

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

Redesigning *Kaba* (Blouse) as Functional Apparel Suitable for Lactating
Mothers

By
Rowena Fatchu
(B.A Industrial Art)

A Thesis submitted to the Department of Integrated Rural Art and Industry

College of Art and Built Environment,

In partial fulfilment of the requirements for the degree of

MASTER OF PHILOSOPHY

MARCH, 2019.

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ABSTRACT

Kaba is fashion apparel that has come to stay among Ghanaian women since time immemorial. The apparel was and is worn to accentuate female modesty, chastity and elegance. *Kaba* is one of the important apparels seen to form an integral part in the wardrobe of the lactating mother. This is partly because of the cover cloth which forms part of the local ensemble usually used to carry the baby at the back of the mother. Despite its use among the women folks in the country and by breastfeeding mothers, it is poised with a lot of challenges. The openings usually positioned at the back of the blouse are meant to aid easy on and off doffing. When these openings are undone, they expose other parts of the mother's body such as shoulders, tummy and chest. These cause a lot of discomfort and embarrassment to the mother when breastfeeding especially in public places. This study therefore, seeks to redesign *kaba* as functional apparel suitable for lactating mothers. To achieve this, the following objectives were set, thus to identify *kaba* (blouse) and its related problems to lactating mothers, to redesign and construct a suitable *kaba* (blouse) apparel for lactating mothers and to evaluate the efficacy of the redesigned *kaba* (blouse) for lactating mothers. The scope of the study covered selected hospitals in some municipalities in the Ashanti region of Ghana due to proximity. The study adopted the qualitative research design and employed the descriptive and experimental research to assess the functional suitability of the redesigned apparel to breastfeeding. From the data gathered, breastfeeding mothers faced the problem of uncomfotability breastfeeding in the *kaba* apparel primarily because the zippers provided at the back of the *kaba* was only functional for easy on and off donning but not a functionality for breastfeeding. In order to solve these and still maintain the fitting shape of the apparel, darts were manipulated during the construction process of the *kaba* (blouse) and fasteners inserted as closures to the openings created. The apparels were given to selected breastfeeding mothers to use to ascertain its effectiveness in breastfeeding. Experiments conducted with the reviewed *kaba* affirmed the apparels suitability, comfortability and acceptability for breastfeeding. It is therefore recommended that, the researcher in collaboration with the health centres should make efforts to educate new mothers on the need to acquire functional apparels suitable for the purpose of breastfeeding and that inferences drawn from the designs be replicated on other traditional garment to promote the local garment industry.

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CHAPTER ONE

INTRODUCTION

1.1 Overview

The chapter states the background to the study, statement of the problem, research objectives, research questions, delimitation, and significance of the study and the organization of the rest of the text.

1.2 Background to the Study

Breastfeeding is the natural way of feeding young infants, thus providing numerous health benefits for both mother and child (UNICEF/WHO 2015). The World Health Organization's (WHO), recommendation for women to breastfeed their babies exclusively for the first six months of life is to alleviate any health or contamination that comes to affect an infant as a result of external feeding. According to the Ghana Statistical Service (2011) breastfeeding for the first few years of life protects children from infection, provides an ideal source of nutrients, and is economical and safe. Breastfeeding therefore becomes a natural means by which an infant is fed and for that matter, a natural way by which a child is bonded to its mother.

The success of breastfeeding among lactating mothers can only be improved through the active support from family, health care providers, employers, community, policy makers as well as the choice of effective breastfeeding clothing. However, most women, especially working mothers have to switch on to bottle feeding because the act of breastfeeding becomes a challenge. One such challenge is the issue of clothing. Brown and Hodges (2015) found out that new mothers had a challenge in finding conducive clothing to breastfeed in. Most mothers feel unattractive and uncomfortable breastfeeding in regular clothing and in public, some because of modesty while others

because of some spiritual connotations attached to the exposure of the breast in public like ‘*asram*’ among the *Akans*.

The public and social duties of today’s Ghanaian women have created the need to come out with suitable style or design for breastfeeding mothers. Various mother care products such as the breastfeeding brassieres have been designed to suit the purpose of breastfeeding, yet it is considered an undergarment and cannot be worn alone. It is therefore not out of place to re-visit the Ghanaian *kaba* ensemble which is one common clothing worn by lactating mothers to see the possibilities of making it more efficient to equally suit the purpose of lactation besides its aesthetic and expressive function.

