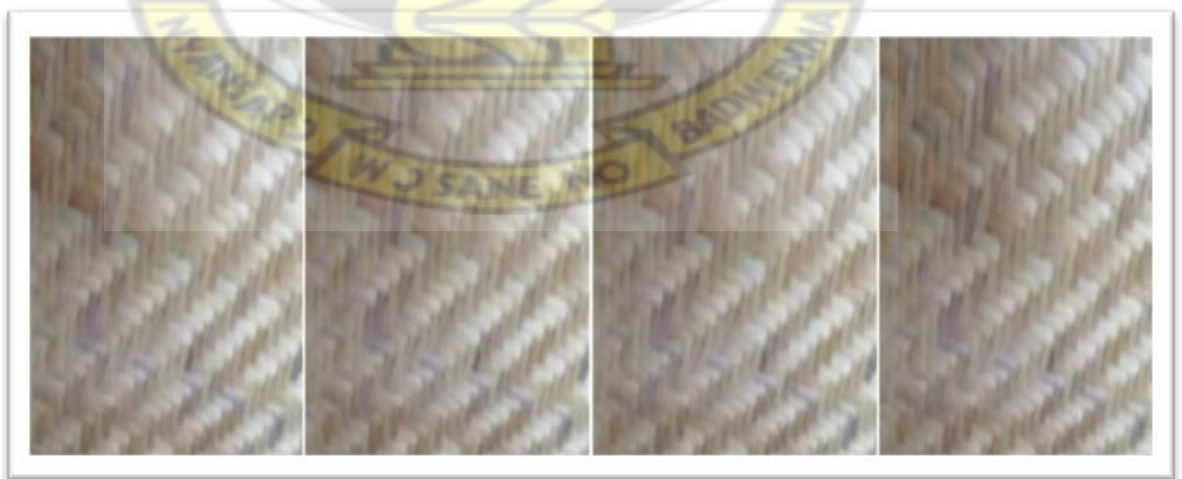
**Fig 3.11: Work in 3 dimensional view (Rhinoceros drawing)**



After the weaving of the *Panicum maximum*, the woven mat was cut into rectangles as shown in Plate 3.24. Four rectangles were joined to get the full length of 33” (Plate 3.25).



**Plate 3.24: Cut out pattern**  
(Source: researcher)



**Plate 3.25: Joined cut out pattern**  
(Source: researcher)

The rectangular shaped mats were decorated with Adinkra symbols (Plate 3.26). These symbols include Adinkrahene, Gye Nyame, Akoma, *Ese ne tekrema*, Nsoroma and Sankofa. These parts of the project were made in leatherette.



**Plate 3.26: Decorative Adinkra symbols**  
(Source: researcher)



**Plate 3.27: Assembled project**  
(Source: researcher)



The wooden frame of size 19 cm by 126 cm was constructed, sanded and sprayed to  
Frame the woven Panicum maximum firmly and supported with plywood.

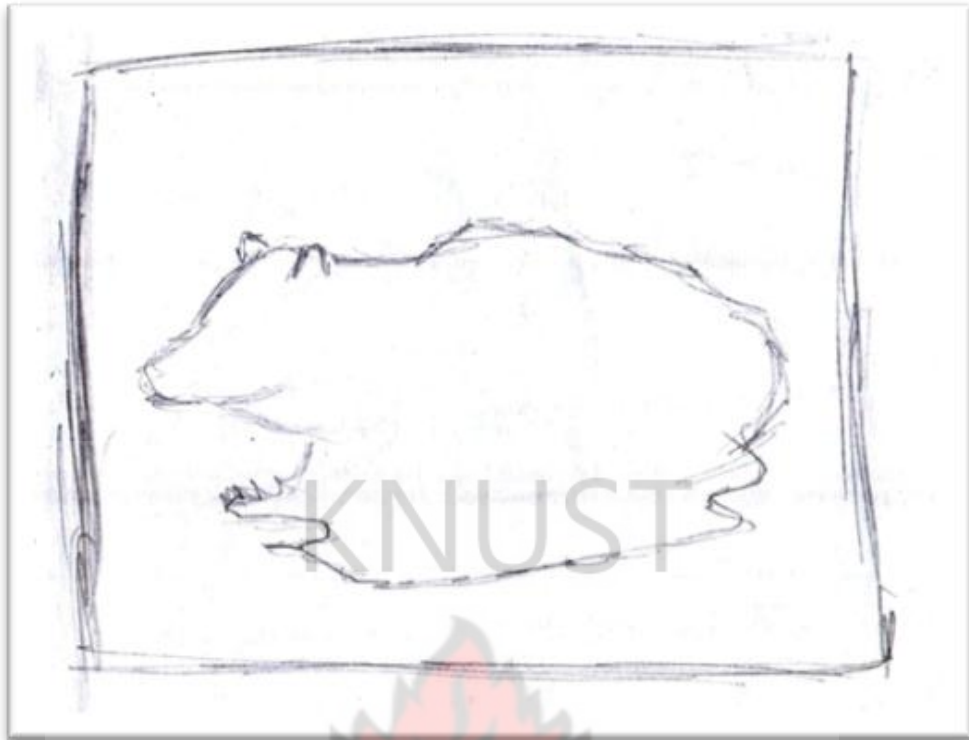


**Plate 3.28: Finished wall panel**  
(Source: researcher)

#### **WALL PICTURE**



**Fig 3.12: Sketch of the background**



**Fig 3.13: The sketch of the animal**



**Fig 3.14: Pencil sketch of the wall picture**



**Fig 3.15: 3 Work in 3 dimensional view (Rhinoceros drawing)**

The size of the wall picture was cut from the twill woven Panicum maximum measuring 55cm X 51.5cm (Plate 3.15). The cut out picture of the bear was placed on the woven Panicum maximum. Plate 3. 30.



