

**INTEGRATED CULTURAL WEAVES (FUGU, KENTE AND KETE) WOVEN  
WITH ORGANIC DYED YARNS**

By

**REBECCA LARTEKAI LARTEY**

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## DECLARATION

I hereby declare that this submission is my own work towards the MPhil. and that to the best of my knowledge, it contains no material 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.

Rebecca Lartekai Lartey (PG8357112) .....

Student's Name & Index No ..... Signature ..... Date .....

Certified by:

Dr. Abraham Ekow Asmah .....

Supervisor's Name ..... Signature ..... Date .....

Certified by:

Dr. John Osei Bobie Boahin .....

(Head of Department's Name) ..... Signature ..... Date .....

## ABSTRACT

This study seeks to investigate the extent to which there can be an integration of all the cultural weaves that have been used by various traditions for the production of *'fugu'*, *'Kente'* and *'kete'*, and which are all woven with organic dyed yarns, into a unique fabric. This concept provides an opportunity to help unite indigenous textile weaving industry, particularly, the indigenous weaving industries in the Northern, Ashanti and Volta regions in Ghana. The study reviews existing work on traditional weaving practices leading to the production of *'fugu'*, *'kente'* and *'kete'* in the Northern, Ashanti and Volta regions respectively so as to be able to build a conceptual framework that is appropriate. For examining how the three aforementioned traditional weaving practices, woven with organic dyed yarns, can be blended to produce a unique cloth for the fashion industry. The approach of the study was qualitative research methods and the instrument used to collect data were mainly interviewed (one-to-one) and participant observation with players in the traditional weaving industry and then some secondary data. The scope of the study covered selected indigenous textile centres in the Ashanti, Volta and Northern regions of Ghana. The population of the study was limited to fifty weavers and five dyers, mostly weavers from *Bonwire*, *Agotime Kpetoe*, *Tamale* and *Daboya* and dyers from *Daboya*. The concepts under investigation included research into plants that have the potency of being used as a dye and using the dyes obtained to dye yarns for weaving. The findings of this study suggest that some plants found in Ghana have the potential for the production of natural dyes. It also emerged from this study that the traditional weaves produced in the three regions of Ghana under study, have the capability of uniting these three regions based on the concept the study adopted.

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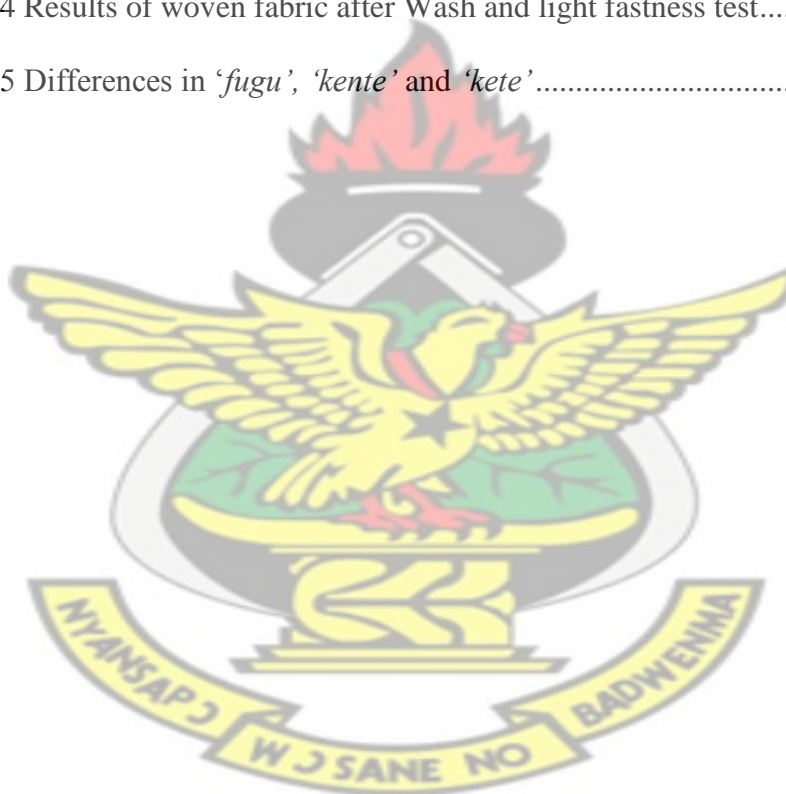
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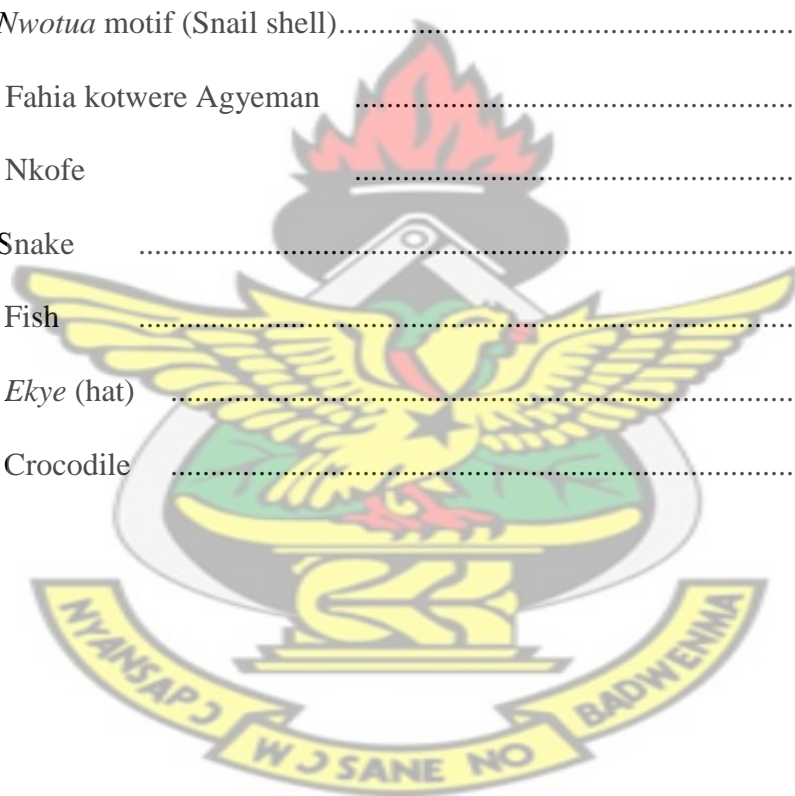
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## LIST OF ABBREVIATION

<b>GSS</b>	Ghana Statistical Service
<b>GTP</b>	(Ghana Textile Printing Company Limited
<b>IRAI</b>	Integrated Rural Art and Industry
<b>NGO</b>	Non Governmental Organization
<b>UNDP</b>	United Nations Development Programmes
<b>USSR</b>	Union of Soviet Socialist Republics





## CHAPTER ONE

### INTRODUCTION

#### 1.1. Overview

This chapter describes how the traditional hand weaves and woven fabrics from three regions in Ghana can be integrated into a unified cultural identity capable of preserving its unique import to enhance the fashion Industries in Ghana. The chapter also outlines and explains the background to the study, the problem statement, the objectives to be achieved, the research questions that will help in achieving these objectives, the scope of the study and the study's importance.

#### 1.2. Background to the Study

Ghana is a nation situated on the Gulf of Guinea having compasses a territory of 238,500 km<sup>2</sup> (92,085 sq. miles) (GSS, 2010). It is surrounded by Togo toward the east, Côte D'ivoire to the west, Burkina Faso to the north and the Gulf of Guinea (Atlantic Ocean) to the south. Ghana is geographically closer to the "centre" of the world than any other country, even though the national centre, (0°, 0°) is located in the Atlantic Ocean approximately 614 km south of Accra, Ghana, in the Gulf of Guinea (GSS, 2010). Ghana lies at the heart of an area which has been driving sub-Saharan African society since the first thousand years BC in metal working, mining, Leader work, monument and agriculture (Collins & Burns, 2013). Ghana can boast of natural resources, such as Gold, Oil, Timber, Diamond, Cocoa and cultural heritage activities such as Festivals, Durbars, Marriage ceremonies, Funerals and Burial Rites. Traditional woven fabrics like 'Fugu', 'Kente' and 'Kete' which are linked with Royalty among Northerners; Ashantis and Ewe people are ceremonial cloths which are hand woven on a locally made loom. The fabrics woven on the Loom comes in

strips and are sewn together to shape a bigger bit of material. These fabrics are visual representation of history, philosophy, ethics, oral Literature, religious convictions, political thought and aesthetic standards of the general population who made these materials. Though the techniques used in weaving these cloths are similar in nature, they differ in design from region to region in Ghana.

Interestingly, every community in Ghana is encompassed by diverse sorts of plants which can possibly be utilized as dyes. Parts of these plants, for example, the flowers, leaves, bark, roots and the nuts can be handled to acquire colorants. Common plants, for example, Mango, Mahogany, ‘*Neem*’ tree, among many indigenous plants in Ghana, can be exploited to derive vibrant colours. Adu-Akwaboa (1994), shares the view that natural dyes of various colours can be obtained from many local plants in Ghana and these dyes can be extracted from the barks of trees, leaves, roots, seeds, fruits, flowers, or young shoots.

Since time immemorial, natural dyes derived from roots, seeds, leaves, barks and flowers of plants and mineral matter have been used to dye textiles and food, however, these advantages derived from natural dyes have not been fully exploited in the dyeing industry in Ghana.

This research seeks to exploit the possibility of using organic dyes available in Ashanti, Northern and Volta regions of Ghana to dye cotton yarns for various kinds of cloths. A composite of the various techniques in these regions will be integrated into one composed cultural weave that will be a representation of all three regions.

### 1.3. Statement of the Problem

Ghana, as a nation, has ten Regions. It has a flag and an anthem that enhances national unity as evidenced in symbols in the colours and logo of the flag and crest of the nation. The characteristic features of the national flag and the national anthem are embraced and identified by all and sundry to command unity among the people. The researcher believes that this same ideology can be duplicated with these traditional weaves used in Ghana to achieve the same objective. The three cloths basically are 'Fugu' for Northern region, 'Kente' for Ashanti region and 'Kete' for Volta region. Their unique characteristics portrayed in design elements such as colour, motifs and philosophy peculiar to each region have the potential, when harnessed effectively, to bring these regions together.

Ghana has different types of plants which have the potential to be used as dyes. The researcher seeks to take advantage of the potential of these national natural resources to see how dyes can be extracted from them and find out how feasible, they can be used on the yarns needed for the composite woven fabric.

The project also seeks to investigate how different woven strips from Northern, Ashanti and Volta Regions of Ghana can be integrated in the production of 'men size' cloth.

### 1.4. Purpose of the Study

The research aims at exploiting organic dyes to dye cotton yarns for the integration of cultural weaves ('fugu', 'kente' and 'kete').

### 1.5. Specific Objectives of the Study

The main aim of this project is to exploit parts of chosen plants to dye cotton yarns for the integration of indigenous cultural weaves in the fashion business. Particularly the study will:

1. Identify and employ organic dyes that can be used in dyeing yarns for fabric weaving.
2. Identify cloth weaving techniques in the Northern, Ashanti and Volta Regions of Ghana.
3. Integrate the organic dyed yarns and the cloth weaving techniques from the Northern, Ashanti and Volta regions to weave a 'men's cloth.

### 1.6. Research Questions

An analysis of the purpose of the study indicates that the following research questions were appropriate.

1. How can organic materials be identified and employed in dyeing yarns for fabric weaving?
2. What are the weaving techniques in the Northern, Ashanti and Volta regions of Ghana?
3. To what extent can these organic dyed yarns and weaving techniques from the three regions be integrated to produce a 'men's cloth?

### 1.7. Significance of the Study

The research provides a baseline data which sets the pace for further research.

Moreover, it would:

1. Serve as a reference material for researchers who will want to investigate weaving techniques in Ghana.
2. Offer employment opportunities for local dyers as the demand for organic dyed yarns increases.
3. Give an opportunity to weavers from the three regions to exchange ideas on the trade.
4. Give an opportunity for the integration of woven strips from three regions in producing fabric and thus offer the research a national focus where people look at the weaving sector with an integrated approach.

### 1.8. Limitations of the Study

The major hurdle that the researcher encountered was the difficulty in the language of the various study regions. This was because the researcher does not understand the native language of the study population. The project also suffered transportation set back since some roads leading to selected communities such as *Daboya*, and *Agotime-Kpetoe* were in a deplorable state endangering smooth commuting on such roads. Triangulation employed duly delayed the progress of the research endeavour since the data had to be verified by several research tools.



### 1.9. Delimitation of the Study

The study will exclusively focus on Asante indigenous "Kente" weavers at Bonwire, Center for National Culture, Kumasi, and weavers from the Northern regions and Volta regions are mainly because of the fact that they are the regions in Ghana that are known for creating the different sorts of fabric required for this study.

The extent of this exploration is entirely inside of the system of the expressed objectives. It is a push to think about the utilisation of organic dyes, weaving techniques from the three regions in Ghana, and producing a 'men's cloth' as to enhance the cultural identity of Ghanaians. The scope also covers a discussion of the importance and implication of this single woven cloth for national development. This covered the weaving centres in the whole of the chosen regions, but due to time constraints, only few centres were chosen.

The respondents in this study were the indigenous weavers in the three regions selected for this study and the views of selected customers and users of the cloths from the various regions. Furthermore, in order to justify the study, questionnaires were administered to a few experts as there is no need denying the fact that this category of respondents has adequate knowledge of the materials they produce and/or patronize. The research makes use of organic dyes from targeted weavers from Northern, Ashanti and Volta regions of Ghana so as to enable the study meet its stated objectives.



### 1.10. Definition of Terms

Adhere:	The ability for a dye to stick firmly to a substance.
Affinity for dye:	The ability of a fibre or fabric to attract dye and exhaust it.
Analogous colours:	They are any three colours which are one next to the other on a colour wheel, for example, yellow-green, yellow, and yellow-orange. Typically, one of the three colour prevails.
Atoms:	It is the defining structure of an element, which cannot be broken by any chemical means.
Colour Symbolism:	Refers to the use of colour as a symbol in various cultures.
Complimentary colours:	They are any two hues which are specifically in inverse one another on the shading wheel, for example, red and green, red-purple and yellow-green.
Covalent bonds:	It is a chemical bond that involves the sharing of electron pairs between atoms.
Dyestuff:	To change the colour of something by using a special liquid. The liquid has the ability to change the appearance of a substance.
Dye liquor:	This is a solution or liquid mixed with colour to enable dyeing.
Exhaustion:	The amount of transfer of dye from the bath to the fibre, either by adsorption or absorption.

Fabric:	This is formed by assembling yarns and/or fibres into one cohesive Structure. The most common fabric structures are woven, knit, and non-woven.
Fade:	A fabric is said to fade when it loses colour or runs out during washing.
Fastness:	The resistance of a material to change in colour characteristics.
Fibre:	These are fine hair- like substances. They may be natural or manufactured and are the smallest components of a textile product. Cotton is an example of a natural fibre while polyester on the other hand is a manufactured fibre.
Indigenous:	Ideas or concepts that pertain or belong to an ethnic group, a region or a country.
Loom:	An apparatus for weaving cloth.
Organic dye:	They are dyes or colorants derived from plants, invertebrates, or minerals.
Shuttle:	A boat-like wooden device with a cavity in one side of it. Inside the cavity is a wooden or metal rod for holding the bobbin. The shuttle has an eye through which the weft yarn passes.
Spectrum:	It is a variety of elements, as light waves or particles, requested as per the extents of a typical physical Property, as wavelength or mass, frequently the band of colours delivered when daylight is gone through a

crystal, involving red, orange, yellow, green, blue, indigo and violet.

**Spun yarn:** A sort of yarn made by spinning so as to assemble a heap of staple the shafts at a rapid to turn the staples together to frame a bit of yarn.

**Twist:** The yarns or the finishes that run the long way in a woven fabric.

**Weaving:** It is an antiquated strategy for fabric creation in which yarns are entwined to shape material.

### **1.11. Organisation of the Study**

Chapter one comprises of a review, background to the study, a statement of the problem, purpose of the study, the specific objective of the study, Research Questions, Significance of the study, Limitations of the Study, Delimitation, Definition of terms and Organisation of the study. Chapter Two provides a review of literature related to organic dyes, weaving techniques in the Northern, Ashanti and Volta regions and discusses issues on weaving in general, how organic materials can be used to dye yarn, design elements of Northern, Volta and Ashanti weaves, Theories of Plant dyes, Cultural similarities and differences, Theories of Colour symbolism and Characteristics of cotton yarns.

Chapter Three highlights the research methodology. It describes the research design, population studied, sampling techniques adapted, instrumentation, primary and secondary data, data collection procedures and the data analysis plan. Chapter Four, deals with the analysis and discussions of the main findings of the research whilst

chapter Five provides the summary, conclusions, and recommendations of improving the study.

# KNUST



## CHAPTER TWO

### REVIEW OF RELATED LITERATURE

#### 2.0. Overview

Many researchers have discussed various historical backgrounds concerning organic dyes, and indigenous hand woven cloths such as “*Fugu*” “*Kente*” and “*Kete*”. The works of some of these scholars have been reviewed in this study.

#### 2.1. Theoretical Framework of the study

Using organic dyed yarns coupled with their cultural similarities among the Northern, Ashanti and Volta Regions of Ghana makes it possible to integrate their weaves, namely ‘*Fugu*’, ‘*Kente*’, and ‘*Kete*’ into one common natural fabric.

With this in mind the following theories were studied.

- Theories of Plant dyes
- Cultural similarities and differences
- Theories of colour symbolism
- Cotton yarns
- The design elements of Northern, Volta and Ashanti weaves
- Loom types
- Theories of weaving
- Theories of Integration

## 2.2. Theories of Plant Dyes

The research employed organic dyes to dye yarns for the hand weaving fabrics. Organic dye can be plant based or earth based. This research employed plant based dye for the yarns used in the project. Dyes may be obtained from a natural source or synthetically produced in the laboratory. De Clerck and Kiekens (2008) explain dye as a complex organic compound that is used to add colour to material by binding. The author further talks about dyeing of fibres, yarns as well as fabric.