Kaba does not only express a woman’s status, identity or beauty, but rather goes beyond the usual reasons for which apparels are worn especially for lactating mothers.

Culturally, the *Kaba* (blouse) and *Slit* are one of the many Ghanaian traditional clothing worn by women, and under different names in some West African countries like Cameroun (smocked dress style) and Sierra Leone (*kaba* sloth dress). This traditional clothing is sewn out of a six yard piece of African print fabric, thus, a blouse (*kaba*), *slit* (Skirt) and a cover cloth. Buabeng (2011) confirmed it to be the most popular traditional dress worn by women simply because it looks elegant. According to Gott (2009) “a woman’s dressing receives particular scrutiny after she reaches adulthood, marries and bear children”. Shabby dressing and indecency on the part of a new mother is frowned upon in the Ghanaian set-up. With child birth marking the beginning of a new life for a woman, gifts of cloth and clothing from well-wishers and the husband upon marriage and childbirth is heightened (Gott 2009). Most of these gifts come in the form of African print cloth used for sewing this apparel which could be a nonverbal form of communication sent to the woman concerning her dressing, thus the *kaba* and

slit has become an increasingly important part of a woman's wardrobe as she matures, marries and bear children. Akpabli (2011) adds that, an accessory of the *kaba* and *slit* which makes it more preferable to lactating mothers is the cover cloth thus, *akatasuor* by the *Akans* or *nor-haa* by the *Ga's*. It is the two yard piece of cloth used to support babies carried on the back of their mother. The cover, cloth, then serves as a functional item of the *kaba* ensemble. Nonetheless, the *kaba* (blouse) comes in different sizes, shapes and designs, needs to be manipulated in order to feed a hungry baby, which in its use exposes the upper body of the mother making it uncomfortable to the mother in public. The choice of *kaba* for this project therefore is based on the deep rooted culture of Ghanaian women for love of the *kaba* ensemble and at all cost would like to maintain the culture of wearing *kaba* ensemble at various festive occasions, hence the need to identify its defects during use by lactating mothers and how best it can be redesigned to assume a functionality purposely for breastfeeding.

However, with functional properties considered during apparel design and construction, mothers should be able to breastfeed and be comfortable as well. The research therefore seeks to identify *kaba* with respect to breastfeeding among Ghanaian postpartum mothers and redesign and construct a functional *kaba* apparel to minimize the mothers' breast exposure to the public and to make it easy and suitable for breastfeeding.

1.3 Statement of the Problem

Kaba is one of the custom apparel worn and adored by Ghanaian women. Because of the extra two yard piece used to strap babies at the back of their mothers, *kaba* has become household apparel for lactating mothers especially in Ghana. Names like *Emmanuel*, *die Nyame aye amame*, *obaapa* among others, are the names given to some of the fabrics used in the apparel which by merely seeing them in it, one would understand their state of happiness. The low cut necklines of some styles enabled the

mothers have easy access to the breast from the neckline while those with the peplums could be a solution to hide the tummies of the mother after a long pregnancy. Despite the philosophical interpretation of these clothing and the effort by seamstresses to enable the mother have easy access to the breast, the *kaba* still presents some challenging defects that needs to be addressed

Kaba like any other ladies apparel has almost all of its designs coming with openings and fastenings usually found at the back. These openings and fastenings are to aid in the easy wear and removal of the *kaba*. The researcher observed that, such fastenings needed to be pulled down depending on the style to let down a sleeve, raised at the hem, or the neckline of the apparel pulled down to bring out the breast in order to feed. Most mothers therefore would need an assistance to enable them unzip and zip up their apparel before and after breastfeeding which puts a lot of strain on the mother. These processes have the potential of preventing mothers from breastfeeding their babies in public and they may also feel reluctant to attend important social functions because of the uncomfortable nature of exposing their breasts, chest or tummies. These exposures causes a lot of embarrassment and discomfort to the mother when breastfeeding in public places. The breast which is also accessed through the neckline also tends to put a lot of strain on the weave of the fabric by gapping and distorting the neckline shape after prolonged pull. Furthermore, the raised apparel from the hem has the tendency of interrupting breastfeeding when not paid attention to as it can interfere with the latching on of the baby.