**Plate 3.29: Cut out a picture of the bear  
(Source: researcher)**





**Plate 3.30 Placing of cut out the picture on the Panicum maximum**

(Source: researcher)

The picture of the woven Panicum maximum was fixed by the use of the stitching machine see Plate 3.31. The back of the picture was covered with leatherette. The surface was covered with a transparent film to protect it from fraying and dust. Framing was done to finish it. (Size 65cm by 62cm)



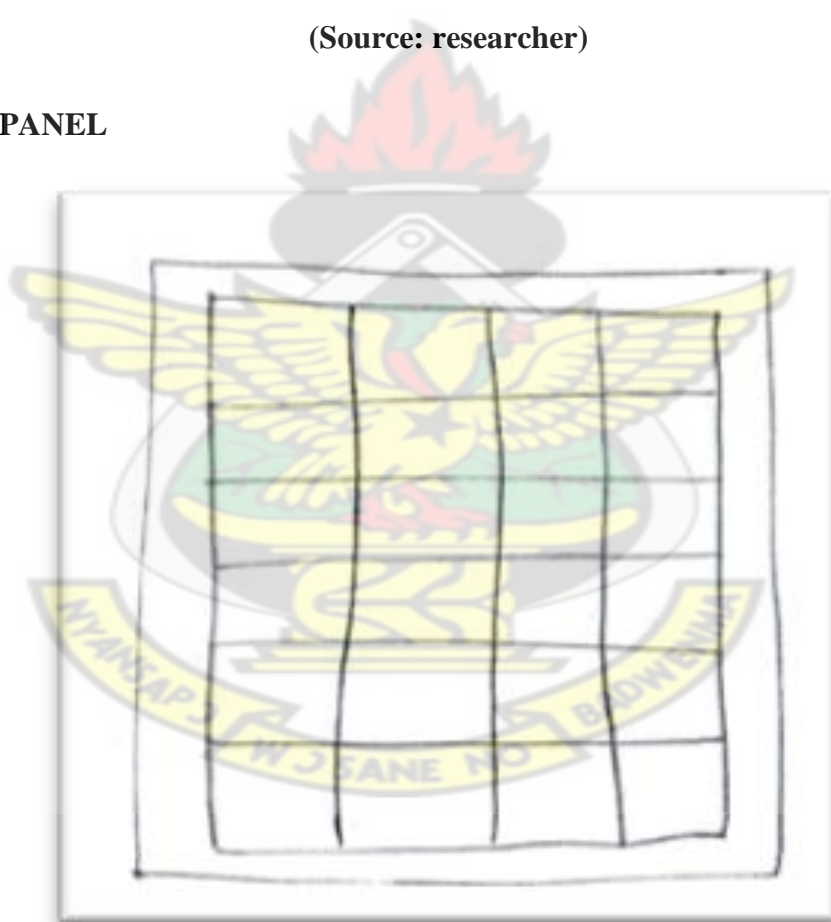
**Plate 3.31: The stitched picture of the bear**

(Source: researcher)