Hatch (2006:33) also explains dyeing as “a chemical process involving the principles of migration, diffusion, detention and fixation”. He further explains that “Dye or dyestuffs are organic chemicals that are able to selectively absorb and reflect wavelengths of light within the visible range of the electromagnetic spectrum”. A dye molecule must have a conjugated system; that is alternating double and single covalent bonds between the atoms that form its framework. Dyeing with plant dye even though may take a longer time, yet it serves the purpose for which it is needed as there will be migration, diffusion, detention and fixation to allow proper penetration.

Picton & Mack (1997) explain another method of dyeing called pattern dyeing and how patterns can be formed on a fabric. Warp yarns, according to Picton & Mack (1997), can also be dyed before weaving to create a different effect which gives a unique pattern or design to a fabric. This confirms the views held by the researcher that there are other ways in which Africans do their dyeing. *Daboya* dyers in the Northern Region of Ghana, for instance, create patches in their dyed yarns which create designs for the weaves when weaving. Instead of cutting and adding up white patches to the weaves, the yarn already contains white patches in the blue that makes it easy to weave through.



According to Adu-Akwaboa (1994) Plant dyes can be acquired from individuals' backyards and used to dye fabric and other household items. These incorporate parts of plants, for example, flowers, leaves, barks, and nuts which can be prepared to get dyes. Plant dyes produce vibrant colours, making a palette that mixes well with one another. An incredible potential for Plant dyes from dye yielding plants exists in numerous groups in creating nations. Mango (*Mangifera indica*), Mahogany (*Khaya senegalensis*), Dawadawa (*Parkia clappertoniana*), kola tree (*Cola acuminata*), 'Neem' (*Azadirachta indica*), among many common indigenous plants in Ghana may be exploited for natural dye.

Similarly, Boakye (2007) mentions specifically 'Badie' and 'kuntunkuni' dyes and how they are extracted from plants and used. The author further explains why the 'Badie' and 'kuntunkuni' plants are not grown in the southern part of Ghana, but rather in the three Northern Regions of Ghana. This is due to climatic difference. Sapuan and Maleque (2005) explained in detail how clay is used to dye fabric among the Bamanas in Mali. This method of dyeing was practiced in the olden days by women from Ashanti Region of Ghana where they dyed their white cloth with mud. The procedure is similar to that of the Bamanas in Mali.

Dyeing with plant dye gives different shades of colour depending on the time allowed, amount of water, type and quantity of mordant used. Sackey (2013) explains the cognitive operation of dyeing with natural plant and how it can be obtained effectively. He further suggested ways by which dyes can be made from natural plants and how these dyes can be employed effectively. The examples given are 'Akasedwira' tree (indigo tree or *Indigofera tinctoria*) that produces blue colour, *Acacia nilotica*, fruits and leaves of blackberry, cola, bougainvillea flowers, mango tree bark,

leaves of guinea-corn plant and pawpaw leaves, all of which produce different shades of colour, were used in dyeing cotton cloth.

Stuart's (1993) explanation of indigo dye was appropriate as it appreciates the local dyeing centre at Daboya in the Northern Region of Ghana. '*Akase-dwira*' (indigo plant) is a plant that needs to be explored further and adapted by dyers as it is the main plant used by the Daboya dyers in the Northern Region. Goetz (2008) includes that the excellent colours that are made from natural dyes would initially appear colourful, but will soon fade. Lack of colour fastness resulted in the discovery of mordant - substances which aid in the absorption of dyes. Taking cognisance of dyeing processes involving cotton fabrics with plant dye assisted the researcher with the dyeing of yarns.

Burkinshaw (1990) states that some dyes may need a mordant to improve on their fastness, but others may be applied immediately on the fabric. For this research to be successful, a permanent dyed yarn that will not fade is needed for the weaving. Opoku-Asare's (2014) clarification of a mordant is valuable for this study as he sees the mordant as a crucial part of the dyeing procedure. "Mordanting" is extremely important, aside from plants which contain a considerable measure of tannin and don't as a matter of course require a severe. Some of the mordants are Alum (Potassium aluminium sulphate), Chrome (dichromate of potash), and Tin (Ferrous sulphate), Iron sulphate, Tin crystals and Stannous chloride, Tannic acid, Aluminium chromium, Copper and iron. Mordant serves to open the fabric's pores to permit fitting infiltration and absorption of the colour. The explanation and definition given by Aimson (1999), shows that, mordant helps in the fixation of dye to the yarns or fabrics.

A Plant like '*akase-dwira*' (indigo plant) uses ash from burnt Dawadawa tree as a mordant and this makes it cost effective. Having this in mind, the researcher, explored variations of mordants, that will work on colour fastness. Natural dyes derived from plant-based materials have proved to be important alternatives to the use of synthetic dyes in the textile industry (Opoku-Asare, et al, 2014). This statement supports the fact that there are specific plants that have provided dyes for dyeing textile fabric.

### 2.3. Selected Study Regions in Retrospect

Ghana is made up of ten regions, namely Greater Accra, Eastern, Western, Central, Ashanti, Volta, Brong-Ahafo, Northern, Upper East and Upper West. Each region has its own cultural belief. With particular reference to the three regions under study, namely the Northern, Ashanti and Volta, the cultures of these regions were reviewed to reflect how different from or similar to their cultural beliefs are to each other.



**Fig 2.1: A Map of Ghana Indicating the Three Regions Under Study in Grey, Violet and Light Green.**

#### 2.3.1. Northern Region

The Northern Region of Ghana occupies an area of about 70,383 square kilometres and is the largest region in terms of land area (Johnson, 2010). It shares boundaries with Upper East and Upper West regions, to the north, Brong-Ahafo and Volta

regions to the south, Republic of Togo to the east, and La Cote D'Ivoire to the west. The land is mostly low lying, except in the north-eastern corner with the *Gambaga* escarpment along the western corridor. The region is encompassed by the black and white Volta and their tributaries, Rivers *Nasia*, *Daka*, among others.



**Fig. 2.2: Geographical Map of the Northern Region of Ghana**

The climate of the region is relatively dry, with a single rainy season that begins in May and ends in October as stated in a 2010 statistical report (see, Johnson, 2010). The dry season is from November to March/ April with maximum temperatures occurring towards the end of the dry season (March-April) and minimum temperatures in December to February. Humidity, however, is very low to mitigate the effect of the daytime heat.

The region has four paramount chiefs namely – *Yaa-Naa*, who is based in *Yendi*, *Yagbon-Wura* in *Damango*, *Bimbila-Naa* in *Bimbila* and *Nayiri* in *Nalerigu*. Each chief represents a major ethnic group. The major ethnic groups of the region are *Mole-Dagbon*, *Gurma*, *Akan* and *Guan*. Among the *Mole-Dagbon*, the largest subgroups are the *Dagomba* and the *Mamprusi*, while the *Komkombas* are the largest of the *Gurma*, the *Chokosi* of the *Akan* and the *Gonja* of the *Guan*. The *Dagombas* constitute about a third of the population of the Region.



The indigenous languages spoken by the people vary from District to District. The *Gonja* language is spoken mostly in seven Districts, namely *East Gonja*, *West Gonja*, *Central Gonja*, *North Gonja*, *Sawla*, *Kpandai* and *Bole*. *Dagbani*, the language of the *Dagombas*, is spoken in nine Districts. The ‘*Kokomba*’ language is spoken mainly in some parts of *Saboba-chereponi*, *Zabzugu-Tatale*, *East Gonja* and *Nanumba* Districts. More than half of the people of the region are Muslims (Johnson, 2010). The rest of the population is largely made up of adherents of Traditional religion, Christianity and other religious groups.

Some tourist sites in the region include – Mole National Park, mythical stone, mystery tree with the horse hooves turned upside down and the *Daboya* industrial centre for ‘fugu’ production. The most important traditional festival in the region is *Damba*. The *Damba* celebration is also a mix of music, dance, excitement, horsemanship and royalty. The region is the home of the ‘Fugu’ textile, the centres of production being *Tamale*, *Gushiegu*, *Daboya* and *Yendi* (Amatey, 2009)

### **2.3.2. Volta Region**

Volta Region is located in the eastern part of Ghana. It shares its eastern boundary with the Republic of Togo, on the west is the Volta River and Lake, on the southern border it shares boundaries with the Atlantic Ocean while the north shares a boundary with the Northern Region. The ethnic groups are the *Ewe*, *Guan*, and *Akan* who are organised under chiefs at the lineage and settlement levels (Arabische, 1997)



**Fig. 2.3: Geographical Map of the Volta Region of Ghana**

The Traditional Council is the custodian of traditional beliefs and customs, passed on from one generation to another. They have courts which arbitrate on matters relating to stool lands, lineage and family lands, chieftaincy title disputes, violations of traditions and disputes between localities, lineages, families and individuals. In the Volta Region, no chief owes allegiance to Paramountcy. There are festivals like the ‘Asogli’ yam festival (‘*Teduduza*’) which is celebrated by the chiefs and people of Ho and its environs to give thanks to God Almighty, the lesser gods and the ancestors for a bumper harvest.

According to Dennis (2004) there is the ‘*Hogbetsotso*’ festival, which is also celebrated by the chiefs and people of Anloga, to commemorate the migration from the ancient walled city of Notsie in present day Northern Togo to their present settlement. The ‘*Gbidukor*’ festival is celebrated by the chiefs and people of Gbi from Hohoe and Peki to commemorate the exploits of the Gbi-Ewes of old. Other festivals in the region are ‘*Akwantutenten*’, ‘*Dzawuwu*’, ‘*Sasadu*’, ‘*Amu*’,



‘Wli’, ‘Kpalikpakpa’, ‘Zendo’ ‘Glimetoza’, ‘Dodoleglime’, ‘Afadjato/Tagbo Tsikeke’, ‘Avenorfedo’. ‘Agadevi’, ‘Agbamevorza’ and ‘Kete’.

These festivals are celebrated by all the various communities and/or districts in the region. The *Agotime* people, however, claim that they introduced the art of ‘*kete*’ weaving to present day Ghana and consequently have been marking this event with a colourful festival culminating in the display of the various types of ‘*Kete*’ clothes. Festivals are celebrated to take stock of the past year’s activities whilst development plans are initiated to foster unity among the people and to mobilize resources for development purposes (Nugent, 1996).

More than half of the population of the region are Christians whilst the rest is largely adherents of Traditional religion, and other religious groups including Islam. Apart from ‘*kete*’ weaving, the people from the Volta region engage in fishing, *Gari* and palm oil making, farming and bead making. They adorn themselves with ‘*kete*’ and beads during festivals, marriage and/or naming ceremonies, going to church and during other joyous occasions.

### 2.3.3. Ashanti Region



**Fig 2.4: Geographical Map of the Ashanti Region of Ghana**

According to Frimpong and Asinyo (2013) Ashanti Region is located in the middle belt of Ghana. It shares boundaries with the Brong-Ahafo region in the north, Eastern region in the east, the Central region in the south-west and Western region in the South west. It occupies a total land area of 24,390 square kilometres (Nang-Berfubah, 2010). Ashanti Region, apart from being the cultural heartbeat of Ghana, is also the land of the Golden Stool. The region has a rich culture which is often expressed in the language, passage rites, festivals, and funerals, naming ceremonies, cuisine and day to day activities of the people with *Twi* as the main language spoken in the region. The hilly region is a vast tropical rain forest belt with impressive buttress rooted forest and large cocoa farms (Ghana tourism, 2008). The region has 36 Traditional Councils, each headed by a Paramount Chief with the Asante hene, Otumfuo Osei Tutu II, as the head. Ashanti's are very particular about their festivals which are celebrated to remember past leaders and heroes.

Though these past leaders are dead, their spirits are supposed to be alive and taking interest in the affairs of the living, watching their doings and consulting with them (Frimpong & Asinyo, 2013). Major festivals celebrated are '*Akwasidae*' and '*Adae-Kese*'. These Festivals are a platform for pledging allegiance to the kingdom and to affirm loyalty to the occupant of the Golden Stool which represents the unity and the embodiment of all Ashantis.

Other festivals celebrated are '*Papa*' Festival that reminds the chiefs and people of *Kumawu* of the bravery of their ancestors, especially, Nana Tweneboah Kodua I, who offered himself as ransom for Ashantis to emerge victorious in the battle of independence fought against the *Denkyiras*, there is also '*time-Ni-Nko*' Festival, which celebrates the bravery and wisdom of Nana Wiafe Akenten I, who chose a large piece of land instead of jewellery as a reward during his reign as Asantehene. A

‘Kente’ Festival is celebrated to commemorate the origin of the ‘Kente’ cloth in *Bonwire*, over 300 years ago. The festival asserts the influence of ‘Kente’ as an exclusive cloth worn by all in the region during festive occasions. (Amoah et al, 1993).

According to Brown (1983), Ashanti Region is noted for its numerous and beautiful tourist centres such as George Ferguson’s Tomb, *Komfo Anokye* Sword, ‘*Atiwa*’ Rock Formations, ‘*Ashantemanso*’ Forest, Kente weaving centre at Bonwire, *Ntonso* and *Adanwomase*, wood carvings at ‘*Foase Atwima*’ and ‘*Ahwiaa*’, Kumasi Zoo and Kwame Nkrumah University of Science and Technology. Others are the ‘*Bobiri*’ Forest, Butterfly Sanctuary, ‘*Bomfobiri*’ Wild life Sanctuary, ‘*Digya*’ National Park, ‘*Owabi*’ Forest Reserve and Bird Sanctuary, the *Tano* Sacred groves, the Prempeh II Jubilee Museum and *Manhyia* Palace among others.

#### **2.3.4. Cultural Similarities of the Study Regions**

‘*Fugu*’, ‘*kente*’ and ‘*kete*’ are hand woven fabrics culturally inherited from one generation to another and handed down within the family as an inheritance. The patterns and motifs have names and meanings derived from historical events, individual achievements, proverbs, philosophical concepts, oral literature, moral values, social code of conduct, human behaviour and certain attributes of plant and animal life (Brown 1983). The three cloths are an essential part of each ceremony celebrated by the regions as seen in their funerals, rites of passage and festivals.

Festivals are celebrated too, among other things, to take stock of the past year’s activities whilst development plans are initiated to foster unity among the people and to mobilize resources for development purposes. It is also organised to pay homage to

the chief. As part of the celebrations the three cloths aforementioned, play a critical role as it is used to decorate and adore the Kings and Queens.

The three regions accept their cloth as part of their identity and associate themselves with the cultural history of it. The entire traditional weave comes in a form of narrow strip produced on a traditional loom.

The three regions use the cloth not only for personal adornment but also as a powerful expressive medium of communication. Among the Northerners, Ashanti's and Ewes, the cloth is a store of knowledge and skills inherited in the weaving process, and expresses the belief system and history of the people.

#### **2.3.5. Differences in the Study Regions**

There are two main types of yarns used in weaving the hand woven cloth from the Northern Region of Ghana. They are hand spun yarns and machine spun yarns. Cloth from hand spun yarns are used in burying princesses. This is a kind of respect that is given them for their positions as titled women while they were alive and to bid them farewell.

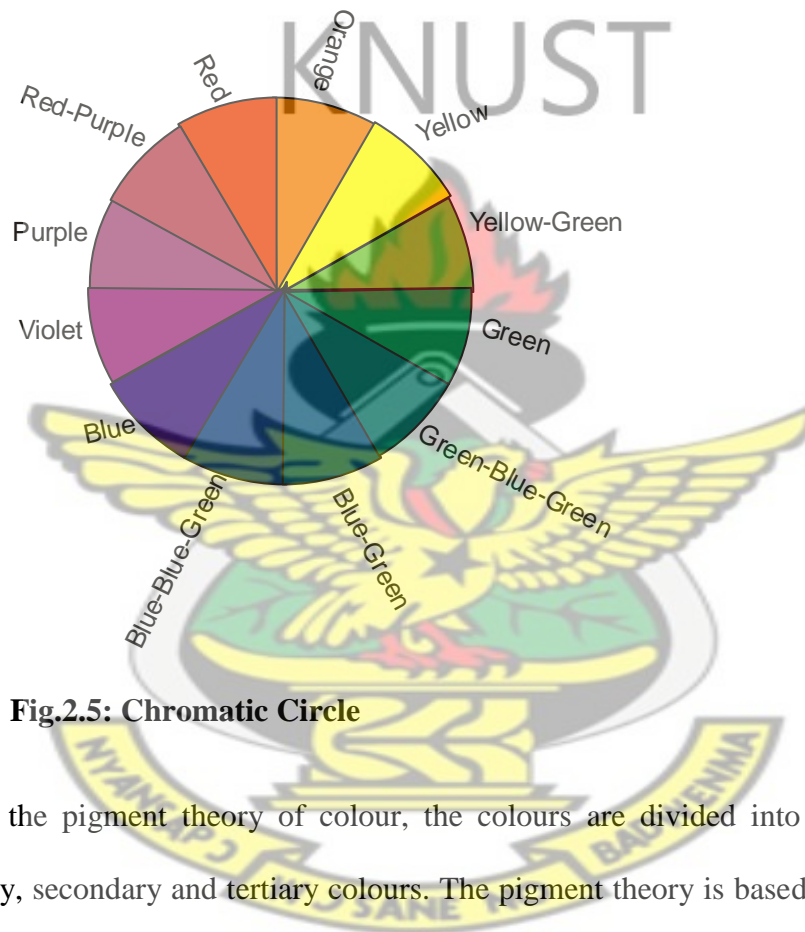
In the Ashanti region, traditional woven cloth is used in covering the casket, as it were, to bid farewell to chiefs and wealthy people when they die. This cloth is removed after all ceremonies before burial. The cloth is used the same way in the Volta region.