The superstition of *asram* among the *Akans* is also considered a spiritual illness inflicted on infants by a person through a pregnant woman to the unborn child. This happens mostly when a woman is dressed exposing certain parts of her body. The ailment is also said to be transferred to the child when its cry is heard or when the

mother is breastfeeding mostly in public upon exposure of her breast. This supposed ailment is said to have the tendency of making the infant grow lean, have a constant increase in temperature and even develop boils all over the body. Of all these, the design of the ladies apparel specifically *kaba* for breastfeeding mothers will help alleviate the above mentioned problems.

1.4 Aim of the Study

The study aims at redesigning the *kaba* (blouse) as functional apparel suitable for lactating mothers.

1.5 Objectives of the Study

The following objectives guided the research;

- To identify the existing *kaba* apparels and their related problems to lactating mothers.
- To redesign and construct functional *kaba* apparels suitable for lactating mothers.
- To evaluate the efficacy of the redesigned *kaba* for lactating mothers.

1.6 Research Questions

On the basis of the above objectives, this study seeks to answer the following questions:

- What are the various forms of *kaba* apparels and their challenges in relation to breastfeeding?
- How can the functional *kaba* apparel be redesigned and constructed to suit breastfeeding mothers?
- How will the redesigned *kaba* be evaluated for its efficacy?

1.7 Delimitation

The study focuses on *kaba* (blouse) apparels used by lactating mothers in Ghana especially by postpartum women who are nursing babies from birth to six months of the

infant's life. The study is restricted to only Ghanaian lactating mothers within the *Oforikrom* (KNUST Public Health Centre), *Manhyia* (*Manhyia* Hospital Reproductive and Child Health Centre) and *Asokwa* (*Asokwa* Children's Hospitals) municipalities in the Ashanti region of Ghana. Also, the study limited itself to interviewing dressmaker in and around Tech Junction and *Asafo* all in Kumasi.

1.8 Significance of the Study

There has been so much talk about the functionality of apparel, seemingly not much has been done on the Ghanaian *kaba* to alleviate the problems faced by lactating mothers in the use of the traditional attire. The design and construction of the *kaba* will help alleviate the challenges mothers undergo with regards to their clothing during breastfeeding thereby encouraging full term breastfeeding to achieve the goal of the WHO.

Secondly, the study will fill a knowledge gap in the redesign of *kaba* among dressmakers and fashion designers. In this case it will serve as a problem solving tool for use by dressmakers and designers to have a better way of redesigning apparels to help lactating women considering the functionality of the garment to breastfeeding, while improving upon their skills and creativity.

The findings from this research will also be a referral for designers to come out with innovative ideas to use in constructing functional apparel for other desired areas.

Furthermore, it will be a source of reference for use in maternity and child health centres on dressing and breastfeeding.

1.9 Organization of the Rest of Text

The research has been divided into five chapters, including this chapter. Chapter two reviews relevant literature related to the study under the broad heading: theoretical and empirical reviews of the study. Chapter three discusses the research methodologies.

Chapter four presents the study data collected, assembled and discussed and the construction of the improved *kaba* (blouse) apparel for lactating mothers, while chapter five presents the summary of the study, conclusions and recommendations for possible implementation.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Overview

This chapter reviews and discusses clothing, apparel design and *kaba*. The review concerns itself with theories of clothing and apparel design and empirical review comprising lactating apparel and *kaba*.

2.2 Theoretical Framework of Clothing

Clothing has had great meaning over the years, indicating the handicraft abilities of its users, their artistic imaginations and cultural values. Martins (2005) defined clothing as a *layer of skin* that can be seen as the ‘packaging of the body or as a textile architecture in which each line has a meaning and which manifests a specific taste which localizes it in time and space’. Condra (2013) also opines that clothing is a manufactured article which reflects details about the people who wear it and also tell the story about the wearer. These expressions suggest that clothing encompasses all other items used or worn on the body including accessories and cosmetics. Khatri and Srivastava (2010) agree that clothing is a basic need of mankind throughout the word as it helps make impression on people. Clothing therefore seeks to tell a story about its wearer. This could be positive or negative depending on the way they are used on the body.