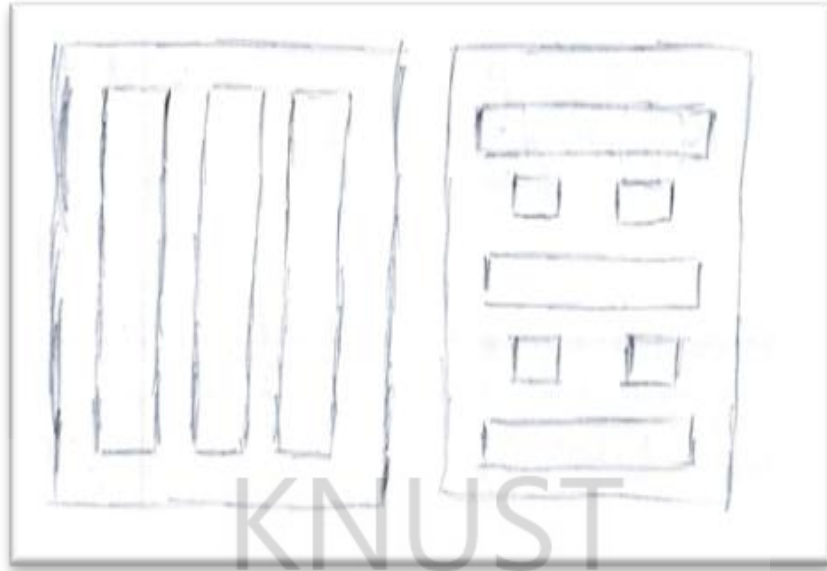


**Plate 3.32: Finished wall picture. Size: 65cm X 62cm**  
(Source: researcher)

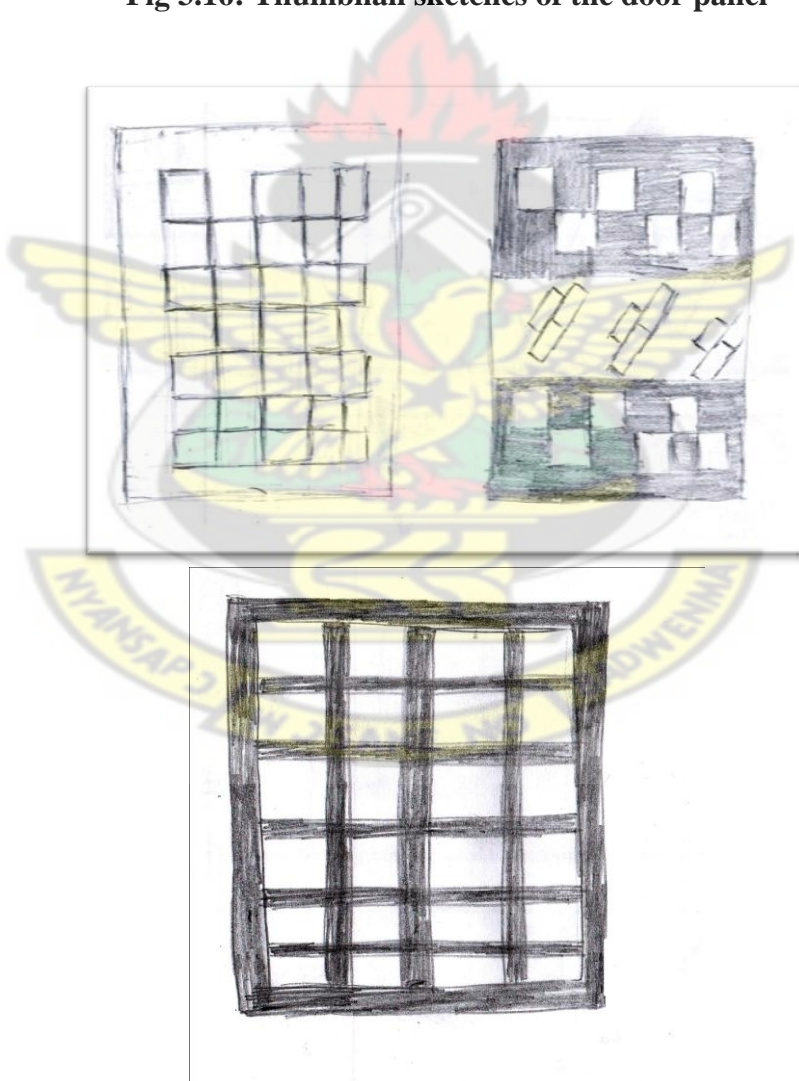
## **DOOR PANEL**



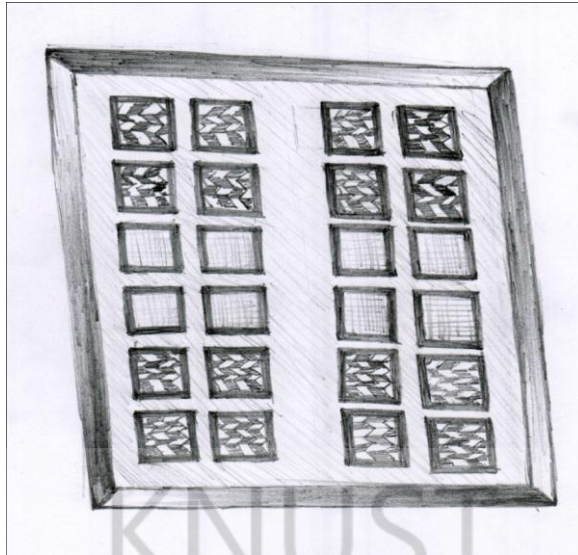




**Fig 3.16: Thumbnail sketches of the door panel**



**Fig 3.17: Sketches of the door panel**



**Fig 3.18: Pencil sketch of the door panel**



**Fig 3.19: 3 Work in 3 dimensional view (Rhinoceros drawing)**

## DOOR PANEL

In producing the door panel, the desired sizes (11cm X 11cm) were marked out and cut out on the Plain and Twill woven Panicum maximum mat in squares (plate 3.33).

The marked sizes of 16 pieces of dyed twill woven Panicum maximum and 8 pieces of plain woven Panicum maximum were cut out. The cut-out pieces of Panicum maximum were arranged on straw board as shown in Plate 3.34.

The arranged pieces were fixed with glue on straw board. The assembled piece was covered with paper tape before spraying. The back was padded with leatherette. The work was framed and measured 104 cm by 79 cm. This was sanded and sprayed (Plate 3.35).



**Plate 3.33: Cut out pattern**

**(Source: researcher)**



**Plate 3.34: Arranged and glued, cut out of the straw board**  
(Source: researcher)



**Plate 3.35: Sprayed straw board**  
(Source: researcher)





**Plate 3.36: Picture of Panicum maximum on sprayed straw board**  
(Source: researcher)



**Plate 3.37: Final picture of the door panel Size: 79cm X 104cm**  
(Source: researcher)



## CORNER VASE



**Fig 3.20: Thumbnail sketches of the corner vase**



**Fig 3.21: Pencil sketch of the corner vase**



**Fig 3.22: 3 Work in 3 dimensional view (Rhinceros drawing)**

The required measurement (44 cm X 22 cm) was marked out of finished design on twill woven Panicum maximum mat. Templates were developed as shown in plate 3.38.



**Plate 3.38 (a and b): Marked and cut out templates**  
(Source: researcher)

The templates were transferred on to the woven Panicum maximum. Holes were punched at the edges of the cut out pattern and for joined by thonging. Grommet was fixed at the edges to enhance its finishing.



**Plate 3.39a and b: Marked and Cut out Templates**  
(Source: researcher)

Different colours of dyed *Panicum maximum* stalks were put inside to serve as flowers.