#### **2.4. Theories of Colour Symbolism**

Colour is an important aspect of fabric design as they considerably influence the aesthetic appeal of a fabric. Asmah (2004) explains two theories of colour and these are light and pigment theories. These theories depend on the twin reflection and

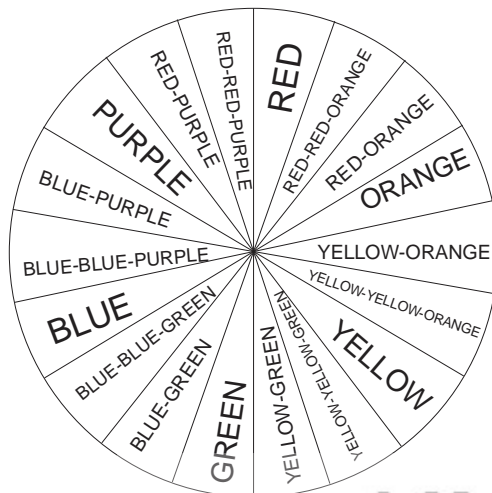


absorption of colour. Colours derived from the light theory can be divided into primary and secondary colours. The primary colours are red, blue and green while the secondary colours are obtained by combining the primary colours such as Red and Green to get Yellow, Red and Blue to get Purple and Blue and Green to get Blue-Green. The light theory can be represented in the chromatic circle which is divided into twelve equal parts representing the primary and secondary colours.



**Fig.2.5: Chromatic Circle**

Under the pigment theory of colour, the colours are divided into three. They are primary, secondary and tertiary colours. The pigment theory is based on the Brewster theory (Miller 2013). Per his theory, the circle of the pigment colour is divided into eighteen equal parts with the primary colours placed at equal distance from each other with the secondary colours between them. The tertiary colours are between the primary and the secondary colours.



**Fig.2.6: Brewster Circle**

“Fugu”, “Kente” and “Kete” have the philosophical meaning of the colours used. Based on these, the above theories will assist the researcher to choose colours that harmonize and blend well. The use of colour is one of the main aspects of the research as every fabric has its own colour and a reason for its use. Asmah (2004), states that indigenous woven cloth, represents the history, philosophy, aesthetic principles that weavers use to weave the cloths. This also represents design and colours found in the cloth.

The above definition and explanation shows that colours are used according to the mind-set of the people doing the weaving. The research seeks to integrate three traditional weaves which have their own colour and design to produce a unique fabric. Colours differentiate the categories of individuals and their choice of what colour they should wear and for what occasion. In ritual ceremonies people from different tribes of Ghana display colours which play significant roles to portraying and exhibit their culture. In the drama of ceremonial or ritual performances, colours point to a different stage in a ritual sequence and make it possible to apprehend movement and direction (Asmah, 2004). Colours thus hold significance for people and influence their emotion.



Colour conveys meanings in two primary ways: natural associations and psychological symbolism. Colour can also derive its meaning arising from any of the following; Cultural, Political, historical, religious, mythical and Linguistic.

Korankye (2010) explains how the colour of an object is seen by the eye. This means that, the eyes play an important role when talking about colour. A colour must be well seen before it can be appreciated.

## 2.5. Cotton Yarns

The production of integrated cultural weaves and woven products in Northern, Volta and Ashanti Regions of Ghana cannot be achieved without the use of yarns. The yarn is a long continuous length of interlocked fibre, made from synthetic or natural fibres suitable for the production of textiles, sewing, knitting, weaving and rope making. The yarn is manufactured by either spinning or air bonding process. This was one of the very first processes that were industrialized. It is made from either staple or filament fibres or by combining both.

The fibres from which yarns are produced have been described by Korankye (2010), as the raw material used for the production of textile yarns and fabric. He also explains that a fibre is a hairlike strand with a small diameter compared with its length. Hatch (1995:84) defines fibre as “a unit of matter either natural or man-made which forms the basic elements of textile fabric and other textile structures.” In addition, he specifically defined fibre as “a unit of matter that is characterised by having a length at least 100 times its diameter or width and which can be spun into yarn or made into a fabric” and gave the diameter of textile fibres as 0.0004 – 0.002 inch (in), or 11 – 50 Micrometer ( $\mu\text{m}$ ). The length varies from 7/8 inch or 2.2

centimetres to many miles. With this information, the researcher will be able to identify which yarn to use for the research.

**Table: 2. 1. Showing the Classification of Natural Fibres**

Protein	Cellulosic	Minerals
Sheep's wool, Specialty wool	Cotton	Specialty Asbestos
Silk	cellulosic	
Cashmere	Flax	
Mohair	Ramie	
Cashgora	Jute	
Camel hair	Hemp	
Llom	Kenaf	
Alpaca	Urena	
Huarizo	Henquen	
Misti	Abaco	
Guanaco	Pina	
Vicuna	Sisal	
Qiviut	Coir	
Angora	Kapok	
Mint		

The researcher basically used cotton yarn spun from natural fibre because it absorbs moisture easily due to the fluffy nature of the fibre.

According to Picton and Mack (1997), cotton yarn is spun from the mass of fibres surrounding the seeds of the cotton plant of which there are several species of the genus *Gossypium*. They further indicated that until the eleventh century AD little was known about the cultivation or use of cotton in Africa. Storey (1978) mentioned Egypt, United States, India, Brazil, West Coast of Africa, West India, USSR and China as the principal cotton growing areas in the world.

According to Sackey (1995), cotton plant grows in moderately hot climates all over the world. He further stated that, there are over 50 species of cotton plants which produce fibres of different qualities in respect of physical properties which enable suitable spinning to take place. The best species, according to Sackey (1995), come from North America called the Sea Island cotton and from Egypt called Sakel cotton. India and West African countries, including Ghana, produce poorer qualities. Other than the length of cotton staple which is of great importance, the thickness is equally important because only cotton of long and fine staple can make high quality fine fabrics.

Sackey (1995) indicates that cotton is grown in the interior and coastal savannah zones of Ghana but not on an extensive scale. He states that the Northern region down to *Hohoe* in the Volta region, around the Accra plains in the Greater Accra region, the Ashanti region around *Ejura*, then *Techiman* and *Wenchi* in the Brong-Ahafo region and some parts of the Upper East and West regions constitute the cotton growing areas in Ghana. However, the Northern and Upper Regions lead in cotton production in Ghana. Based on the analysis given, cotton cultivation in Ghana and in West Africa could be all-embracing if considered to serve the textile industries in Ghana.

Lord (2003) indicates that burrs, sticks, crushed leaves and other dirt that get mixed up with fibres are separated, after which the raw cotton is sent to the industrial ginning machine where the lint is separated from the seed. She further gives the production process at the mill as opening-up and picking, carding, combing, and spinning after which yarns would then be formed and ready for weaving. This process explains why cotton yarns have some characters.

Cimilli, et al (2009), describe four types of yarn, and these are: Spun, filament, compound and fancy. The spun yarn is explained as continuing strands of fibres held together by some binding mechanism. They are of three types; ring spun which are composed of fibres that are fairly aligned with the yarn axis. This is the degree to which these yarns lie parallel to the yarn axis, and are related to carding or combing. Open end spun are those in which the fibres tend to be less well aligned with the yarn axis than those in ring – spun yarns and air jet spun yarn which are less fuzzy or hairy. The filament is given as a yarn composed of continuing filaments assembled with or without twist; compound as a yarn comprises at least two strands, one of which forms the centre or core of the yarn and the other forms the covering of warp and fancy as a yarn that differs from a single or plied yarn due to the presence of irregularities deliberately produced during its formation.

Characteristics of Cotton yarn can be determined by the source of the fibre. Corbman (2000) states that the strength of cotton fibre is influenced by its ability to resist being pulled or torn apart when subjected to stress or tension. Cotton fibre is rigid and stiff and this is determined by its diameter and its strength, resulting from the twist of the fibre during production.

Cotton yarn absorbs water and “breathes”. It is hydrophilic in nature and its hydrophilic nature is determined by the ease and the extent to which water can penetrate. Once the outer protective cuticle is broken down by its finishing process, it becomes very absorbent. Corbman (2000) also explains elasticity to mean how yarns elongate and return to its normal state He also sees resilience as the extent to which yarn can be compressed or crushed and returned to its original position and shrinkage occurs when, after the cotton has been subjected to water, it tends to contract or shrink as it dries. Cotton attracts dirt particles due to its roughness, but this can be washed

off easily either by boiling or using a strong detergent. Cotton yarn does not react to bleaching agent when used appropriately.

## **2.6. The Design Element of Northern, Volta and Ashanti Weave**

According to Fiadzo (2010) '*Fugu*', '*Kente*', and '*Kete*' are ceremonial hand woven cloths, woven on a horizontal treadle loom. These strips measuring about eight to ten centimetres wide (8cm-10cm) are sewn together into larger pieces of cloths, which come in a variety of colours, sizes and designs and are worn during special, social, and religious occasions. A numbers of design elements are combined to make the design of '*fugu*', '*kente*' and '*kete*'. The most important part of the fabric is the creative part of it. People have their own preferences concerning shape, colour, texture and pattern. The elements of design used in '*Fugu*', "*Kete*" and "*Kente*" are lines, shape, form and space, texture, colour, and value (Dickson, 2009).

### **2.6.1. Lines**

The line exists in nature as a structural feature. It can function independently to suggest forms that can be recognized and seen as conveyer of information through the emotion and state of mind by its character and direction (Sackey, 2002). They are used to create textures and patterns in fabric design. Every design created is made up of different lines coming together. Asmah (2004) explains line as a fundamental mark or stroke used in the drawing in which the length is longer than the width.

A line can be thought of as points so close together that they lose their individual identity and form a new entity. Since lines can be straight, curved, or irregularly shaped, one can think of it as the track of a motion in point. Horizontal line denotes a feeling of rest or repose, vertical lines communicate feelings of loftiness and spirituality, and diagonal lines suggest a feeling of movement or direction. Curved



lines vary in meaning. Soft, shallow curves suggests comfort, safety, familiarity, relaxation, recalls the curves of the human body, and have a pleasing, sensual quality (Sackey2002). Jirousek (2000) explains line as a mark made by a moving point and having a psychological impact, according to its direction, weight, and the variations in its direction.

It is an enormously useful and versatile graphic device that is made to function in both visual and verbal ways. The quality of lines in '*fugu*', '*kente*' and '*kete*' is a fundamental visual language that cannot be claimed for any other single element. It is possible to recognise the soft, irregular lines of the hand woven fabric in Ghana which can act as a symbolic language, or communicate emotion through its character and direction. The quality of line in itself contributes to the mood under which the fabric is woven, and for the weaver, the quality of the line is a fundamental expression of his/her style. Line acts as borders between ideas, concepts, or steps in the design and create shapes and edge of the form (Jirousek, 2000).

### **2.6.2. Shape, Form, and Space**

Creating a sequence of similar shapes in '*fugu*', '*kente*' and '*kete*' is a good way of bringing a sense of cohesion to a scheme that does not seem to blend together properly. '*Kete*' has the shape and form of animals, geometric, human and nature. Shape and form are areas or masses which define objects in space (Lovett 2000).

There are various ways to categorize shape and form. There can be two dimensional or three dimensional ways. The two dimensional form has width and height and can also create the illusion of three dimensional objects. Three dimensional shapes have depth, width, and height. Shape and form can also be described as either organic or geometric. Jirousek (2000) explains organic shapes and forms as irregular in outline



and often asymmetrical and most often thought of as naturally occurring and he identifies geometric forms as those which correspond to named regular shapes, such as squares, rectangles, circles, cubes, spheres, cones, and other regular forms.

Dennis (2004) gives examples of shapes that can be found in '*kete*' as chairs, tables, combs, letters, simple phrases, names of objects and people and geometric shapes. These shapes are unique features of the '*kete*' whilst '*kente*' is made up of geometrical shapes such as squares, triangles, lines, kite and the like. '*Fugu*' designs are made up of lines which are determined by the laying of warp. These unique forms of the hand woven fabric in Ghana include other elements like texture.

### **2.6.3. Texture**

This is an element of design. It is the surface interest of a fabric, created by the weaves and by light reflection. The configuration of the surface of a woven material affects the look of the fabric. Texture is the degree of roughness or smoothness in objects. Lovett (2000) explains texture as the surface quality of a shape - rough, smooth, hard, soft, glossy, etc. And can be physical (tactile) or visual. This indicates that it is the surface characteristics of a material that can be experienced through the sense of touch or the illusion of touch.

The eye appreciates the play of light on smooth or rough surfaces, the hand feels the fabric surface, and the ear hears the sound of the texture such as the tussle of taffeta. Okamoto, et al (2013) explained the texture of a fabric as being soft or smooth, hard or rough, silky, and/or leathery with each having its own effect and these effects of each fabric have to be considered when preparing a design. A designer should be aware of these factors before planning, preparing and designing a fabric. This must be used to create the desired and effective result.

Dillon (2001) explains how well to arrange dried flowers by stating that 'configuration of the surface of plant material dramatically affects the look of an arrangement'. This gives an indication of the importance of every design surface, whether it comes from the North, Ashanti or Volta and how best integration can be achieved.

#### **2.6.4. Colour**

Korankye (2010) explains how coloured objects reflect and absorb colour waves. This means that the eye reflects and absorbs colours in a woven fabric. The beauty of an analogous colour arrangement will be appreciated by some; others will prefer complimentary arrangements, whilst some will only choose the colour scheme for an occasion. A well-arranged colour and design bring out the beauty and make fabrics stand out well. Colours are critical ingredients that need to work to produce successful fabric. Colour has such a powerful effect on people that it can be used therapeutically (Dillon, 2001). Colour sensation is a characteristic of human experience which is used when designing fabric, clothing, painting at home, colouring food, furnishing, lighting, paper design identification and security. The most common colours used during the aforementioned activities are;

##### **1. White**

This derives its symbolism from the white part of an egg, snow, muslin, cotton, porcelain and from white clay. It is used for spiritual purification, healing, sanctification rites and festive occasions. In some situations it symbolizes contact with ancestral spirits, deities and other unknown spiritual entities such as ghosts (Morton, 1997). White colour is associated with innocence, cleanliness and purity, which create a peaceful and relaxing interior. It mixes well with all other colours and tints them

down, enlarges small spaces and brightens dark rooms. It is believed that a child is born 'pure', without sin and when he/she grows and dies, he/she returns to a 'pure' state again and this means that 'purity', which the colour white signifies, marks the beginning and end of life. It is therefore not surprising that in almost all parts of Ghana when a child is born, both the child and his/her parents, especially mothers, adorn white clothes. The linings of coffins are also white, while shrouds or the cloth used by Muslims to bury their dead is white too.

## **2. Blue**

This is associated with the sky, aquamarines, water and sapphires. This symbolises relaxation, coolness, tranquillity, good fortune, peacefulness, harmony and love related ideas. Blue is a cold colour and appears to recede from the eyes. A blue room is more restful than red whilst the sky calms and relaxes the human body. Morton (1997) indicates that different shades of blue used together can look a little cold and uninviting, rather, blue blends well with other colours. This brings to light the use of blue designed hand woven fabrics in Ghana. Most of the fabrics used for this study contain the colour blue, especially so with the Gonja 'fugu' from Daboya is outstanding with the use of natural plant in dyeing their blue yarns.

## **3. Green**

This is associated with vegetation, freshness, jealousy, innocence, harmony, reassurance, peace, planting and harvesting. Tender green leaves are usually used to sprinkle water during purification rituals. It symbolizes growth, vitality, fertility, prosperity, fruitfulness, abundant health and spiritual rejuvenation (Asmah, 2004). Green is perfect for creating a natural, restful and secure environment. A touch of green in fabric design will have much the same cheering effect as seeing new leaves and shoots after a long rain. It blends and combines successfully with most other

colours. Turquoise, emerald, apple green, acid lime, soft olive, sage, pistachio and forest green are all types of greens.

#### **4. Yellow**

This is associated with the sun, sunflower, gold, butter yellow and egg yolk. It relates to hot climates and lifts spirits. Yellow is a very luminous and vivid colour which conveys the idea of purity and symbolizes sanctity, preciousness, royalty, wealth, spirituality, vitality, heat, happiness and fertility. Ashanti's adore yellow as it symbolizes the richness of the land. Chiefs are adorned with gold during outings and festive occasions to show the richness of the land.

#### **5. Red**

Red symbolises passion, anger, warmth and energy. Therapeutically, it increases heart rate and circulation. Red appears as a brilliant and cheerful colour which gives the impression of warmth and appears to advance towards the observer (Ajibade & Obongha, 2012).

#### **6. Value**

Value is a description of an area's relative lightness or darkness. In a sense, value mostly ignores hue and operates only on the level of how much tint, that is addition of white, or shade, the addition of black, a colour may have. It does not ignore hue completely though, because all fully saturated hues will fall along a different natural level of a value scale (grey scale).

Values help create forms and differentiate between space and length. Gradation of values within a space or shape creates form or the illusion of volume and mass and can be loosely predicted by looking at the colour of the object. Pure yellow will fall near the top of a grey scale, while pure blue-violet will fall near the bottom of the grey

scale. All other pure hues fall somewhere in between. The watcher of *'fugu'*, *'kente'* and *'kete'* responds more directly to the formal constructions of the patterns created through the weaving and the message it portrays as every design has a philosophical meaning it portrays.

*"Fugu"*, *"Kete"* and *"Kente"* are not patronised solely for its beauty, but also for its symbolic meaning. Each cloth has a name and a meaning. The patterns and motifs have names and meanings which were derived from historical events, individual achievements, proverbs, philosophical concepts, oral literature, moral values, social code of conduct, human behaviour and certain attributes of plant and animal life. Patterns and motifs are rendered in geometric abstractions of objects associated with the intended meaning. These are generally created by weavers who also assign names and meanings to these patterns. Sometimes, kings and elders may ascribe names to cloths that they specially commission to be made for them. There are over three hundred (300) different types of cloths and/or designs, each with its own name some of which this research sets out to identify and/or explore (Tettehio, 2009).

## **2.7. Types of Loom**

The loom is the most important and vital equipment used in the weaving of *"fugu"*, *"Kete"* and *"Kente"*. Loom comes in sizes and forms. Hatch (1993), posits that the shuttle-less loom has no shuttle. This is replaced by a discrete length of yarn taken from an external supply package which passes through the shed at the appropriate time in the weaving cycle. This means that it is not every loom that uses shuttle. Hatch further describes other looms such as Rapier looms which use rapier, a rod or a steel tape, to carry filling yarns through the shed from a stationary yarn package at one end of the loom. This gives the width of the fabric to be woven. Another is the



Air-jet loom which uses a jet of air to carry the filling through the shed (Ross & Adedze, 1998).