Clothing needs belongs to the physiological or safety and security need class as propounded by Abraham Maslow (1943). These are the basic needs to man’s survival without which one cannot attain the love and belongingness, self-esteem and self-actualization needs of motivation. Hugh (2016) posits that, clothes serves a multitude of needs and can even be represented in Maslow’s hierarchy in figure 2.1 as follows:



Figure 2.1: Maslow's hierarchy of needs and clothes
(Source: foxhugh.com, 2016)

This is evident in the fact that clothing encompasses all of man's needs to survival and wellbeing. Martins (2005) asserts that, the production of clothing, which arose from the craft concept was developed based on the empirical procedure, but without a theoretical foundation that would support technical innovation. Today, clothing has become a product of development in technology. These developments include the use of mechanized machines in the production of clothing from cutting to assemblage. Since theories could not have been propounded out of the creativity of prehistoric men, researches have rather been geared towards the reasons why prehistoric men would wear clothes. Many scholars have propounded theories in an attempt to explain the motivation to why people cover and decorate themselves. Clothing plays an important role in not only protecting us from various external factors, but also provides physiological as well as psychological comfort to humans. Our preferences and behaviour regarding the clothing we wear depends on various factors. The basic factors to which people clothe themselves appear to be physical (Protection), psychological (adornment and

identification) and socio-cultural (Modesty/immodesty and status). In spite of this, Malik (2012) argues that clothing is not merely motivated by these alone but influenced by the environment. He tried to explain that although the purposes of clothing are determined by the environmental conditions, its form is determined by what characterizes man especially through his mental traits. Yet apart from natural occurrences of the weather that informs you on what to wear, accepted standard from the environment tends to guide our choice of clothing.

2.2.1 Protection Theory

Protection theory of clothing deals with the use of clothing to protect one's self. It serves as an intermediary between people and their environment against the elements, physically and psychologically as well as serve as body covering and items of adornment to improve individual survival in an unfriendly environment (Ohaka 2009). As climatic conditions differ from country to country, clothing requirement would also vary to suit individuals of the various climatic regions to guarantee warmth and protection. Clothing therefore gives physical protection to the body. These include protection from cold, harmattan, sunburn, insect bites, thorns as well as other desirable areas such as the nature of jobs example: helmets, boots, overall among others. For that matter, Eskimo are able to live in temperate regions hence the woolly nature of their clothing whiles people living in the tropics are able to survive the scorch sun because of the light clothing they wear. The need to wear clothes also assures one of a good physical health and serves as a means of protection from environmental dangers, occupational hazards as well as from enemies through the use of helmets, camouflage fabrics among others. Protection theory in this research sums up the need for lactating mothers most especially post-partum mothers to protect themselves from the harsh

climatic conditions through the use of protective clothing in avoiding diseases that could easily be transmitted to the nursing child.

2.2.2 Adornment Theory

Adornment or decoration is an act that goes beyond the wearing of clothing. According to Wikipedia, the free encyclopaedia, adornment is generally an accessory or ornament worn to enhance the beauty or status of the wearer. They are often worn to embellish, enhance, or distinguish the wearer, and to define cultural, social, or religious status within a specific community. These includes, body modification, scarification, tattooing, use of beads and jewelleries, cosmetics, dress accessories among others. The use of these adornments is to make beautiful and attractive its object who is the wearer. Adornments on the body is significant among Africans in the sense that scarification, piercing, accessories worn among others are intended to beautify, heal, show wealth, rank, affiliation in terms of religion and culture, group identity and to protect the individual or group (Clarke 1998).

Inspiration from these has given today's dressmaker and individual the ability to be creative in terms of sewing and dressing. Beads are used as dress accessories to beautify an outfit while the individual uses necklaces, bags cosmetics and other add ups as dressing accessories to enhance him/her.