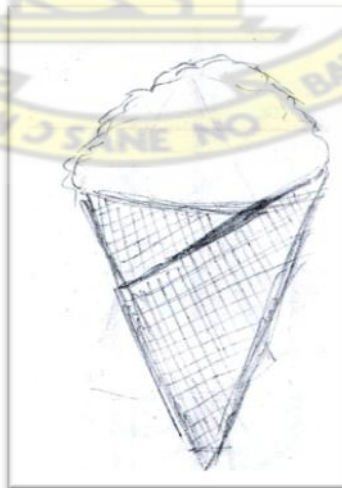
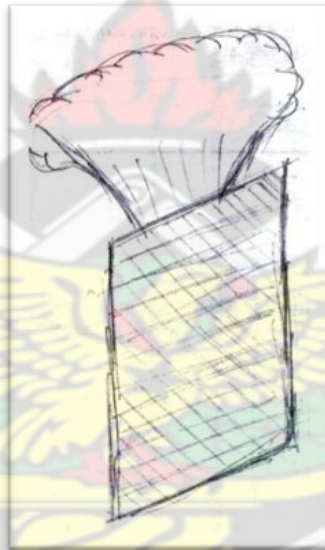
**Plate 3.40 Finished corner vase**  
(Source: researcher)



**Plate 3.41 Finished corner vase with *Panicum maximum* stalks (Size:22cm X 73cm)**  
(Source: researcher)



## WALL VASE



**Fig 3.23: Detailed Sketches**



**Fig 3.24: Pencil sketch of the wall vase**



**Fig 2.25: Work in 3 dimensional view (Rhinoceros drawing)**

## **WALL VASE**

Mark out measurements of the required size (29.5 cm X 21 cm) were cut out on the twill woven Panicum maximum and folded. The cut-out mat was folded to form a cone. Using a strip of leatherette, tacking of the edges was done to secure the joints and to enhance the beauty of the product. Different colours of dyed Panicum maximum stalks were put inside to serve as flowers.



**Plate 3.42: Woven Mat**  
(Source: researcher)



**Plate 3.43: Folding the Woven Mat**  
(Source: researcher)



**Plate 3.44: Finished wall vase with Panicum maximum stalks**

Size: 37cm X 73cm

(Source: researcher)

#### **WINDOW BLIND**



**Fig 3.26: Pencil sketch of the window blind**





**Fig 3.27: 3D Rendition of the window blind**

### **WINDOW BLIND**

The production of the window blinds started with the selection and flattening of dried Panicum maximum. The flattening was done by pressing with a hard bottle. The pressed straws were cut into 18 cm in length. Before weaving, a test weave was done to check if every arrangement was in order. The weaving was a loom process. In this, the heddlings order of 1, 2, 1, 4, 3, 4, was used. Strips of loom woven Panicum maximum were produced with enhanced all shuttle multi-coloured weave.

### **Execution of the window blind**

**Pressing:** This was done by application of pressure with a bottle to flatten the Panicum maximum. (See Plate 3.10)



**Plate 3.45: Cutting of the Panicum maximum and required cut out size of Pm**  
(Source: researcher)



**Plate 3.46: Yarns in hanks**  
(Source: researcher)

**Warping:** It is the stretching of yarns on a warping mill to form the lengthwise yarns known as warp.



**Plate 3.47: Warping**

**Beaming:** It is the stretching and rolling of the long warp yarns into the warp beam on the loom.



**Plate 3.48: Beaming**

(Source: researcher)



**Heddling:** After beaming, the ends are threaded through the eyes of the heddles suspended on the heddle frame.



**Plate 3.49: Heddling**  
(Source: researcher)

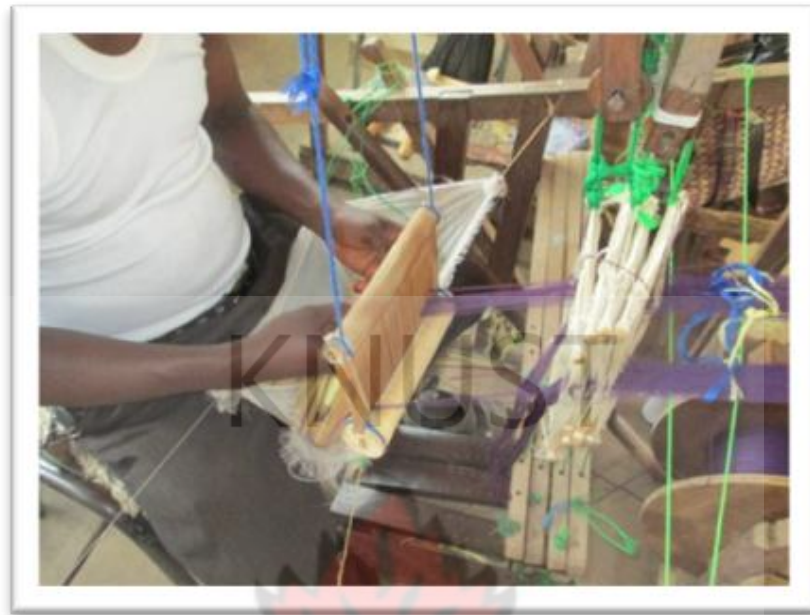
**Reeding:** After heddling, the yarns are passed through the dents of the reed.



**Plate 3.50: Reeding**  
(Source: researcher)



**Tie Up:** It is the tying of the sections of warp yarns to the flyer rod which is in turn are connected to the cloth roller.