The initial propulsive force is provided by a main nozzle with the electronically controlled relay nozzles providing additional booster jets to carry the yarn farther. This is followed by a water-jet that uses a higher-pressure jet of water to carry the filling yarns through the shed. The filling yarn is drawn from a stationary package at the side of the loom, enters measuring drums and continues through a guide to a water nozzle, where a jet of water carries it through a shed after the beat-up of the filling. Filling streaks in fabrics are rare due to minimal tension on the filling yarn during intersection. The looms described above are faster than the locally made looms which the researcher encountered.

Asmah (2004) describes a type of table loom which is triangular in nature and placed on the thigh of the weaver during weaving. In his book *Ashanti Traditional 'Kente'*, he quoted Adjane, a weaver who indicated that 'Ayasedua' was the first loom to have been used among the Ashantis to produce a kente called 'Ayase Ntoma' ('Ayase' is the abdomen in Akan). This was followed by 'Asasedua'. The third loom was 'Nsadua' which looks bigger than the 'Asasedua'. The loom was named Kofi because it was completed on Friday. The aforementioned looms have problems such as time wasting during pre-weaving and weaving, the excessive stretch of warp beams and the use of weight which occupies space. Other looms were developed in the Rural Art and Industry College of Art at the Kwame Nkrumah University of Science and Technology by Mr I. K. A. Idan the founder of the Art Department with the aim of eliminating the above mentioned problems. Informed by the various traditional looms listed above, the appropriate looms for the project in question were the 'kofi Nsadua' and 'Boku' loom.



## 2.8. Theories of Weaving

The integration of 'Fugu', 'Kente', and 'Kete' weaves is formed by the interlacement of warp (ends) and weft (picks or fillings) yarns which interlace at right angles with each other according to the type of weave required. Korankye (2010), states that all woven fabrics are made with two or more sets of yarns interlaced at right angles. The author further states that woven fabrics are widely used. To her, weaving is one of the oldest and most widely used methods for making fabric.

Korankye (2010: 302) defines weaving as "interlacing of two sets of yarns to form a fabric". The author illustrated the broadloom parts of the loom and its accessories. He describes the 'Kente' loom and showed its parts as well as the process of weaving. Considering what the author illustrated about the two looms, the researcher deduced that the broad loom produces wider cloth width than the 'kente' or narrow loom. However the three Regions chosen use the narrow loom in weaving, indicating that it is possible to integrate.

Once the filling yarns have been prepared and the warp yarns have been set in place, the loom goes through the primary principles of weaving: that was Shedding, Picking, Beating Up and Letting off (Asmah, 2004).

### 2.8.1. Shedding

The shed is formed by raising the harnesses to form an open area between the sets of warps. The formation of the shed is known as shedding.

### 2.8.2. Picking

While the shed is open, the yarn is transported across the opening to lay a filling yarn across the width of the loom. The insertion of the filling is known as picking. A single

filling yarn is known as a pick. Speed of weaving machines is generally expressed as the number of picks per minute or meters of filling inserted per minute. Speed obviously is related to the width of the loom and wider looms; weaving wider fabrics, would require more time for one filling insertion.

### **2.8.3. Beating Up**

Beating up is done with the reed, the comb like device that pushes the filling yarn close against the woven fabric (to the fell of the cloth) so as to make it more compact.

### **2.8.4. Letting Off**

As the woven fabric is formed, it must be moved or let off from the warp beam and taken up on the cloth beam to make room for the formation of more fabric (Asmah, 2004). All these functions are harmonised so that they occur in the appropriate sequence and do not interfere with one another.

African textiles are a part of African cultural heritage. In most African countries such as Nigeria, Uganda and Ghana, the weavers are men while women spun threads (Picton & Mack, 1979). Example of African woven textiles is 'Asooke' fabric by the Yoruba people in Nigeria (Picton and Mack, 1979).

## **2.9. Theories of Integration**

There is a huge amount of researches on the weave structure of integrated woven fabric. Griswold (2011), for instance, proposed algorithms on using Boolean operations in integration pattern design. Rasmussen (2008) discusses the theory of binary representation of fabric structures and the possibilities of weave category in order to integrate families of weave patterns.

Rao, et al. (2009) developed 3-D geometric models for the morphological integration of fabrics with the unit-cells of four harnesses, five harnesses, and eight harnesses. Shinohara, et al. (2008) on the other hand proposed a novel automatic integration of weave diagram construction method from yarn positional data of woven fabric. Inui (2001) developed a method to obtain computer simulations of integrated woven fabric structures based on photographs taken from actual yarns along their lengths. Similarly, (Ma et al., 2011) proposed an encoding algorithm to reveal the hidden information in the binary matrix of an integrated weave pattern so as to obtain a solution to determine features of the weave pattern. It enables the possibility to quickly produce required weave geometries and weave textures at different levels of detail. All of these different theories of integration are indications that it is not a bad idea at all for a designer to embrace the integration of different fabrics and/or weaves to produce a distinct or unique fabric and that is what this study sets out to achieve.

Generally, fashion involves change, novelty, in the context of time, place, and wearer. Blumer (1969) describes fashion influence as a process of “collective selection” whereby the formation of taste derives from a group of people responding collectively to the “spirit of the times.” The simultaneous introduction and display of many new styles, the selections made by the innovative consumer, and the notion of the expression of the spirit of the times provide impetus for fashion. It is worthy of note that the study of fashion in the twentieth century has been framed in terms of a fashion systems model with a distinct centre from which innovations, integrations and modifications radiate outward (Davis 1992).

Generally speaking, at the very beginning, a piece of fabric may appeal to a consumer by its appearance, which is related to the weave structure and the colours of the warp and weft yarns. Next, the characteristics, for example, the permeability, the thickness,

the tenacity, the elongation, among others, of the fabric is required. Finally, the price of the fabric is used as an evaluation basis, by comparing, based on the above-mentioned items (the outlook and the characteristics), the value of the fabric can be defined and determined. If the value is satisfactory, the fabric will be accepted by the consumer. Otherwise, it will become a slow-moving-item commodity and to be able to improve quality and thus sales, there might be the need for integration of fabrics and/or yarns. Thus, it is a crucial issue for a designer to make a good balance between a chosen fabric and an integration of the essential consumption of the material yarns used during woven fabric manufacturing.

Recently, some sociologists have been taking a different approach to sociological theory by employing an integrationist approach - combining micro- and macro-level theories to provide a comprehensive understanding of human social behaviour in the fashion and/or fabric industry. Numerous models could be presented in this vein and Halle's (1996) 'Integration Model' is a good example. Halle (1996) proposes four highly interdependent elements in his sociological model: a macro-objective component (e.g., society, law, bureaucracy), a micro-objective component (e.g., patterns of behaviour and human interaction), a macro-subjective component (e.g., culture, norms, and values), and a micro-subjective component (e.g., perceptions, beliefs). This model is of particular use in understanding society because it uses two axes: one ranging from objective (society) to subjective (culture and cultural interpretation); the other ranging from the macro-level (norms) to the micro-level (individual level beliefs) and all of these influence integration in the weaving industry. Halle's (1996) integration approach is particularly useful for explaining the social phenomenon because it shows how the different components of social life work together to influence society and behaviour. For instance, the model depicts that

cultural norms can influence individual behaviour. The model also shows that individual level values, beliefs, and behaviours influence macro-level culture.

In general terms then, integration is defined as a process of developing a society in which all the social groups share a common socio-economic and cultural life (see Davis 1992). The integration of communities is facilitated by the factors that help assimilation. Blumer (1969) on the other hand, defined integration as a mode of relation of the units of a system by virtue of which on the one hand they act collectively to avoid disrupting the system and making it impossible to maintain stability and on the other hand to cooperate to promote it's functioning as a unity. He believed that the kinship group, family, profession, the state, and religion are visible social structures and these perform the function of integration in various forms.

One of the major forms of integration is feature integration. The feature integration theory is a psychological theory that describes how a person pieces together separate features of an object to create a more complete perception of the said object. This theory especially focuses on the sense of sight and how the eyes absorb information to somehow “experience” the object one is seeing (Davis, 1992). Aside from perception, feature integration theory also discusses the importance of attention in making a correct view of the observed object.

The development of the feature integration theory is largely credited to Gelade and Treisman, who co-wrote an academic paper, entitled “A Feature-Integration Theory of Attention” in the 1980s. In the paper, Treisman and Gelade cited several past experiments that revolve around “visual search,” or the process in which the individual, for example, distinguishes the object's colour and shape apart from other objects. Some experiments, on the other hand, dealt with “texture segregation” to

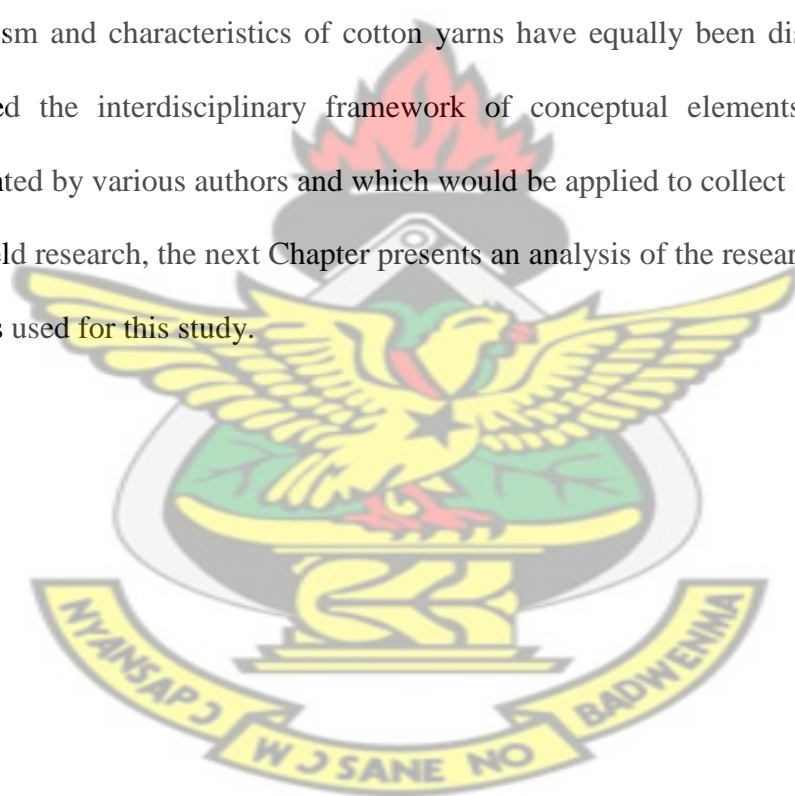


distinguish the object from its background, while other experiments explored the person's ability to spatially locate the object. In this way, the theory of feature integration suggests that the attributes of a certain object are processed in sequence, especially in situations where the person needs to notice several features to correctly distinguish the object. For example, if a person is looking at a crowd for a male friend who has shoulder-length hair, the first step is to look for people who have shoulder-length hair, and progress into the friend's distinguishing characteristics that will single him out.

In general, the feature integration theory describes two primary stages of attention: the pre-attentive and the focused attention stages. In the first stage of pre-attention, the person instinctively and automatically focuses on one distinguishing feature of an object, such as its colour and orientation. The person does not really need to make a conscious effort to think at this stage. For example, a person can easily detect a slanted line among horizontal lines on a piece of paper. In the stage of focused attention, the person takes all the features of the object and combines all of them to give a correct perception of the object. This is especially done in situations where the object does not instantly stand out among other objects, such as a red circle among other circles and squares randomly coloured red and blue. Treisman's and Gelade's feature integration theory greatly influenced this study's focus of an integration of the various weaves from the three regions that formed the focus of this study. The decision to focus on feature integration is due to the fact that trainings and practices that apply feature integration theory can help a person improve his/her skills in abstract reasoning and attention. They can also help him/her to be more aware and careful of his/her surroundings and the innovations that arise from applying feature integration (see Treisman and Gelade, 1980).

An integrated cloth is more than simply combining different designs: it is the creation of a new cloth that is more than the sum of the separate designs. Once weavers recognise the critical factor in the process of weaving, integration becomes an inclusive process with an increased chance for success which requires planning, execution and monitoring.

In this chapter the conceptual elements discussed draws on the understanding of the weaving industry in Ghana. This chapter highlighted theories associated with plant dyes, the cultural similarities and differences in the study areas, theories of colour symbolism and characteristics of cotton yarns have equally been discussed. Having discussed the interdisciplinary framework of conceptual elements as have been highlighted by various authors and which would be applied to collect and analyse data from field research, the next Chapter presents an analysis of the research methodology that was used for this study.



## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.0. Overview

This chapter describes the general procedure adopted to solicit information for the study, including visits to the sample weaving centres to observe how weaving is done. There are numerous approaches to research, taking into consideration the methodology. This chapter focuses on the following; the research design, population and sampling, data collection instrument, data collection procedure, data analysis plan and the processes involved in executing the project work.

#### 3.1. Research Design

To be able to answer the research questions within this study, qualitative research method which involved a wide range of field investigation techniques was utilized. Malterud (2001) explains the qualitative research method as a systematic collection, organization, and interpretation of textual material derived from a talk or observation.

Sitsofe, (2009) opines that qualitative research emphasizes the holistic description of whatever is being observed rather than comparing the effects of a particular treatment. This study employed the qualitative research design due to the nature of the study. The researcher observed how the various weaving techniques from the three regions chosen for the study were rendered. The project described in detail the processes involved in weaving; '*fugu*', '*kete*' and '*kente*' and culminated it in the weaving of the integrated cloth. The project also describes in detail the processes involved in dyeing the yarns needed for weaving; the plant, the production processes of the dye and the dyeing processes. The qualitative research method is the most appropriate design for

the in-depth investigation of this phenomenon. Adoption of the qualitative research method also made it possible for the researcher to assume an interactive social role in which observations and interactions with weavers yielded great results.

### **3.2. Experimental Research Design**

Sidhu (2003) explained that experimentation is the most scientifically sophisticated research methods. It is defined as an observation under controlled conditions. Experimental research design studies highlight observable changes that take place in order to establish a cause and effect relationship. He further stated that “it is the description and analysis of what will be, what will occur or what can be made to occur under carefully controlled conditions” (Sidhu, 2003:191). Experimental research consists of a deliberate and controlled modification of the conditions determining an event, observation and interpretation of the changes that occur in the event itself.

In this study, the researcher used the experimental design to test various organic materials that have the potential to be dyed with fabric and yarns. These dyed yarns were then woven into fabrics using a combination of techniques from the Northern, Ashanti and Volta region.

### **3.3. Descriptive Research Design**

Leedy and Ormrod (2005) opined that descriptive research involves either identifying the characteristics of an observed event or exploring possible correlations among two or more phenomena. They further said that descriptive research examines a situation as it is and does not involve changing or modifying the situation under investigation nor is it intended to determine cause and affect relationship.

The descriptive design was adapted to describe the step by step processes in the extraction of the dye from the identified plants, processes in the dyeing of yarns and the effects of the various extracted dyes on yarns and their characteristics. It was also used to describe the various materials, tools and the step by step processes that were employed to execute the integrated woven pieces described in detail in this chapter.

### **3.4. Sources of Data**

A large chunk of secondary data was collected from various publications and journals obtained from KNUST libraries Kumasi, Ashanti library Kumasi, the Balme library, Legon-Accra and the internet.

### **3.5. Population and Sampling**

Population in research refers to the aggregate or the totality of objects or individuals regarding which inferences are to be made in a sampling study (Sidhu 2003). In this regard the total population for the study comprises all weavers and natural dyers in Ghana, while accessible population were natural dyers and weavers in Northern, Ashanti and Volta regions. The accessible population was selected from five weaving centres in Bonwire in Ashanti region, five weaving centres in Agotime Kpetoe in the Volta region and five weaving centres in Tamale in the Northern region. Five dyers from 'Daboya' in the Northern Region were also identified and accessed. These were selected due to the nature of work they produce and the techniques they use. It was observed that these centres still adapt the traditional way of dyeing and weaving.

According to Sidhu (2003), sampling is the process of selecting a representative unit from a population. Similarly, Cohen and Manion (2000) expand this definition by



explaining that in sampling, the researcher endeavours to collect information from a smaller group or a subset of the population in such a way that the knowledge gained is representative of the total population under study.

The sample for the study was made up of fifty weavers from Northern, Volta and Ashanti Regions representing about ten percent of the total population of five hundred weavers. For dye extraction twenty plants were identified and experimented and out of these, eight were selected for the extraction of dye for this study. The sampling design employed for the study was the purposive sampling.

### **3.6. Data Collection Instrument**

Ary, et al. (2013) refers to instrumentation as a process used to solicit information in research. Questionnaire, interviews and observation were the instruments used to collect data for the study, which is known as triangulation (Cohen & Manion). The use of triangulation ensures validity, credibility and richness of data from information gathered as this information can be cross checked or verified from the different methods used (O'Donoghue & Punch, 2013).

#### **3.6.1. Observation**

Nonparticipant Observation is a research instrument that allows the researcher to be physically present, but only as a spectator who does not directly take part in the activities of the people who are being studied, (Kothari 2004). With the Participatory form of observation, the researcher takes part in the activities of the subjects under investigation, and thus becomes a member of the group, giving the researcher a high level of understanding of the activity under study.

Based on this, the researcher employed participatory observation which involves retrieving information in the field of research with the use of all senses, such as listening, touching, smelling and seeing in order to observe the weaving techniques and natural dyeing process of yarns.

Critically observing how dyers/weavers went about their work enabled the researcher to identify the differences that exist among the various tools, particularly their shapes and materials they use. Observation thus gave the researcher's insights into the ways in which the population of the various regions under study went about their work.

### **3.6.2. Interview**

The semi- structured form of interview was used. This form of interview gives the researcher the opportunity to deviate from the interview guide where necessary during the interview session. According to McMillan and Schumacher (1993), an interview consists of a direct verbal interaction between the interviewer and the interviewee. Similarly, interviews are unique in that it involves the collection of data through direct verbal interaction between the interviewee and the interviewer.

The interview was used to solicit information from weavers, because it allowed the researcher to interact with the weavers in their local language which they were very conversant with and can express themselves in. Such flexibility in qualitative interviewing provided the respondent with the opportunity to converse with the researcher rather than to get into the mode of answering queries (Mason 2002).