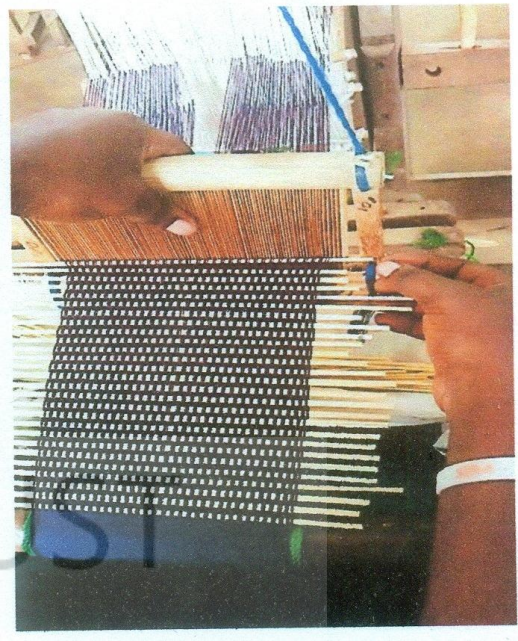


**Plate 3.51: Tie up**  
(Source: researcher)

**Weft preparation of yarn:** The yarns in hanks are fixed on a skein winder and a spool rack and wound onto a bobbin by means of a bobbin winder.



**Plate 3.52: Weft preparation**  
(Source: researcher)

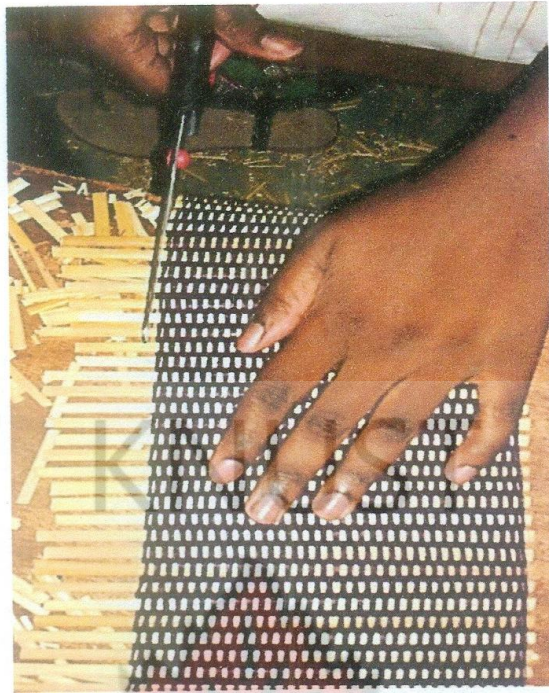


**Plate 3.53: Weaving on the loom**  
(Source: researcher)



**Plate 3.54: Woven blind**  
(Source: researcher)





**Plate 3.55: Trimming of edges**  
(Source: researcher)



**Plate 3.56: Trimmed edges**  
(Source: researcher)



**Plate 3.57: Piping the edges to prevent fraying**  
(Source: researcher)

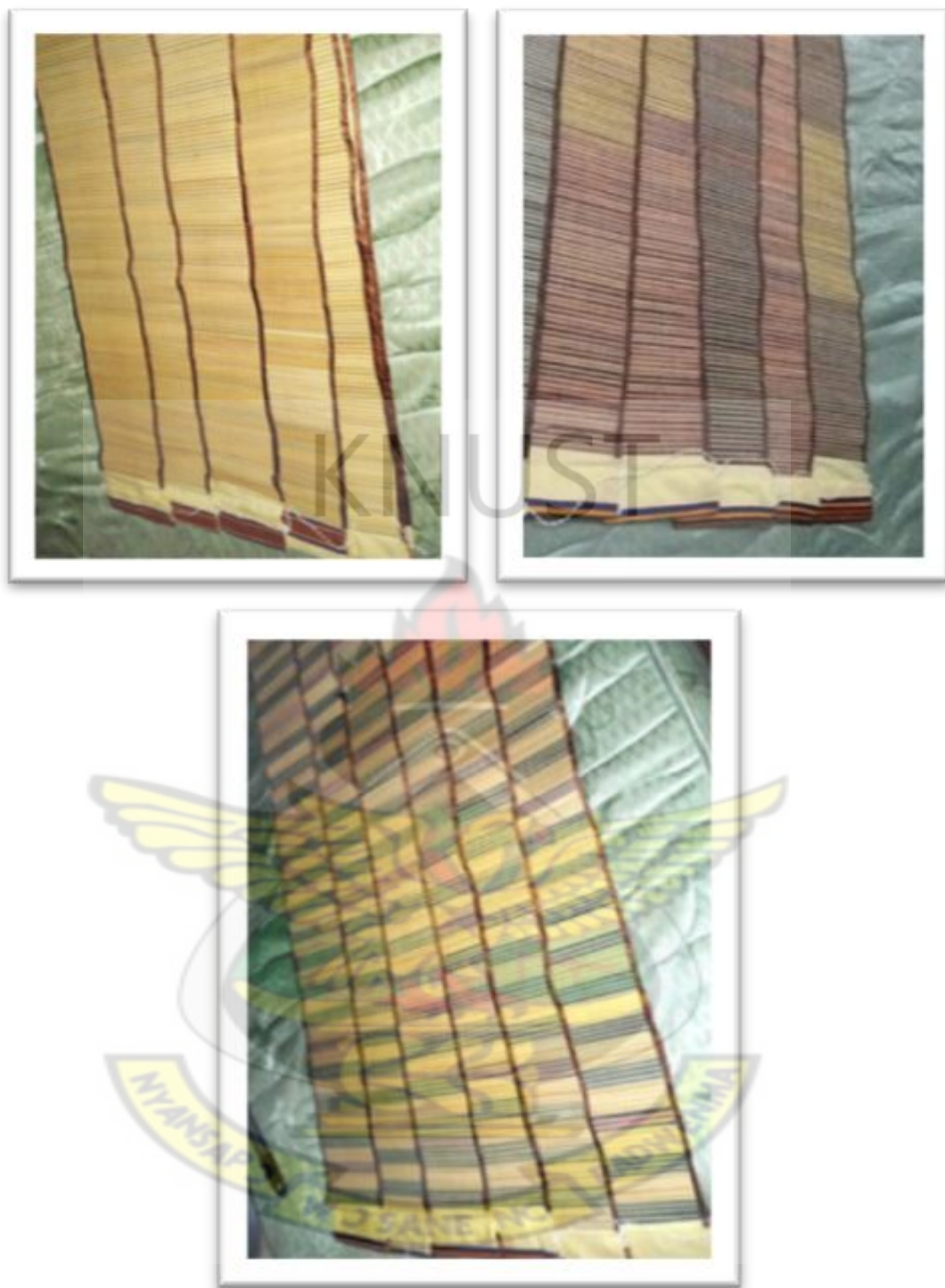
The window blinds were made in three forms