### **3.7. Data Collection Procedure**

The interviews were conducted on one-to-one basis. The researcher asked the questions whilst the respondents provided answers. The interviews were audio-taped and later transcribed. Copies of the transcript in English were later sent to the interviewees for them to ascertain whether the information gathered was exactly what they gave out. Respondents were informed that pseudonyms would be used to discuss information they provided and those whose photographs were taken explicitly gave their permission for them to be used in this study.

### **3.8. Data Analysis Plan**

Data collected in the form of field notes were transcribed and assembled in narrative form, and also pictures that describe the various processes that culminate in the final woven product in the study setting were analysed. These were analysed and interpreted to give an idea of the situation in the selected regions. Since the project was designed to collect primarily qualitative data, data analysis followed a similar pattern with qualitative techniques being used on qualitative data. With this in mind some categorization of data was made and this categorisation was types of dyes and plant materials used in dyeing fabric, and the outcome of the woven products in the study regions. Information received from people in the various regions under study was also compared. These comparisons helped in the appreciation of the differences and similarities in the fabrics produced in the regions under study. Details of these have been provided in Chapter Four.

### 3.9. Execution Activities for Research Objective One

This objective dealt with the Identification, description of plants that had the potential to be used as dyes. To satisfy the objective, the following activities were performed.

#### 3.9.1. Preparation of the Organic Dyes

This section highlights all the processes involved in the dye extraction and the dyeing of the yarns.

#### 3.9.2 Tools and Materials Used in extracting the dye

The tools and materials suitable for this project were identified and explained as follows:

##### 1. Plastic Bucket

Plastic bucket (see plate 3.1) big enough to accommodate the yarn and dye liquor was used to hold the dye bath for the dyeing of the yarns. This was also used in soaking parts of the plant from which dyes were extracted.

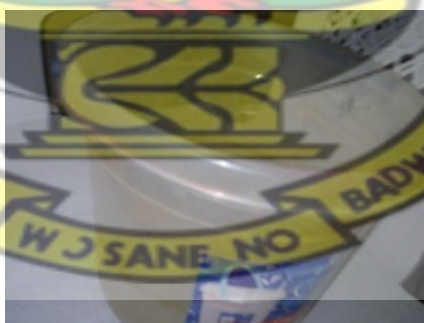


Plate 3.1: Plastic Bucket  
*Source: Researcher's Fieldwork*

## 2. Measuring Instruments

To help obtain the right quantities of plant extract and mordant needed for the experiment, the measuring scale in kilograms (see Plate 3.2) was used to weigh the plant extract and mordant. Plate 3.3 is the measuring cup used in measuring the water for soaking and boiling of the extracted plant part in the dye preparation.



Plate 3.2: Measuring scale  
Source: Researcher's Fieldwork



Plate 3.3: Measuring cup  
Source: Researcher's Fieldwork

## 3. Heat Source

Heat was required to boil water for mixing the dyes and chemicals. It was used to boil the plant matter and water used during dye extraction (plate 3.4). The coal pot was the main source of heat.



Plate 3.4: Coal Pot  
Source: Researcher's Fieldwork



#### **4. Enamel Pot**

This was used to collect and boil water for hot dyeing and also for soaking parts of the plant for the extraction of the dye prior to dyeing (see plate 3.5). It was large enough to accommodate the quantity of water needed for boiling the extract.



Plate 3.5: Enamel pot  
Source: Researcher's Fieldwork

#### **5. Pestle and Mortar**

These were used to mill the seed and plant part before boiling for the extraction of dyes (plate 3.6).



Plate 3.6: Pestle and Mortar  
Source: Researcher's Fieldwork

#### **6. Stirring Spoon**

A wooden stirring spoon in plate 3.7 was used in stirring the dye to mix and dissolve the mordant when creating the dye bath. Different plastic spoons were also used in fetching the mordant during the preparations.



Plate 3.7: Wooden spoon  
Source: Researcher's Fieldwork

## 7. Strainer

A strainer with tiny holes was used to strain the plant matter off the dye liquor during 'dye bath' preparations (plate 3.8). The dye solution was strained to eliminate small particles found in the solution. This if not removed affect dyeing by creating parches on the fabrics or yarns being dyed.

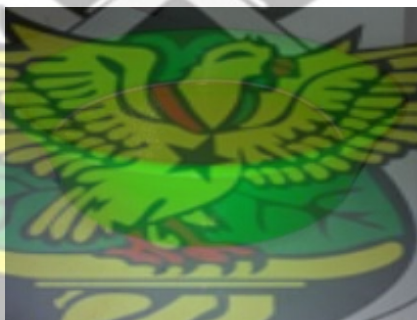


Plate3.8: Strainer  
Source: Researcher's Fieldwork

### 3.9.3. Plant Parts used for Dye Extraction

The plants listed below were used for the experiments.

#### 1. The Mango Plant

Mango tree (*Mangifera indica L.*), grows up to 35–40 metres (115–131 ft.) tall, with a crown radius of 10 metres (33 ft.). The trees are long-lived, as some specimens still fruit after 300 years. In deep soil, the taproot descends to a depth of 6 metres (20 ft.),

with profuse, wide-spreading feeder roots; the tree also sends down many anchor roots, which penetrate several feet of soil. The experiment made use of both the leaves (see plate 3.9) and bark (see plate 3.10) of the mango plant.



Plate 3.9: Mango Tree Leaves  
Source: Researcher's Fieldwork



Plate 3.10: Bark of Mango Tree  
Source: Researcher's Fieldwork

## 2. Mahogany Tree (*Khaya senegalensis*)

Back of mahogany plant and leaves were used for the experiment. These are shown in plates 3.11 and 3.12 respectively.

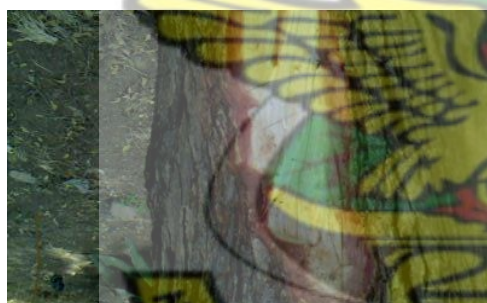


Plate 3.11: Mahogany Tree  
Source: Researcher's Fieldwork

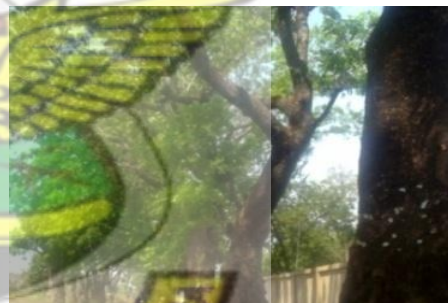


Plate 3.12: Mahogany Tree Leaves  
Source: Researcher's Fieldwork

## 3. Dawadawa (*Parkia clappertoniana*)

Commonly known as the locust bean tree, African locust bean is a perennial deciduous tree of the *Fabaceae* family. The bark of the *Dawadawa* plant (see plate 3.13) was also identified as one of the plant part that has the potential to produce organic dyes.



Plate 3.13: Dawadawa Tree Bark  
Source: Researcher's Fieldwork

#### 4. *Neem* Tree (*Azadirachta indica*)

The *Neem*, trees are in the mahogany family *Meliaceae*. It grows in the wild and is found in all parts of the study regions. The researcher makes use of the bark of the *Neem* plant (Plate 3.14) since the survey also identified the plant as one of the potential plants for extracting organic dyes

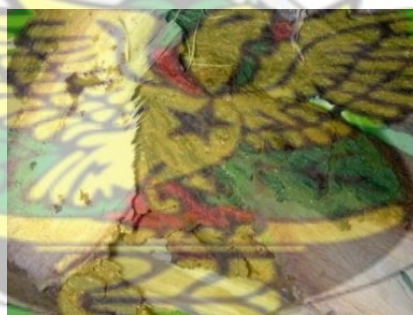


Plate 3.14: *Neem* Tree Bark  
Source: Researcher's Fieldwork

#### 5. *Sorghum* leaves

*Sorghum bicolor*, commonly called sorghum and also known as *durra*, jewellery, or Milo, is a grass species cultivated for its grain, which is used for food, both for animals and humans, and for ethanol production. *Sorghum* originated in northern Africa, and is now cultivated widely in tropical and sub-tropical regions. The *sorghum* leaves (Plate 3.15) are also used in Ghana to colour food. The research explored the dry leaves of the *sorghum* plant in order to use its extract to dye cotton yarns.





Plate 3.15: Dried *Sorghum* leaves  
Source: Researcher's Fieldwork

#### 6. 'Nierre' Seed (*Nothofagus antarctica*):

The *Nierre* is a deciduous tree or shrub native to southern Chile and Argentina from about 36°S to Tierra del Fuego (56° S), where it grows mainly in the diminishing temperate rainforest. 'Nierre' seed is a small orange beadlike seed used locally in Northern Ghana as a food colorant. It was found during the research that it stains fabric. This makes it possible to be used as a colorant.



Plate 3.16: *Nierre* Seed  
Source: Researcher's Fieldwork



## 7. Cola Nut Plant (*Cola Acuminata*)

The kola nut (Plate 3.17) is the fruit of the kola tree, a genus (*Cola*) of trees that are native to the tropical rainforests of Africa. The caffeine-containing fruit of the tree is used as a flavouring ingredient in beverages, and is the origin of the term "*cola*".



Plate 3.17: *Cola Nut*

Source: Researcher's Fieldwork

### 3.9.4. Extraction of Dyes from Plant Parts

Plant parts were harvested and cut into small pieces, spread on clean polyethylene material, and left to dry in the open air. The dried plant parts were separately grounded into powder and kept in plastic containers of different sizes at ambient temperature. Eight (8kg) of dried and pounded plant materials (roots, bark, leaves, seeds and fruits) were soaked overnight in sufficient distilled water (15 litres) in a plastic bucket (size 24). Dye extraction and preparation were done and described as follows:

#### 1. Mahogany Dyes

After harvesting the mahogany tree bark, it was left to dry under room temperature (between 20 and 30 degrees Celsius). This was to prevent direct heat from drying the plant as this will affect the colour expected. The dried mahogany bark was then pounded (see plate 3.18) into a powdery form. The powdered substance obtained was

boiled (see plate 3.19) for thirty minutes (30 minutes). After the dye was released into the water, it was removed from the heat source and strained to separate the residue from the dye liquor. The colour of the dye obtained was brown.



Plate 3.18: Pounded bark of Mahogany tree Source: Researcher's Fieldwork



Plate 3.19: Liquor Extract from the bark of Mahogany tree Source: Researcher's Fieldwork

#### **a. Extraction of the Mango Dye**

The mango tree bark was harvested and cut into small pieces, spread on clean polyethylene material, and left to dry in the open air. The dried plant part was pounded as shown in plate 3.20 into powder and kept in plastic containers (see plate 3.21). Eight (8kg) of the dried and pulverized plant bark were soaked for seventy-two hours in sufficient distilled water (15L) in a bucket (size 24).

Water was the main medium chosen for extraction of the colour components. The soaked plant materials were boiled (see plate 3.22) and the temperature gradually controlled over a period of 30 minutes. This was to ensure maximum extraction of the colour components. The coloured solution was left to stand for a minimum of 10 minutes and then filtered. The resultant dye solution of yellow (see plate 3.23) was then used immediately for dyeing.



Plate 3.20: Pounding of the mango  
Tree bark Source: Researcher's Fieldwork



Plate 3.21: Pounded mango tree bark  
Source: Researcher's Fieldwork



Plate 3.22: Boiling of the Mango tree bark after pounding and soaking  
Source: Researcher's Fieldwork



Plate 3.23: Straining the dye liquor  
Source: Researcher's Fieldwork

## 2. *Neem* tree Dye

The *Neem* tree bark was harvested and cut into small pieces. The fresh plant part was kept in plastic containers. Eight kilograms (8kg) of fresh plant bark were soaked for seventy-two hours in sufficient distilled water (15L) in a bucket. The soaked plant



materials were boiled and the temperature gradually controlled over a period of 30 minutes. This was to ensure maximum extraction of the colour components. The coloured solution of brown was left to stand for a minimum of 10 minutes and then filtered. The resultant dye solution of 6 litres was then used for the dyeing.

### 3. Extraction of the Dye Liquor from the '*Nierre*' Seed

A one kilogram (1kg) of '*Nierre*' seeds was grounded into powder, soaked in 6 litres of water for twenty-four hours (24 hours) and boiled (see plate 3.24) in extra six litres (6 litres) of water for thirty minutes (30 minutes). It was then left to cool for thirty minutes (30 minutes) and sieved to remove the grounded particles. A clean napkin was spread inside the sieve to make sure all particles were removed (plate 3.25). The dye solution obtained was orange colour.

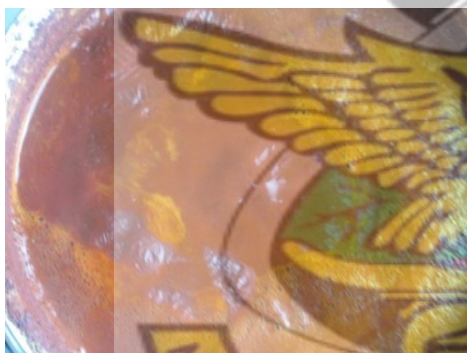


Plate 3.24 Boiling of *Nierre* Seed Powder

Source: Researcher's Fieldwork



Plate 3.25: Sieving to Remove

the Residue. Source: Researcher's  
Fieldwork

**Table 3.1: Various Plants, Quantities, the Time Each Plant Part was Soaked, Boiled and the Amount of Water Used**

Plant Quantity	Soaking Time	Soaking Water	Boiling Time	Boiling Water
Mahogany tree bark 8kg	72 hours	15 litres	3 hours	45 litres
Mango tree bark 8 kg	72 hours	15 litres	3 hours	45 litres
Neem tree bark 8 kg	72 hours	15 litres	3 hours	45 litres
‘Nierre’ seed 1 kg	24 hours	6 litres	30 minutes	6 litres

### 3.10. Execution of Activities for Research Objective 3

Integrate the organic dyed yarns and the cloth weaving techniques from the Northern, Ashanti and Volta regions to weave a ‘men’s’ cloth.

In achieving the third research objective of this study the researcher undertook the following;

#### 3.10.1. Procedure for Dyeing the Yarns using the Dye Extracts

After experimenting on the above mentioned plants, the researcher adopted Mango (*Mangifera indica*), neem (*Azadirachta indica*), ‘Nierre’ seed – (*Nothofagus antarctica*) and Indigo plants (*Indigofera tinctoria*) dye extract to dye the yarns needed for the weaving.

##### i. Yarn Preparation

Cotton cone yarns were bought from the market and processed (see plate 3.26). They were warped to required length for the weaving to prevent wastage. These were done the same way the yarns were removed from the warping process with the created crosses. These crosses were tied to secure them from entangling during dyeing. The



starches added to the cotton yarns during spinning were removed before dyeing to allow the dye to properly penetrate through the yarns. To remove the starch, the yarns were soaked (Plate 3.27) in boiling water for thirty minutes to break the size and make it easy for the starch to be removed. The yarns were once again boiled for one hour and washed in warm water to make sure it was starch free. These yarns were then dyed with the natural dye extract.



Plate 3.26: Preparation of yarn

Source: Researcher's Fieldwork

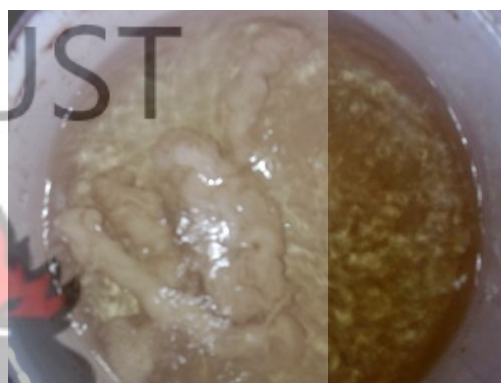


Plate 3.27: Yarns in Boiling Water

Source: Researcher's Fieldwork

### 1(i).Recipe from the '*Nierre*' extracts (Orange Colour)

The basic recipe for dyeing '*Nierre*' extracts to produce the orange coloured yarns was as follows:

ITEMS	QUANTITY
Yarn	14,500 yards
Water	6 litres
Dye extracts	2 litres
Alum (Mordant)	0.4grams

## (ii). Dyeing of Yarn with the '*Nierre*' Extracts

0.4 kilograms of Alum as mordant was added to the dye bath. It was then stirred to dissolve the alum. The prepared yarns were wetted out and then dyed as seen in plate 3.28. A stick was used to turn the dye bath till every portion of the yarn was soaked with the dye solution. The yarns were dyed for twenty-four hours (24 hours) and then removed, left under a shade for oxidation. The dyed yarns were washed till the water was clean (see plate 3.29). The dyed yarns were then washed in salty water for colour fastness and hung on a drying line to dry.

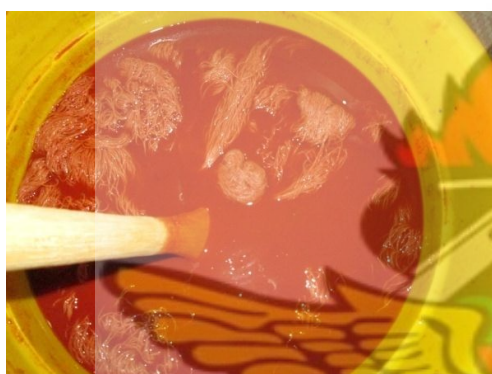


Plate 3.28: Dyeing Process

Source: Researcher's Fieldwork



Plate 3.29: Washed Dyed Yarns

Source: Researcher's Fieldwork

## 2. Dyeing of Yarns with the Indigo Extracts

The yarns in cones were rolled into large rings and tied to a stick at one end. Dried indigo leaves '*gara*' were pounded, moulded into balls and left to dry for three days. The mixture was poured into a basket to strain the water. This basket was then covered for four weeks to allow the pounded leaves to decompose. The potency of the decomposed leaves was determined by a smoke from the basket when opened.

Muddy clay locally known as '*zaarta*' was moulded into balls and dried for one week after which the dried balls were baked. A dug out pit locally known as '*kegaramang*' was filled with water of about one drum. The baked '*zaarta*' balls were ground,

wet, mixed with potash (ash from burnt Dawadawa tree and grounded cocoa husk) and then poured into a bowl. The mixture was then stirred for about thirty minutes until it was well mixed.

The prepared dye solution was poured into a dug-out hole as shown in plate 3.30. It was obvious from the above explanation that the dyeing process employed referred to as the ‘traditional process’, was different from the other dyeing process that had to do with the use of pots. The yarns were removed (see plate 3.31) after some time for oxidation and then re-dyed. This was done till the required colour was obtained (see plate 3.3 – 3.33).



Plate 3.30: Indigo Dye Pit  
Source: Researcher Fieldwork



Plate 3.31: Stirring the dye bath  
Source: Researcher's Fieldwork

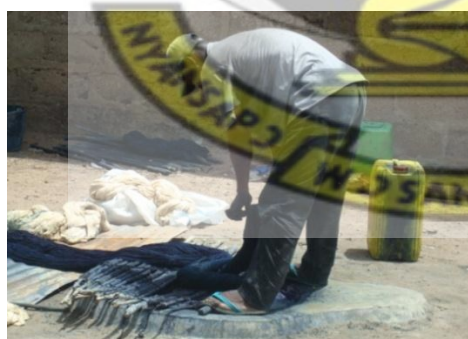


Plate 3.32: A dyed yarn being removed from the dye pit  
Source: Researcher's Fieldwork





Plate 3.33: Dyed yarns allowed to oxidize

Source: Researcher's Fieldwork

### 3.10.2. Weaving of the Various Components of the Proposed Traditional Weave

This section explains the steps the researcher went through to produce the proposed traditional weave.

The procedures for weaving the proposed '*Kente*' and '*kete*' were Designing, Yarn preparation, Warping, Raddling, Beaming, Heddling, Reeding, Tie-up and actual Weaving. Procedure for weaving '*Fugu*' went through the same process with the exception of Raddling and Beaming.

#### 1. Designing

Having gone through the various designs and their philosophical meanings '*Tangaran*', a cloth named after a famous *Gonja* chief, '*Adwinasa*' which comprises all the weaves at the time the *kente* cloth was created and '*wargagba*' which symbolises high achievement were selected. These were woven with the organic dyed yarns. An integrated strip in which comprises '*Nwotua*' (Snail shell), '*Nkofe*', Snake, Fish, '*Ekye*' (hat) and Lizard design embedded were Fig. 3.1 to Fig 3.7 indicates the designs in the integrated woven strip.

## 2D rendered version of selected Designs for the Integrated Cloth

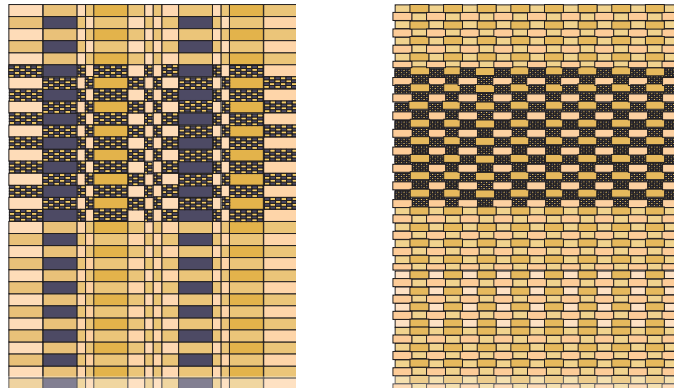


Fig. 3.1 'Nwotua' motif (Snail shell)



Fig.3.2: 'Fahia kotwere' Agyeman  
(Lean on *Agyeman* when in financial need)

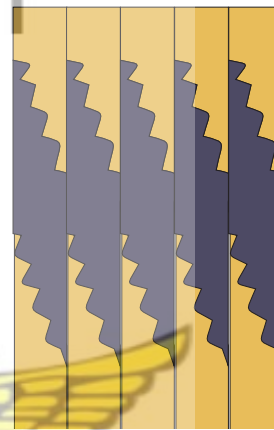


Fig.3.3: 'Nkofe'  
(Services and loyalty)

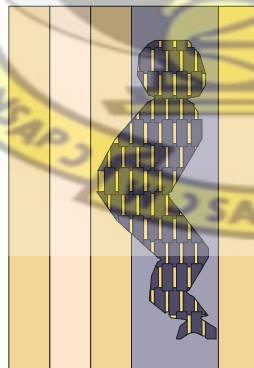


Fig 3.4 Snake

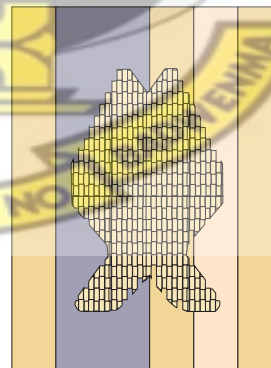


Fig. 3.5 Fish



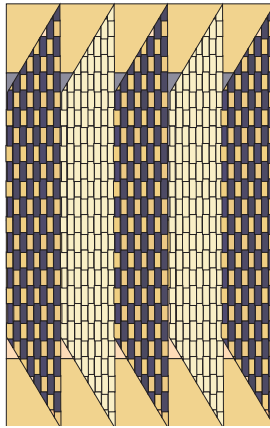


Fig. 3.6 ‘Ekye’ (hat)

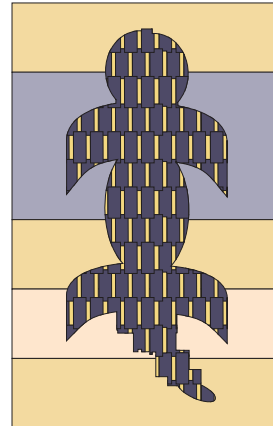


Fig. 3.7 Crocodile

The designed woven strips were joined to produce the proposed traditional cloth.

## 2. Yarn Preparation

### i. Spinning Yarn onto large Bobbin

The dyed yarns were placed on the skein winder as in plate 3.34 and wound on to large bobbins to form hanks with the aid of bobbin winder (plate 3.35). After obtaining the required number of warp ends and total number of hanks needed for the warp, the next process was to lay the warp.



Plate 3.34: Skein Winder (‘Ata’)

Source: Researcher’s Fieldwork



Plate 3.35: Bobbin Winder (‘Emor’)

Source: Researcher’s Fieldwork

### ii. Warp Laying

Yarns wound on bobbins were arranged on a spool rack to help align the warp yarns in parallel formation to prevent entanglement during weaving. Pegs were nailed into

the ground as a guide that held the crosses of the yarn. The yarns were then moved to and from these pegs till the total length and number of ends needed were acquired (see plate 3.37).



Plate 3.36: The Spool Rack

Source: Researcher's Fieldwork



Plate 3.37: Warping Process

Source: Researcher's Fieldwork

### iii. Securing the Crosses and Creating a Chain

After obtaining the total number of warp ends, the crosses were properly secured before removing the yarn from the ground. These were preserved by passing a string through the opening at one end of the crosses from the peg (plate 3.38). To remove the warp, pegs were first removed and the finger placed through the opening created. The yarns were then held firmly on the wrist and passed on the hand to form a loop till the whole warp was made handy (Plate 3.39).

Other weaving process such as raddling, Heddling and reeding were done.



Plate 3.38: Securing the Crosses

Source: Researcher's Fieldwork



Plate 3.39: Yarn Roll in Chain

Source: Researcher's Fieldwork

#### **iv. Beaming**

The long warp was stretched taut and rolled onto the warp beam on the loom. During this process the raddle together with the warp threads were tied onto the slay board of the loom. The warp ends were then stretched taut from the front of the loom where the weaver sits and rolled onto the cloth roller making sure that an even tension was maintained. This was done to prevent slackness during weaving from either the selvedge or any other part of the warp.

The remaining warp yarns were then cut off and loosely knotted in front of the raddle. The top part of the raddle was then removed and the two flat shed sticks were pushed to the back roller to maintain the process. The warp threads were ready for heddling.

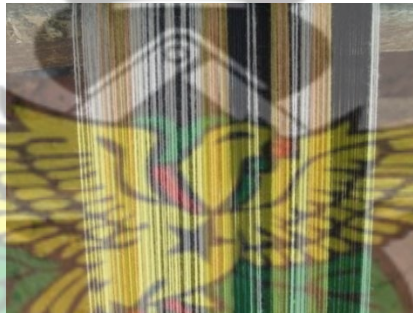


Plate 3.40: Stretched yarns

Source: Researcher's Fieldwork

#### **v. Heddling**

After beaming, the warp ends were threaded through the eyes of the heddles or healds, which were suspended by the heddle frames. (See Plate 41)





Plate 3.41: Heddling Process

Source: Researcher's Fieldwork

#### vi. Reeding

After heddling, all the yarns were then passed through the dents of the reed. The reed was fixed to a cord and tied to a stick to make it firm in the reeding process. A reed hook was the right tool for reeding, but in this case a small knife was used to push the yarn through each dent of the reed.

#### vii. Tie-up

The loose ends were tied in front of the reed (see plate 3.42). A small rode was slipped through the knotted yarns. These were hooked with a strong cord and knot, and then stretched to hook the roller making sure the tie-up was of equal length to provide a proper opening of the shed. The treadle was hanged evenly and parallel to the same height from the ground within easy reach of the foot to create a very good shed.



Plate 3.42: Tie – up

Source: Researcher's Fieldwork

### viii. Weft Preparation

Weft yarns interlace the warp yarns to create the fabric. Yarns were wound onto bobbins made from bamboo sticks for weaving.

### ix. Test Weaves

After the processes, a test weave was conducted to ascertain the correct layout and weave before the actual work commenced. (Plate 3.43 shows test conducted on the plain weave for the chosen cloth). Having done this the main weaving process takes on.



Plate 3.43: Text Weaves

Source: Researcher's Fieldwork



The primary principles of weaving: that is Shedding, Picking, Beating Up and Letting off explain in theories of weaving (2.8) in Literature were followed throughout the weaving of '*fugu*', '*kente*' and '*kete*'.



Plate 3.44: Weaving In Progress

Source: Researcher's Fieldwork



Plate 3.45: Finished Cloth

Source: Researcher's Fieldwork



Plate 3.46: The Weaving Process

Source: Researcher's Fieldwork

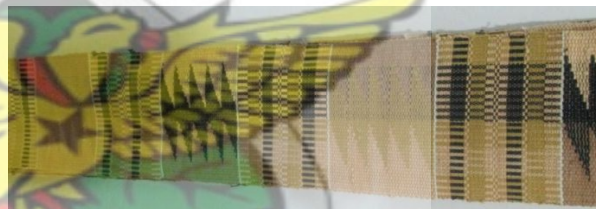


Plate 3.47: Finished Cloth

Source: Researcher's Fieldwork



Plate 3.48: Weaving process

Source: Researcher's Fieldwork



Plate 3.49: The finished cloth

Source: Researcher's Fieldwork

### 3.10.3. Integrating the Three Woven Strips into a Cloth

The research was to integrate cultural weaves (*fugu*, *kente* and *kete*) from the three regions into a common woven cloth. Plain weave was the commonest weave that runs through the three chosen cloths (*fugu*, *kente* and *kete*). Plain weave involves the interlacement of thread warp and weft, passing alternately under and over consecutive threads uniformly throughout the fabric (Sackey, 2002). Every thread in warp series interlaces with the weft thread, thereby producing a comparatively firm and strong fabric. A complete unit of the plain weave occupies a warp thread and a pick of weft. This technique was adapted as it runs through the meaning of three chosen cloths.

Another technique employed was the tapestry. It was a technique used in both *kente* and *kete* weaving. This technique differs from other forms of patterned weaving in that no weft threads are made to carry the full width of the fabric, except by an occasional design that occupies the whole width of the fabric. Each unit of the pattern was woven with a weft thread of the required colour that was inserted, back and forth only over the section where that colour appears in the design. The weft threads outnumbered the warps to the extent that they conceal them completely. The warps in a finished tapestry appear as marked parallel ridges in the texture or grain of a fabric, according to their coarseness or fineness.

*Kete* has a special weaving technique that has its design and arrangement in both the warp and the weft yarns. Cloths like *wagagba*, double stone have their design and arrangement in the warp. In this technique, five heddles were arranged on the loom. The design, unlike tapestry that has the weft yarn cut after a line of weave, was woven

alongside the plain weave. It uses two or more shuttles depending on the design and the colours of yarns needed.

The project employed plain and tapestry weave for the integrated woven cloth. As stated in the literature, '*fugu*' has stripes; '*kente*' has geometric shapes, while '*kete*' has a human figure, geometric shapes and animal motif arrangements. The same technique of '*fugu*' that has its design running through the warp laid was employed for this project.

#### **3.10.4. Joining of the Woven Strips**

Woven strips from Northern, Volta, Ashanti regions and the integrated strips were joined to form one cloth. This was done by overlapping each strip of about 1/8 of an inch. They were then pinned, tacked and sewn with the zigzag stitches for smoothness. Tacked stitches were then removed after sewing and the raw edges neatenened by turning a hem of one inch. In plate 3.50 is the finished joined strip.



Plate 3.50 Joining the Woven Fabrics

Source: Researcher Fieldwork

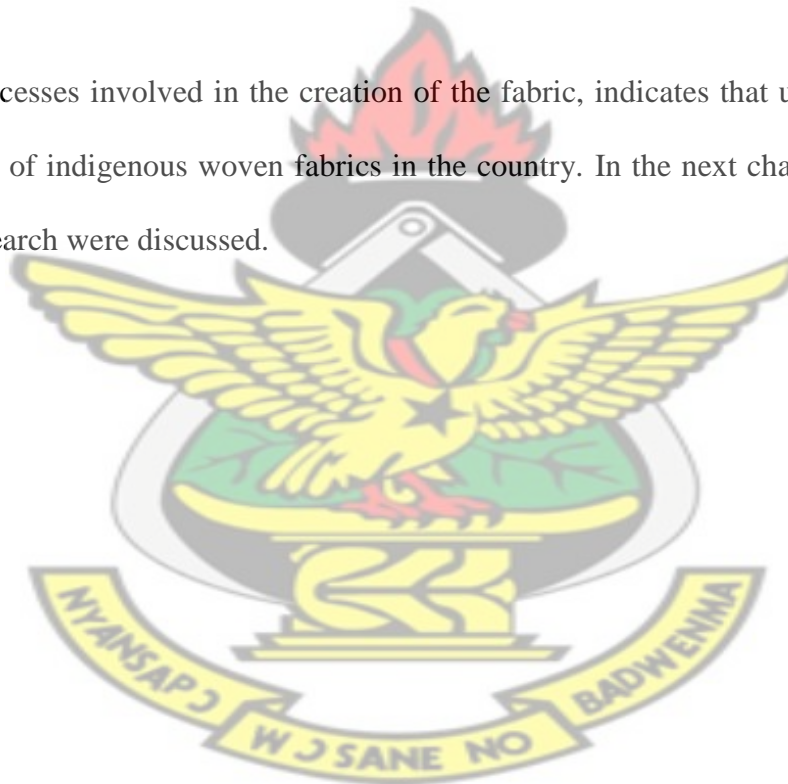




Plate 3.51: The joined strips

Source: Researcher's Fieldwork

The processes involved in the creation of the fabric, indicates that unity can change the face of indigenous woven fabrics in the country. In the next chapter, findings of this research were discussed.



## CHAPTER FOUR

### PRESENTATION AND DISCUSSION OF FINDINGS

#### 4.0. Overview

This chapter aims at exploring the use of some organic dyes to dye cotton yarns for the integration of cultural weaves ('fugu', 'kente' and 'kete') as a fashionable.

The chapter presents the data collected from the population and the analysis used to systematically deal with information received from respondents through interviews and observations made during field work.

#### 4.1. Observation of Colour Extracted

It was observed during the field work and experiments that, the colour of some plant species does change in colour when boiled. For example, the bark of the Mahogany tree looks brown in colour, but when it is cut it shows violet in its sap, turns brown when soaked in water for 45 minutes and becomes dark brown in colour after the dye extracts was boiled. *Azadirachat indicia*, *Sorghum bicolor*, *Parkia clappertoniana*, *Khaya senegalensis*, *Acuminata*, 'Nierre' (*Nothofagus antarctica*), *Hibiscus sabdariffa* and *Mangifera indica* where some of the plants used for the experiment. *Hibiscus sabdariffa* (flowers) was red when boiled and changes colour after four spoons full of alum (as mordant) was diluted in water and added to one litre of its dye solution. Mordant saturates the dye solution to aid in the migration of the dye to the fabric. This study did not conduct any scientific research into why the colours of the plant parts change after it was soaked and boiled since such a study did not form part of the objectives set out for this study.