1. Un-dyed Panicum maximum
2. Dyed Panicum maximum
3. Mixture of dyed and un-dyed Panicum maximum

After weaving on the loom the edges of the woven Panicum maximum were trimmed.

To prevent fraying, buyers were piped at the edges. Finally the woven Panicum maximum was mounted on a metal rod to serve as the window blind holder.





**Plate 3.58: Finished window blinds**  
(Source: researcher)



**Plate 3.59: Hanged finished window blind**  
(Source: researcher)

## Wall Picture II



**Fig 3.28: The next step showed the use of codes and how they were explained**

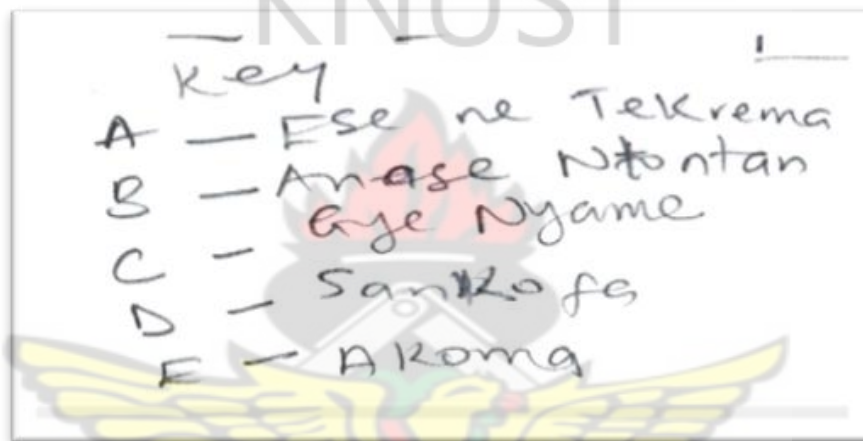
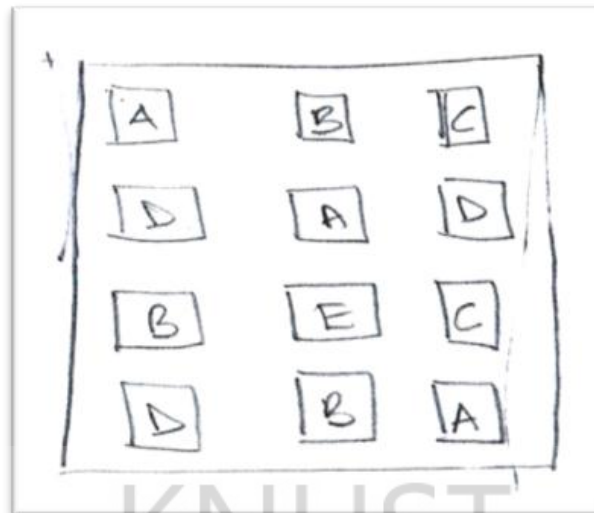


Fig 3.29: Elaborating on selected design and stating of codes



Fig 3.30: Pencil sketch of the Wall picture 2





**Fig 3.31: Work in 3 dimensional view (Rhinoceros drawing)**

Measurement for the wall picture was 43 cm by 53 cm. This size was cut from the plain woven mat and arrangement of the Adinkra symbols was done according to design specifications. The fixing of the Adinkra symbols on the woven Pm mat was done by stitching. A Frame with a size of 45 cm by 55 cm was constructed, sanded and sprayed and the woven Pm, fixed firmly into the wooden frame.



**Plate 60: Cutting of Adinkra symbols**  
Source: researcher



**Plate 61: Cut out Adinkra symbols**  
Source: researcher





**Plate 62: Arranging of Adinkra symbols on Pm**  
(Source: researcher)



**Plate 63: Covering the back with Vilene ( stiff )**  
(Source: researcher)



**Plate 64: Fixing the Adinkra symbols by stitching**  
(Source: researcher)



**Plate 65: Finished wall picture**  
(Source: researcher)

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION OF FINDINGS**

#### **4.0 Overview**

This chapter looks at the result and discussion of the findings made in this study. The discussion focuses on the results and findings of the activities performed during the execution of work.