## 4.2 Potential Plant Species that yields Dyes when Boiled

**Table 4.1; Results of selected plant species having potential in yielding dyes in Ghana**

Species	Local name	Family	Parts used	Colour	State
<i>Azadirachat indicia</i>	Neem	<i>Miliaceae</i>	Bark	Brown	Fresh
<i>Mangifera indica</i>	Mango	<i>Anacardiaceae</i>	Bark	Yellow	Fresh
<i>Sorghum bicolor</i>	Sorghum	<i>Malvaceae</i>	Leaves	Pink	Dry
<i>Parkia clappertoniana</i>	Dawadawa	<i>Leguminosae</i>	Bark	Brown	Dry
<i>Khaya senegalensis</i>	Mahogany	<i>Annonaceae</i>	Bark	Brown	Dry
<i>Acuminata</i>	Cola	<i>Fabaceae</i>	Nuts	Brown	Fresh
<i>Hibiscus sabdariffa</i>	'Sobolo'	<i>Malvaceae</i>	Flowers	Mauve	Dry
<i>Mangifera indica</i>	Mango	<i>Anacardiaceae</i>	Leaves	Yellow	Fresh
<i>Nothofagus antarctica</i>	'Nierre'		Seed	Orange	Dry
<i>Acuminata</i>	Cola	<i>Fabaceae</i>	Leaves	Yellow	Dry
<i>Mangifera indica</i> & <i>Azadirachat indicia</i>	Mango & Neem	<i>Anacardiaceae</i> & <i>Miliaceae</i>	Back	Golden Brown	Fresh

Source: researcher's fieldwork

The results of the plant dyes experimented on cotton fabrics are shown in table 4.1. The study reveals that the actual colours of the plant dyes are more visible with mordant added to the dye baths. The mordant helped to produce the shades and tints on cotton yarns. The dye from *Hibiscus sabdariffa* for instance, changed from red to violet with alum as mordant,

### 4.3. Results of Extracted Dyes applied to Cotton Fabric

**Table 4.2; Shows the colours obtained from the sampled plants with a mordant.**

Species	Alum when added The colour obtained	Salt when added Colour obtained
<i>Azadirachta indica</i>	Brown	Light Brown
<i>Mangifera indica</i>	Yellow	Light Yellow
<i>Sorghum bicolour</i>	Pink	Light Pink
<i>Parkia clappertoniana</i>	Brown	Light Brown
<i>Khaya senegalensis</i>	Brown	Light Brown
<i>Acuminata (Nut)</i>	Brown	Light Brown
<i>Hibiscus sabdariffa</i>	Mauve	Light Mauve
<i>Mangifera indica</i>	Yellow	Light Yellow
<i>Nothofagus antarctica</i>	Orange	Light Orange
<i>Acuminata (leaves)</i>	Yellow	Light yellow
<i>Mangifera indica &amp; Azadirachta indica</i>	Golden Brown	Golden Brown













### 4.4. Wash and Light Fastness Tests

The assessment of the dyed yarns to ascertain wash and light fastness was conducted in the dyeing studio of the Integrated Rural Art and Industry (IRAI) of the Faculty of Art, Kwame Nkrumah University of Science and Technology. This was carried out under art studio conditions where conventional laboratory facilities for conducting chemical tests are non-existent. Hence the dyed yarns were subjected only to basic physical tests, including washing and direct contact with sunlight purposely to determine wash fastness, resistant to light and alkaline of the yarns used. This was

done to ascertain whether or not the identified organic dyes used to colour the yarns would withstand washing and drying.

It is worth noting that the test procedure to wash and light fastness involved cutting three pieces of each organic dyed yarn and washing same with locally produced Key-soap and rinsed in clean distilled water. One of the washed yarns was exposed to direct sunlight for six hours. Exposing the yarns to direct sunlight showed a slight change in colour. The yarns exposed to indirect sunlight showed no change in colour indicating their ability to withstand laundering in the prevailing hot and humid weather conditions in Ghana. This suggests their viability as dyes for colouring clothes. The result of wash and light fastness was woven into the fabric shown in Table 4.5.

**Table 4.3 Results of wash and light fastness**

Plant	Yarn after Dyeing	Wash Fastness	Light Fastness
<i>Mango Tree Bark</i> ( <i>Mangifera indica</i> )	 Golden yellow	 Flavescent	 Flavescent
<i>Neem Tree Bark</i> ( <i>Azadirachat indicia</i> )	 Ochre	 Ochre	 Ochre
<i>'Nierre' Seed</i> <i>Nothofagus antarctica</i>	 Carrot orange	 Peach-orange	 Peach-orange
<i>Indigo Plant</i> <i>Indigofera tinctoria</i>	 Blue-Black	 Indigo	 Light Indigo



**Table 4.4 Results of woven fabric after Wash and light fastness test**

Name of Plant	Dyed yarns	Woven Yarns
Mango Tree Bark ( <i>Mangifera indica</i> )	 Flavescent	 Flavescent
Mahogany tree Bark ( <i>Khaya senegalensis</i> )	 Ochre`	 Ochre
Neem Tree Bark ( <i>Azadirachat indica</i> )	 Ochre	 Ochre
Dawadawa Tree Bark ( <i>Parkia clappertoniana</i> )	 Ochre	 Ochre
'Nierre' Seed ( <i>Nothofagus antarctica</i> )	 Peach-orange	 Peach-orange
Sobolo Seed ( <i>Hibiscus sabdariffa</i> )	 Lavender (web)	 Lavender (web)
Sorghum ( <i>Sorghum bicolor</i> )	 Coral pink	 Coral pink
Indigo Plant ( <i>Indigofera tinctoria</i> )	 Indigo	 Indigo

#### **4.5. Characteristics of the Dyed Yarns using the Natural plant Extracts**

The study of the locally dyed yarns with the mahogany, mango and indigo dyes identified the following characteristics;

##### **4.5.1. Unpleasant Smell**

For effective dyeing, the local dyeing process which was adapted for the study, first had to go through a transformation process of four weeks' fermentation of the dye solution. Dried indigo leaves 'gara' were moulded and left to dry for three days. The moulded leaves were then soaked in water for softening and then strained in a basket to let the water out. The content was left in the basket and covered for four weeks to decompose. Noticeably the fermented mixture resulted in the unpleasant smell.

It was also realised during the study work research that dyers use their bare hands in stirring solutions and this was an important process because the traditionally held view, which seems to be true, is that using the bare hands helps in speeding up the fermentation process. The probability of adding bacteria to the process makes it a preferred option to dyers.

##### **4.5.2. Workability**

The locally dyed yarns were comfortable to work with. This is because the dyes used (organic dyes) do not affect the skin, unlike the synthetic. Alum, as a mordant which was used, does not have any effect on the skin. The yarns become more flexible to handle and do not break easily.

##### **4.5.3. Shrinkage**

Shrinkage is the process in which a fabric becomes smaller than its original size, usually through the process of laundry (Akuamoah-Boateng, 2000). Shrinkage can



also be caused by the way yarns are spun, woven, and finished. The dyeing process, among other procedures, went through washing which often shrunk the yarns by reducing its length. After the yarns had been mixed with plant dye extracts, the length of the yarns often reduced significantly. The total length of the yarns after dyeing normally reduced to about 0.01% of the total length of yarn before the dyeing process.

#### 4.6 Designs identified in ‘Fugu’

Some stripe pieces of ‘fugu’ were identified, picked, studied, selected and adapted for this study. Among them were ‘Kanyiti’ (patience is good), ‘Bubruulonso’ (Don’t put me to shame), ‘Bore Enyinche’ (God knows), ‘Tangaran’ (A name after a chief), ‘Singbiuwura’ with red, (named after a chief of ‘Kpemb’), ‘Aliadege’ with red (Evil Gossip), ‘Atikila Firichu’ with red, (groundnut), ‘Kitalampe’ (Spotted Beans), ‘Kikogi’ ‘N’ishi’ (Eyes of Giraffe), ‘Kilangofa’ (Millet leaves), ‘Katere Rule’ (Canon Paddle). All these are symbolic proverbial ‘fugu’ cloths. A cloth such as ‘Katere’ ‘fugu’, talks about the paddle that is used by the fishermen in Daboya. The town operates a river transportation system which makes use of a canoe and its paddle is identified in the ‘katere’ ‘fugu’ cloth. ‘Kilangofa’, was chosen for this study due in part to its dominant blue colour (a colour often portrayed in a *Gonja* ‘fugu’). Samples of the collected pieces are in plates 4.1 to 4.14.

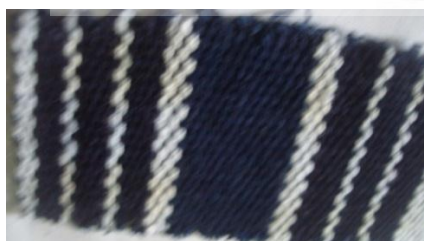


Plate 4.1 ‘Kakubu’  
Source: Researcher’s Fieldwork

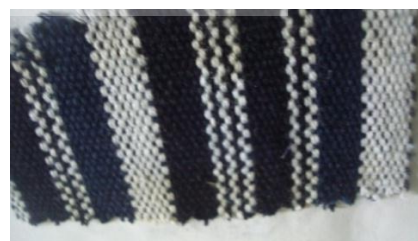


Plate 4.2 ‘Kanyiti’ (patience is good)  
Source: Researcher/s Fieldwork



Plate 4.3 'Bubruulonso'  
(Don't put me to shame)  
Source: Researcher's Fieldwork



Plate 4.4 Bore 'Enyinche'  
(God knows)  
Source: Researcher's Fieldwork



Plate 4.5; Angelina  
(Named after GTP cloth)  
Source: Researcher's Fieldwork



Plate 4.6; 'Tangaran'  
(Named after a chief)  
Source: Researcher's Fieldwork



Plate 4.7; 'Badari' (With Red)  
Source: Researcher's Fieldwork

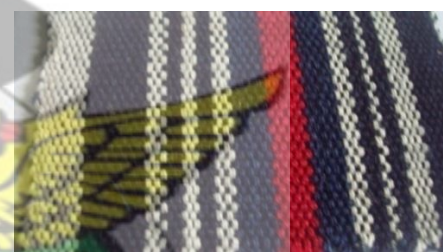


Plate 4.8; 'Singbiuwura' (With Red)  
Named after a chief of *Kpemb*  
Source: Researcher's Fieldwork



Plate 4.9; 'Aliadege' (With Red)  
(Evil Gossip)

Source: Researcher/s Fieldwork



Plate 4.10; 'Atikila Firichu' (With Red)  
Groundnut (with red)

Source: Researcher's Fieldwork





Plate 4.11; 'Kitalampe'  
(Spotted Beans)  
Source: Researcher's Fieldwork

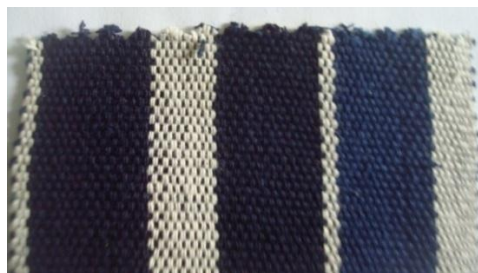


Plate 4.12; 'Kikogi Nishi'  
(Eyes of Giraffe)  
Source: Researcher's Fieldwork



Plate 4.13; 'Kilangofa'  
(Millet leaves)  
Source: Researcher's Fieldwork



Plate 4.14; '*Katere Ruale*'  
(Canoon Paddle)  
Source: Researcher's Fieldwork

#### 4.7. Names of '*Kente*' Design

'*Kente*' is a traditional woven cloth from the Ashanti Region, designed with coloured yarns such as yellow, red, green, and blue, black and white, all woven in different designed patterns. It creates its geometric designed patterns by the application of different weft coloured yarns. Traditional '*Kente*' cloth expresses different proverbs or ideas through different designs. More than three hundred different '*Kente*' designs have been recorded, and each one has its own particular message and motifs. Some of the motifs are;

##### 1. Name of motif: '*Nkyimkyim*'

This literally means zigzag. Life is not always as smooth as a straight line. Prudent living is a balance between a zig and a zag hence the symbol of a zigzag in '*Kente*'.

## **2. Name of motif: ‘*Sekan*’**

This is inspired by the practical utility of knives. Symbolising; practicality, efficiency, productivity and craftsmanship. This also symbolises the sharpness of the mind.

## **3. Name of motif: ‘*Fahia kotwere*’ Agyeman**

Literally means lean on *Agyeman* when in financial need. This Symbolises hope, faith, sharing and benevolence.

## **4. Name of motif: ‘*Sika Mpaboa*’**

The motif is derived from the top of the native sandals normally worn by royals and chiefs of Ashanti hence the name.

## **5. Name of motif: ‘*Ekye*’**

This literally means a hat and inspired by the social uses of hats. There is a saying that the ‘knee never takes the hat when the head is present’. Symbolises; status and responsibility.

## **6. Name of motif: ‘*Anintonwi*’**

This means eyebrows enhance facial appearance and gives a unique personality to an individual and thus symbolises beauty, enhancement, elegance and uniqueness.

## **7. Name of motif: ‘*Gye Nyame*’**

This means except God. It expresses the belief in one Supreme Being and that one should fear nothing except God. Symbolises attributes of God as Omnipotent, omniscience and omnipresent. It is one of the significant symbols among the ‘*Adinkra*’ symbols and it is normally used to produce flying ties.



#### **8. Name of motif: ‘Abusuakro ye’**

This literally means family unity; it portrays the stylised image of the family, which consists of different individuals who are all bound together in unity. It thus symbolises love, unity and peace.

#### **9. Name of motif: ‘Nwotua’**

This literally means snail shells. This was inspired by the texture of the snail shell which is made up of black, brown and yellow short vertical strips in a horizontal row. The name symbolises endurance and self-containment.

#### **4.8. Names of ‘Kete’ Design**

‘Kete’ is a traditional woven cloth from the Volta Region, which has colours such as muted yellow, red, green, blue, black and white, all woven in different designs and combinations. It creates a tweed effect by the application of different coloured yarns in the warp and weft. ‘Kete’ has features and forms such as human beings, animals, shells, cowries and household objects like combs, chairs and tables. Traditional cloths from this region come with its own motifs. Some of the motif names are;

##### **1. ‘Babadu’**

This literally means, ‘Termites eaten’. The appearance of this particular cloth shows the way termites devour items into smallest particles. This means death is inevitable.

##### **2. ‘Ehianege’**

This literally means, ‘calls for money’. According to Dennis (2004), this comes from the proverb, ‘wealth promotes manliness’ which makes reference to wisdom, creativity, and action orientation and power that man possesses.

### 3. '*Kpevi*'

Literally means 'small stone'. This is woven by using two different warps at the same time on the same loom with the warp threads stretched for a distance and tied to two stones which acts as warp beams. The designs created by these two stones are what the cloth has derived its name from. The name of this cloth also represents the systems of authority which ensures cohesion and balance of power.

### 4. '*Suklikpe*'

Literally means, 'cube of sugar'. It symbolises mutual love, sincerity, appreciation and acknowledgement. There is a saying that ungratefulness is a great sin of humanity. This has a different colour background like red, blue, green, white and yellow.

### 5. '*Sasa*'

This is a cloth made of strips of many different designs sewn together and symbolises acceptance of unity among a clan or group of people. This has the same meaning as '*Agurinuuse*' motif. It literally means Holding of Hands and symbolises unity.

### 4.9. Similarities and Differences in '*fugu*', '*kente*' and '*kete*'

'*Fugu*', '*Kente*' and '*Kete*' have techniques that identify them. These cloths have some similarities and differences that make them unique.

#### 4.9.1. Differences in ‘fugu’, ‘kente’ and ‘kete’

Table 4.5 Differences in ‘fugu’, ‘kente’ and ‘kete’

<b>‘Fugu’</b>	<b>‘Kente’</b>	<b>‘Kete’</b>
Traditional looms	Traditional and improved looms	Traditional looms
Designs are laid in the warp.	Designs are created in the weft.	Designs are created in the warp and weft.
‘Fugu’ designs are lineal in shape.	‘Kente’ has abstract shapes	‘Kete’ has natural shapes and forms of animals, household articles and human beings.
Red, Yellow, Green, Blue, cream and White	Red, Yellow, Green, Blue, Black and White	Red, Golden Yellow, Green, Blue, brown, black and White
Plain	Plain, Twill and Tapestry	Plain, Twill and Tapestry

#### 4.9.2. Similarities in ‘fugu’, ‘kente’ and ‘kete’

The indigenous yarn dyeing and weaving products such as ‘kete’, ‘Kente’ and ‘fugu’ were observed during the research. ‘Fugu’, ‘kente’ or ‘kete’ weaving were done with the traditional looms, however; the loom structure differs from one cultural centre to another.

Designing for the weaves within the local weaving industry is conceived and planned by the traditional weavers from memory and cut out pieces kept in polythene bags. In finding out the reasons behind these practices, the weavers said their design concepts are developed based on their weaving experiences on the loom over a long period of time. It was noticed, that there were no formal designs that can be followed to weave a fabric, but only through the informal way of education where fathers and older members of the community transfer their knowledge in design to the younger generations.

The high price of traditional textiles is as a result of the high cost of production relative to high prices of yarns, dyes and duration of production of these fabrics. The results of the research revealed, that there are no recognised open markets for indigenous textiles except for the *Agbozume 'Kete'* Market in the Volta Region and the *smock/'fugu'* market in Daboya. It was also found that the existence of the *Agbozume 'Kete'* Market gained recognition for '*kete*' business. Apart from the earlier mentioned markets for traditional woven textiles, the bulk of marketing is done by the individual technically known as trekking.

#### **4.10. The Concept behind the Integrated designs**

The idea of cloth wearing has existed among different ethnic groups in Ghana. Regarding Indigenous cloth, the entire country depends on the weaves that comes from specifically Northern, Ashanti and Volta region for their supply until recently where they switched for foreign fabric because of it relatively low price. The hand woven '*fugu*' is attributed to the people in the north, the '*Kente*' cloth to the Akan fraternity or the Asante's and '*Kete*' to the Ewes all of Ghana signifying an aspect of fashion that reflect their arts and culture. This variety of '*Fugu*', '*Kente*' and '*Kete*' patterns have been invented by the custodians of these sets of weavers over the years. Each of the weave designs has traditional concept associated with them.

The selected designs from the three chosen regions connote abstract and symbolic representations. Atiase (2012) explains further that the designs as a plan within the framework of their composite art included layout, pattern, motif, sketch, draft, form and arrangement of line(s) which are all synonymous to each other. These foundations serve a functional purpose of providing aesthetic pleasure to the user of these weaves. '*Fugu*', '*kente*' and '*kete*' designs selected for this study were chosen because of the



philosophical underpinnings of the motifs that constitute the designs concepts which are in effect common to all three communities who weave these cloths. ‘*Nwotua*’ (snail shell), ‘*Nkofe*’, ‘*Ekye*’ (hat), fish, snake, crocodile and cowries were the designs used in the integrated cloth.

### **1. ‘*Nwotua*’ (snail shell)**

‘*Nwotua*’ is a ‘*kente*’ design that has no variation in its visual pattern arrangement either in the number and type of colours or in the arrangement of these colours. The particular weave design adapted the designed pattern on the back of the snail. It is also an all shuttle weave. The traditional colours normally used are red and yellow, which interchange in a very attractive manner as a result of the following weaving technique described by Asmah (2004). Firstly, the treadle of the first heddle is pressed down and the shuttle loaded with the red weft is thrown, then the second treadle of the second heddle is pressed down and a second shuttle loaded with a yellow weft thrown. By repeating this arrangement, the yellow runs alternatively side by side. By a simple interchanging of the shuttle arrangement of the two, colour changes from red and yellow to yellow and red.

Snails are able to adapt to a variety of living conditions and do not require large amounts of food to live. They have soft un-segmented body covered with shell with different shapes and sizes. Most snails have spiralled shells whilst others have coiled cones or are macaroni shaped which they crawl into and close off when in danger of heat, cold or from an enemy. With all the dangers surrounding the snail, it crawls around homes and farms which make it appear to be very brave.

Snails are eaten in the Volta and Ashanti regions of Ghana while in Northern Region they are used for protection and as an omen. Due to the delicate and slow nature of the

Snail, it is believed to convey steady progress of life-path. Just as the elderly grow in age, wisdom and experience over the years, their strength is not as the youth, but their knowledge and wisdom cannot be measured to that of the youth. This is depicted in colour as the snail and such wisdom is what the youth of today needs in terms of progress. The challenges and troubles that confront people in life calls for the support of the elderly, with much experience in life to solve these challenges people faced in life. Just as the elder is revered and preserve His community with his/her wisdom, the snail, though not eaten by the people of the Northern Region, it is highly revered and used as an omen to protect and drive away evil spirits and thieves. This brings to the fore the fact that the snail is accepted and utilized by all hence the use of the design ‘*Nwotua*’ which symbolises power, wealth, protection and bravery.

## **2. ‘Ekye’ (hat)**

A hat is a head covering worn for protection, ceremonies and other religious activities. It is also used as a fashion accessory. They indicate the wearer’s social status and responsibility even among militia. The hat referred to as ‘*Zikligo*’ in Dagomba Language, ‘*Ekye*’ in Ashanti and *kuku* in Volta explains the status of the wearer from the way it is worn. When hats are worn over the ears, it symbolises that the wearer is in the silent mood. Its a way of wearing can send messages or identify the wearer social status (Kquofi, Amate & Tabi-Agyei, 2013). The type of hat worn depends on its usage. Hats currently are worn for fashion by all Ghanaians whether young or old. The concept of using hats on the head is a mark of dignity and prestige to the wearer and is the same from all the three selected Regions. To this end, the design of this study, ‘*Ekye*’, was chosen. The design, ‘*Ekye*’ used in this project makes the integrated woven cloth more of a social cloth that conveys one’s status.

### 3. Cowrie (*'Hotsui'*-Volta Region, *'Cedie'*-Ashanti and *'lag-kpara'* - Northern Region)

Cowries in the olden days signify money. It is a small shell used as pendant, earring, and buttons or as trimmings by some designers in the country. Traditionally, they are used in Northern, Ashanti and Volta Regions by fortune tellers to predict happenings in the lives of people in the hope to redeem them with the exception of death. Wealthy or rich people in every society are much cherished and respected. The reason, being that, their wealth, whether genuinely or dubiously acquired, is capable of solving problems that come their way with the exception of death, which cannot be bribed or purchased by wealth (Dzokoto, Mensah, & Opare-Henaku, 2010).

This buttresses the fact that, wealth or riches is not everything and so nobody should boast of his/her riches because despite ones earthly vanities, everybody will eventually die leaving all this property behind. A cloth from Volta Region that has cowry as a motif is known as *'wagagba'*. This literally means 'though man does not live by bread alone, man's desire always is to be in abundance of food (plenty of corn powder) in his house (in a pan)'. This yearning for the wearer to remain wealthy throughout his/her life shows the equivalent value Ewes plays on wealth (or the abundance of corn) and that of cowry hence the justification to use this symbol.

The philosophical interpretation of the wearer of this propose integrated woven cloth with the cowries turns to admonish that money is not the ultimate hence, counselling people to have respect for each other to make the world a better place to live.

#### 4. '*Nkofo*'

The means of communication in Ghana in the olden days were the use of the '*gongon*' (drumming beats) or horn blowing. This when blown, was to gather people for a piece of information from the chief. There are different instruments used in the Ashanti Region. One of them is the '*Nkofo*'. It is a long-trumpet ensemble in Kumasi that shares its range in part with '*ntahera*', '*kwakwrannya*', and '*nkontwema*'. Its name derives from '*kofe*', from *Ga* language. '*Kon*' in the *Ga* language means "horn," and '*fe*', means "to blow". This is a horn blowing instrument. It is one of the seven ivory trumpet ensembles. According to Agyekum (2006), the '*nkofo*' which leads Asante hene's to Durbar grounds is believed to be used to announce his arrival.

The '*Nkofo*' was created by the fourth Asanti hene, Osei Kwadwo for his son to play with but now it serves important royal duties. It has a chief called '*nkofo hene*' who makes sure the '*Nkofo*' is protected and ready at every Durbar. '*Nkofo*' now means service and loyalty to the people. Unlike '*nkofo*' there is another musical instrument like '*dono*' that announces the presence of chiefs to Durbar grounds. They can be found in the Volta and Northern Regions. Its philosophy is to praise the chief. These philosophical connotations make the integrated fabric one which can be won by dignified and loyal people who are ready to serve their communities and nations.

#### 5. '*Fahia kotwere*' Agyeman

The knowledge about Ghanaian names gives insight into its culture, philosophy, thought, environment, religion, language and culture. *Agyeman* is an *Akan* personal name given to a fourteenth male born. Personal names can be analysed by a combination of both philosophical and anthropological notions. Agyekum, (2006) reiterate that some Ghanaians attach much importance to names. He explains further



that the symbolic nature of these names and their interpretation depicts their religious beliefs and their interaction with foreign cultures.

In every culture, names have cultural and social contexts that identify the bearer. The *Akans* therefore have the saying that '*nsemmne ntinayekyɛɛ din*' 'it is because of criminal acts that names were shared'. This is to say that every person in this world has a name that solely identifies and marks him/her from all other peoples in the world (Agyekum 2006). The term '*Agye*' means (saved) and *man* means (nation). *Agyeman* therefore means saviour of the nation. The '*kente*' design '*Fahia kotwere*' *Agyeman* literally means lean on *Agyeman* when in financial need and this can also be interpreted to mean that lean on the saviour of the nation when in need. Names in Northern and Volta Regions are also important. There are names when mention can tell where a person is coming from. '*Abudu*' or '*Andani*' are *Dagombers* names that identify with royalty. '*Agyekum*' or '*Asare*' is *Ashanti* family names while '*Afeke*', '*Agbesi*' or '*Agbenyo*', are family names from Volta Region. The design Symbolises hope, faith, sharing and benevolence. The researcher therefore believes that this project will metaphysically convey the attributes of '*Agyeman*'.

## 6. Snake

The snake is a wise and calm animal. The snake (known as '*waho*' in Northern Region) is a mythological and totemic figure believed to protect families who pay homage to it. Traditionally, a totem is a representation of a clan or family. The lifestyle and character of the snake reflects on the life of the people. The sacred totemic pythons are believed to reveal themselves to those who are believed to be pure in heart. Snakes are symbolic of health and healing. They are considered protectors of babies, and are often believed to offer guardianship over families especially in the northern region. The snake also serves as a god in the Northern,

Volta and Ashanti Region. It is called 'Efa' in Volta Region, 'Wahnahili' in Northern Region and 'Asonowɔ' (from 'Asona' Tribe) in Ashanti Region. The symbolic snake means Rebirth, Wisdom and Healing (Attuquayefio, 2006).

There is a proverb in the Volta Region that says '*Da kuɖedzi, me tsiadzi o*'; meaning a snake that dies up never remains there. The proverb admonishes all evil doers to desist from their wicked ways, for their evil ways will always come to light or have negative effects on them. The integrated woven cloth will in the same vein will command respect and morally reproach people of their evil ways.

## **7. Fish and Crocodile**

The selected Regions are surrounded by rivers which produce different types of fishes. These fishes serve as food and give life to mankind when cooked, smoked or dried. Contextually the fish makes an appearance in certain seasons and brings happiness and fulfilment to humanity. Through observation, people have come to believe that fishes often display enormous attributes of adaptability and determination (Kyerematen, 1995). This signifies therapeutic and energetic experiences fishes give. Just as men depend on fishes for survival, so do crocodiles, a great harvester of fishes which lives both on land and in water. The adage that if a crocodile comes from the water and gives you a message one does not argue with it buttress the dependence of man on these creatures. The crocodile is known as 'Amebgor' in the Volta region, 'denkyem' in the Ashanti Region and 'nyebga' in the Northern Region. Each Crocodile is believed to be a representation of a person in the village of *Paga*. There is a saying that if a crocodile dies, a person dies at *Paga* in the Upper East Region of Ghana. Diamond referred to in Ashanti region as 'denkyemboɔ' literary meaning 'crocodile stone' in Ashanti Region derived its name from the crocodile. The

crocodile is cherished like the Diamond and is reflected in the '*Adinkra*' proverbial symbols like '*Funtumfunefu- Denkyemfunefu*'

The fish and the crocodile symbolise reliability, adaptability, determination and interdependence. Symbols are powerful and often trigger unconscious stimuli of behaviours or emotional states. The potency of symbols evoked reflect almost the same meanings to people in all the cultures of Ghana and project the similar emotional feelings, hence the reason for their selection for the project.

#### **8. '*Kilangofa*' leaf design**

A cloth from Northern Region made of blue and white is known as '*Kilangofa*'. This literally means Millet leaf. It represents the traditional meal from the Northern Region. '*Kilangofa*' unlike '*wagagba*' represents man's desire for food. Traditionally Ghanaians are accommodative providing for all whether known or un-known. This reflects in the Northern, Ashanti and Volta Regions where water and food is offered to visitors. This design reminds the wearer to always reserve food (or millet) for unannounced visitors hence the justification to use this design.

The philosophical interpretation of the wearer of this proposed integrated woven cloth turns to admonish that it is important to reserve food as one does not know who will visit and when a visitor calls.

#### **4.11. The Concept behind the Colours used in the Integrated Cloth**

The power of colours is intense because colour influences mood, feeling, harmony and ambience. Though there are many colours in the world and different colours communicate different meanings to various people, the research used white, yellow, blue, and orange.

Traditional colours that reflect in the Ghanaian National flag are Red, Gold (Yellow), Green and Black with White been the spiritual colour of the fetish. Other colours such as, Blue, Orange, Violet, and Purple are solemnly used.

**1. White – ‘Fitaa’ or ‘Fufuo’ (Ashanti), ‘Amadedexe’ (Volta) and ‘Zehpeli’ (Northern)**

The colour white chosen represents the spiritual motivation, the ability to be open and receptive to the divine, or the spiritual world, that is unconcerned with worldly matters or ambition but reflects an inner illumination (Obeng Gyimah, 2007).

In Northern, Ashanti and Volta Regions, it symbolises contact with ancestral spirits, deities and other unknown spiritual entities such as ghosts. It is also used for spiritual purification, healing, sanctification rites and festive occasions. White colour is associated with innocence, cleanliness and purity, which creates a peaceful and relaxing interior. It is believed that a child is born ‘pure’, without sin therefore a white cloth is worn to adore a new born baby. Also, when a person dies, he/she returns to a ‘pure’ state again, therefore the dead is clothed with white which signifies the beginning and end of life. The choice of white in the integrated cloth is to signify the purity and newness of the wearers.

**2. Blue – ‘Bibri’ or ‘Bibri’ (Ashanti), ‘Amadidi’ or ‘Blɔ’, (Volta) and ‘Vakahali’ (Northern)**

Blue colour can be seen in all traditional hand woven cloths in Ghana. It reminds people of the sky and the ocean, which have a calming effect on people (Enninful, 2012). The blue colours are “soft and introspective” and help to stand out at the right moment. Most royal apparels like ‘fugu’, ‘kente’ and ‘kete’ have traces of blue in them. This symbolises infinity, calm, relaxation, coolness, tranquillity, good fortune,



peacefulness, harmony and love related ideas. Blue is a cold colour and appears to recede from the eyes. This brings to light the importance of the use of blue in the integrated cloths that portray peacefulness, harmony and love.

### **3. Yellow – ‘*Akokɔ Sradɛɛ*’ (Ashanti), ‘*Amakpadidi*’ (Volta) and ‘*Duzem*’ (Northern)**

The choice of the colour yellow for the integration was influenced by the rich minerals in the land. Yellow is associated with the sun, sunflower, gold, and egg yolk. It relates to hot climates and lifts spirits. According to Enninful (2012), yellow is a luminous and vivid colour which conveys the idea of purity and symbolises sanctity, preciousness, royalty, wealth, spirituality, vitality, heat, happiness and fertility. Ghanaians adore the colour yellow as it symbolises the richness of the land. A woman dresses in gold during the marriage or after marriage for at least one week to show that she is newly married.

### **4. Orange – ‘*Akutu*’ (Ashanti), ‘*Akutudidi*’ (Volta) and ‘*Dagn-kom*’ (Northern)**

Orange is the colour of ripped mango. It is between red and yellow on the spectrum of light on the traditional colour wheel. Its name is derived from the fruit. Orange colour has some characteristics of red and yellow such as brilliant and cheerful colour which gives the impression of warmth and appears to advance towards the observer. Therapeutically, it increases heart rate and circulation (Meyer, 1999).

### **5. Brown – ‘*Ahabandada*’ (Ashanti), ‘*Amakpafufu*’ (Volta) and ‘*Zag-Tankpawu*’ (Northern)**

This is associated with the colour of Mother Earth. In most Ghanaian traditional homes clay pots brown in colour are used as water storage and for boiling medicine

and for cooking. Brown is usually obtained from clay and dried leaves and is therefore associated with healing and the power to repel wicked spirits (Lystad, 1960).

Collectively as a Nation our existence or survival is controlled by the heavens and the earth. Our substance and survival are identified with the fruits of the earth and the freshness and refreshing reign of heaven and these two elements represents the brown and the blue colours in the integrated cloth.

The yellow and the orange reflect the wealth and the treasures that the Almighty God (*Twediapong Nyame*) offers to the nation. Such philosophy justifies the use of these colours.

The cloth conveys harmony and unity in diversification hence the name, ‘unity is strength’, ‘dekawɔwɔme nuse le’ (Volta Region), ‘Nkabom ma ahooden’ (Ashanti Region) and ‘Nangban-yini n’nye yaa’ (Northern Region).



Plate 4.15 Integrated Woven Cloth

Source: Researcher’s Fieldwork



Plate 4.16 Integrated cloth

Source: Researcher's Fieldwork



Plate 4.17 (Cowries '*Hotsui*')

Source: Researcher's Fieldwork



Plate 4.18 Angelina

Source: Researcher's Fieldwork

The next and final Chapter discusses the summary of this study, conclusions and some recommendations.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1. Summary

The study revealed that some plants found in Ghana have dye yielding potentials for the production of natural dyes. The parts of plants or trees such as leaves, roots, seeds, fruits, flowers, or the young shoots of ‘*neem*’ tree, mahogany, cola nuts, mango tree bark and the indigo plant are some of the plants or trees that were processed to extract dyes. The research experimented with eight (8) potential dye-yielding plants, namely; (*Mangifera indica* (Mango tree), *Parkia clappertoniana* (Dawadawa), *Azadirachta indica* (Neem Tree), *Khaya senegalensis* (Mahogany), *Hibiscus sabdariffa*, *Nothofagus antarctica* (‘Nierre’ Seed), *Cola acuminata* (Cola Nut Plant) and *Indigofera tinctoria* (Indigo plants)), whose parts such as leaves, seeds, fruits and bark served as dyes, were used for the experiment. Mordant was used to improve on fastness.

The study also sought to weave a traditional ‘*Kente*’ using weave techniques from the Volta, Northern and the Ashanti regions of Ghana. The basic tool used in the weaving process is the traditional loom. The study explained the steps traditional weavers go through in the various selected regions. It was noted that the weaves from the North do not have any other design apart from the warp colour arrangement.

The study makes known the weaving techniques practiced by the Ashanti and the Ewe people which are generally similar. The only difference in their weaving techniques was the design concepts. It emerged that the traditional weaves produced have the capability of uniting the three regions based on the weaving and the philosophical concepts the study adopted.



## 5.2. Conclusion

The researcher used organic dyed yarns; examined dyed yarns such as wash and light fastness using the physical test of washing and exposure to sunlight. With the organic dyed yarns coupled with the cultural similarities among the Northern, Ashanti and Volta Regions of Ghana, the study was made possible to integrate the three distinct weaves, namely '*Fugu*', '*Kente*', and '*Kete*' into one common fabric.

The study ought to serve as a plinth for dyers and weavers to collaborate with one another in the industries and assist students with broad ideas in dyeing and weaving.

The uniqueness is based on the product which, when widely used would foster unity among the chosen regions.

## 5.3. Recommendations

Having critically explored dye potential plants and studied weaving techniques in Northern, Ashanti and Volta regions of Ghana the following recommendations have been made for implementation as an added advantage to dyers and weavers in Ghana:

1. In the course of domestication, a Commission on Textiles composed of other Boards must be established by government to encourage dyers on the use of organic dyes and its effect on the economy. Indigenous weavers must also be encouraged on the importance of togetherness to integrate the regional woven strips and design weaves. This will help dyers and weavers transform their product into more marketable apparel by making people see themselves in the integrated fabric.
2. The Ghana Cotton Development Board must be assisted with funds from interested NGOs like UNDP, to support the Ghana Cotton Growers Association in

order to increase production and quality of Ghanaian cotton to support production in the textile industry. This will help dyers and weavers acquire their yarns from the country instead of acquiring these yarns from foreign countries.

3. There must be collaboration between academia, indigenous weavers and government in order to assist in the integration. These may be through government-financed and academic supported researches to sustain local dyeing and weaving industries.
4. Researchers must be encouraged to explore more on the use of plants as organic dyes. Whilst considerable research effort should be directed to improving Ghanaian fabric, rather than constrain. This will improve weavers and the dyers ability to produce more fabric at less cost than it is at present.
5. Since scientific research into plants was not part of the objectives set, I recommend a further research into the chemical component of the plant.
6. Similarly, a rich potential seam of research could break silence and taboos of a society and their function, and also for a much more dynamic study of why some women are not interested in the weaving villages, especially in the three study regions and the implications of this scenario for the labour market as far as the weaving industry is concerned.

It is hoped that it will contribute positively to influence the life experiences of Ghanaians by improving understanding of the need for an integration of common traditional design weaves types in Ghana.

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