#### **4.1 Results and discussion of findings for objective one.**

1. To identify materials and models commonly used for interior decoration.

To meet the requirement of objective 1 as stated above, researcher visited several shops to have first-hand observation of models for decoration currently displayed in shops. This took several days, to accomplish. Locations of shops visited include Accra, Kumasi, Takoradi, Tamale, and Bolgatanga where a lot of Panicum maximum is used for craft work.

Models identified from these shops located in the regions included flower vases made in clay, wood, bamboo, plastic and metals. Others were beautifully framed wall hangings made using fabric, paintings, collage, and mosaic, all with diverse materials for the decoration of the home.

It was obvious that interior decoration models can be made out of several different materials that were on display at the various shops in the regions. This acknowledged the fact that, several materials can be processed and fabricated into models for interior decoration. For Panicum maximum to be used in certain models, it has to be first processed and fabricated into materials that possess the requisite properties for

fabrication into specific models. Again, not all decorative models can be made or fabricated with *Panicum maximum*.

#### **4.2 Results and discussion of findings for objective two.**

To design and construct models with *Panicum maximum* for interior decoration. Having made a first-hand observation on models for decoration of shops in the regions, and interacted with artists working with *Panicum maximum*, researcher gained ample knowledge of the properties of the material in question and the possible responses of the material when being fabricated, to form the basis for the designing of models for interior decoration.

In the study, the researcher found the following models as appropriate for fabrication in *Panicum maximum*, window blinds, flower vase, wall hangings, ceiling panels, decorated door panels, lamp stand and shades. Researcher again, observed that the designing and production of these models require the integration of other materials for technical and aesthetic reasons.

In this, selected traditional Adinkra symbols were considered essential for decorating the models. Adinkra symbols have in the past served as symbols for communication. The symbols are,

- Adinkrahene
- Akoma
- Sankofa
- *Ese ne tekrema*
- Nsoroma
- Gye Nyame



**Fig 4.1: Adinkrahene**

Literally means the king of Adinkra, as explained by Achampong (2008) in his book Christian values in Adinkra symbols, is a symbol of greatness, maturity, prudence, firmness and magnanimity. This symbol reminds the user of the need to aim high to achieve greatness and to serve as a role model in society. It also calls for the display of maturity in everyday activity and to be firm in correcting the youth and ensuring the right thing is done.



**Fig 4.2: Akoma**

This symbol is the heart, these deals with issues of the heart. It communicates patience, tolerance and endurance. It is believed to create in one the character of patience and endurance. These are attributes that are found in people who manage the affairs of men and give council in love to promote peace (Achampong, 2008).





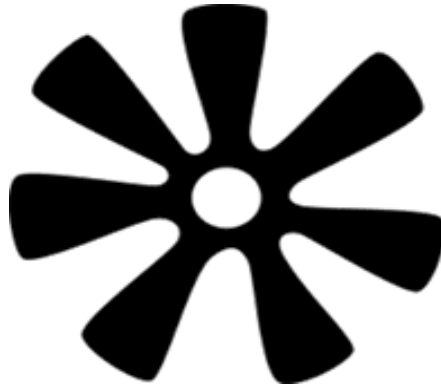
**Fig 4.3: Sankofa**

Sankofa as the symbol is talking about correcting. The need to go back to make amends is vital in everyday life. This symbol simply reminds people of the fact that mistakes are inevitable, yet they must not be ignored. So always look back to confirm your forward movement (Achampong, 2008).



**Fig 4.4: *Ese ne tekrema***

*Ese ne tekrema* teaches and exposes the philosophy of co-existence in life. It also teaches tolerance and accommodation of neighbours in society. *Ese*, which is the teeth with the potential to bite, has lived together with *tekrema*, the tongue for life, offending each other and making peace for mutual coexistence. It also talks about peace with our neighbours as an essential attribute for living together (Achampong, 2008).



**Fig 4.5: Nsoroma**

Nsoroma is the star; this is a symbol of hope. Biblically, the star has always been seen to communicate hope. It carries information of the future that brings meaning to life for people. Like the star that led the wise men to the place where Jesus the Christ was. It is seen as a symbol which makes life worth living. It is an anchor that tells of good times ahead in life (Achampong, 2008).



**Fig 4.6: Gye Nyame**

Gye Nyame, Except God is the expression of the God consciousness expected to be seen in our day to day walk, knowing the Omnipotent and the omniscience of God. This is to bring awareness of the qualities of God's being. The freedom shared in his presence which is everywhere and how nothing is hidden from him (Achampong, 2008).

In the execution of the models, indigenous art was not left out in which the traditional symbols served as the communicating values that anchor and keep society united. Studies made on the material exposed some of the capabilities and potentials of Panicum maximum as a material that can be processed and fabricated into useful products. It is against this background that researcher made designs of models to be constructed or fabricated in Panicum maximum. Models that were designed and made included window blind, which were fabricated on the loom as a loom fabric, and an integration of cotton yarn and Panicum maximum. This was made to be used in offices, homes, receptions and places where blinds are effectively necessary. In the production it became clear that, Panicum maximum was substituted for bigger bundles of weft yarns. The technique was adopted from on loom design weave which is also an all shuttle activity.

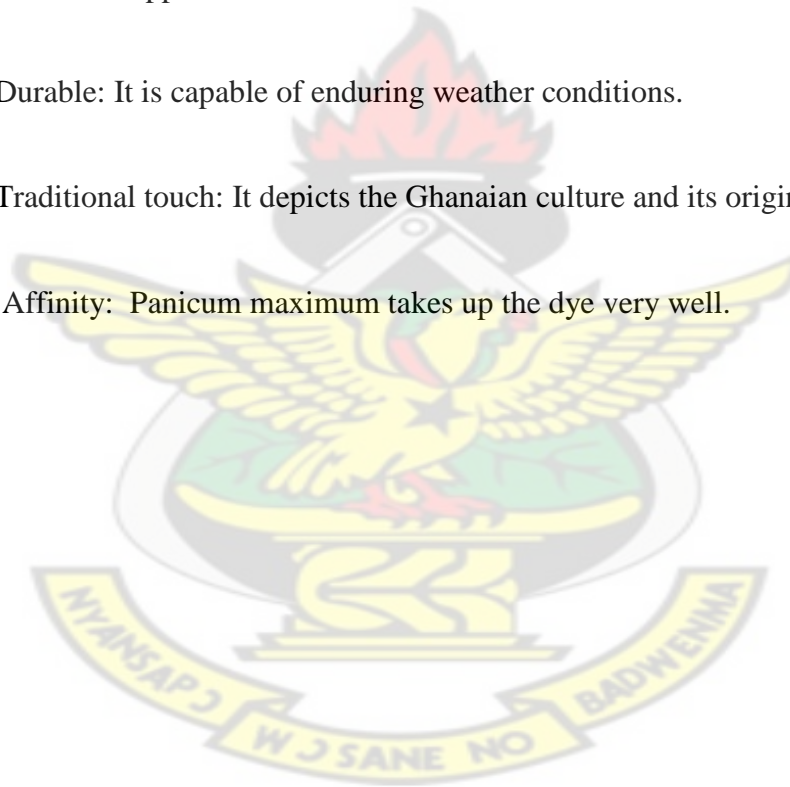
The tie- up was of the basic twill, and the heddlings order, 121, 434, created a 3warp up and 3 warp down effect bounded with a plain weave. The structure created on the loom ended with a few centimetres of indigenous Kente design to give it an identity of Ghana. This brought to light the enormous array of structures that can be created on the loom by the interlacing of Panicum maximum and cotton yarns.

### **Physical properties of Panicum maximum in the construction**

The physical properties of Panicum maximum when processed for certain works were different from, the way it presented itself in other works. The material was initially found to be brittle after harvesting and drying. After pressing on the wooden board and cut for weaving, the brittle nature was found to have reduced and some considerable level of flexibility has been attained. It was also found that, after splitting and scraping off the pith of the material the final material was further made

flexible and could be used for off loom and hand weaving. It is, however debatable as to whether the foamy pith was the cause of the brittleness or not. Panicum maximum is a universal processed material for both loom and off loom production. The material was found to be one of the forest materials that offer countless useful applications in the field of art and basketry. The effect of water on Panicum maximum when dry attains its original colour. In principle, the characteristic of Pm can be summarized as:

- Flexible: It can easily bend or be shaped to a desired shape.
- Aesthetic Appeal: It lends itself to be finished.
- Durable: It is capable of enduring weather conditions.
- Traditional touch: It depicts the Ghanaian culture and its origin.
- Affinity: Panicum maximum takes up the dye very well.





## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Summary

The use of synthetic materials, wood and conventional material in the production of particular items for consumption by society have led to the over exploitation of any natural raw materials. This has led to the placing of restrictions on some natural raw materials like the felling of trees in the natural forest especially in the tropics. These have drawn Government's attention on the need to find substitute materials to replace the over exploited or extinct ones. Panicum maximum is one of the natural raw materials which are versatile, with many applications in the field of art in Ghana. In an attempt to exploit fully the potentials of this raw material, efforts were made in the direction of developing alternate uses apart from the production of exportable Bolga baskets as this raw material can be placed to become a principal fabrication material in art for Ghana.

To achieve this, the following objectives were outlined for the project

1. To identify materials and models commonly used for interior decoration.
2. To design and construct models with Panicum maximum for interior decoration.

To achieve these objectives, the researcher visited some Panicum maximum processing and fabrication centres to see at first hand the structures in preparation and the process adopted at the various points for fabrication.

There was inadequate information on the topic, however the researcher reviewed the available literature and conducted interviews with 45 respondents working in processing centres, and teaching or plant research centres. The experimental and

descriptive methods of research were adopted for this project.

Critic results of the experiment and the products indicate that all the objectives that were outlined were achieved, thus providing answers to the set research questions.

## **5.2 Conclusion**

The study was able to identify the materials and models commonly used for interior decoration such as sisal, clay, jute, corn husk and models like Leather chair, Flower vase, Curtain, Chandelier and others.

Designing and construction of interior decoration models such as ceiling panel, door panel, floor panel, wall panel, corner vase, wall vase, window blind, wall pictures and lamp shade were successfully done with Panicum maximum.

## **5.3 Recommendations**

Well-equipped material and workshops should be established in the University to encourage students to embark on viable projects of this nature that can yield relevant results necessary for Ghana's industrial development. Adequate funding should be made available to motivate students and researchers to undertake viable and sustainable projects.

Seeing that the adaptation of Panicum maximum as one of the primary art materials is a possibility, the cultivation of Panicum maximum on a large scale should be encouraged by the art industry to help reduce Ghana's overdependence on wood, metal and known conventional materials for construction and fabrication. There is the need for further research into this local raw material for its use in other areas of art.

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## APPENDIX

### INTERIOR DECORATION USING PANICUM MAXIMUM MODELS



**Plate 66. INTERIOR DECORATION MODELS**

(Source: researcher)