2.2.3 Modesty Theory

In Johnson and Foster's (1990) view, modesty deals with concealing the body from abject nakedness. It is a feeling directed against any form of sexual display. Indecent exposure of certain body parts with the intent of drawing sexual pleasures from the opposite sex is considered immodest. Modesty therefore prescribes the appropriate way

to dress within a society for social recognition while immodesty would be the direct opposite of modesty

Until the coming of the European missionaries to Ghana, women bared their chest with cloths tied from the waist to cover their private parts. The introduction of clothes by the Christian missionaries came in as a symbol of modesty and chastity (Sill 2010). Issues about modesty are not objective but subjective among cultures. Modesty is moulded by culture and its social system leading to its acceptance by that society. An *aketesia* or *abrantie* in Ghana are people who are well dressed and are respected in society mainly because of their outfit. In our social systems too, uniforms for example are what is normally used to check all forms of indecency as well as identify its wearer. Hence what is modest in one place would be immodest in another. Skimpy skirts is fashion in some society as well as baring tummies in public are some forms of dressing Ghanaian youth have copied. “I am aware” in Ghana, are worn by both male and female where their undergarment are revealed which are non-traditional, yet these codes of dressing are accepted in some set-ups. People would be accepted or rejected in a community based on the kind of clothing they wear. *Kaba* ensemble therefore is seen as modest apparel among Ghanaians and anyone wearing it, is considered a matured person and has a good perception to life.

2.3 Breastfeeding

The Latin term for breast *mammae* was developed from the infants cry ‘mamma’ in seeking the breast (Riordan 2005). The human mammary gland is the only organ that is not fully developed at birth. It experiences dramatic changes in size, shape and functions from birth through pregnancy, lactation and ultimately involution (Lawrence & Lawrence, 2005). Perhaps, more than any other body part, female’s breast seems to have special significance in our culture (Apfel, Love, & Kalinowski, 1994). They

signify female sensitivity and sexuality and if not well taken care of could develop cancerous diseases and other ailments. Its development is a precursor of adulthood and more than any other private part of the body ought to be covered. According to Guthrie, Bradley, Davenport and Faria (1998), breast are not only a readily visible indicator of gender, but also may be considered a symbol of femininity, sexuality and motherhood. It is therefore undeniable that the breast is one of the visible indicators of a developing and a developed woman.

The WHO's recommendation to breastfeed an infant exclusively for the first six months of the child's life defined breastfeeding as the normal way of providing young infants with the nutrients they need for healthy growth and development. The National Institute of Child Health and Human Development NICHD (2009) also defined breastfeeding as the process of feeding human breast milk to an infant, either directly or indirectly from the breast or by expressing (pumping out) the milk from the breast and bottle feeding it to the infant. Whichever way the infant is able to access breast milk can be termed breastfeeding. The WHO recommended women to breastfeed their infants exclusively for the first six months of the child's life. This is inherent in the fact that breast milk contains vital ingredients for the healthy growth of the infant. Wearing the right kind of clothing or apparel helps immensely in this regard, as a successful breastfeeding is a sure way of the mother interacting and bonding with her baby. Breastfeeding therefore is of an immense benefit to the child and mother and can well be promoted when the right choice and make of clothing is considered.

2.4 Lactating Apparel

Like local and international arrangements and programmes designed to enhance uninterrupted breast feeding, many efforts are being made in the clothing industry to meaningfully re-enforce and guarantee uninterrupted breast feeding process. Cox and

Dittmar (1995) and Erwin and Kinchan (1992) agreed that quite appreciable results have been achieved resulting from the concerted efforts being made by the clothing industry to provide comfortable and easy accessibility to breast for breastfeeding purposes. Breastfeeding mothers need to feel stylish, confident and comfortable breastfeeding irrespective of where they find themselves. Therefore their clothing should have hidden openings in a design to allow for easy breastfeeding access without feeling exposed.

Breastfeeding apparel on the other hand has a very significant role to play during lactation as breastfeeding in regular clothes becomes awkward and embarrassing. Kathri and Srivastava (2010) agree that clothing or apparel is a primary need of mankind and as such helps to make an impression on people. Damhorst (1990) also confirms that clothing communicates a variety of messages about a wearer hence an improper way of dressing tends to disrepute an otherwise high person of prestige. These could be true of the saying that what you wear is who you are while who you are, is what you wear.

According to Linsay (2015) breastfeeding apparel and products have existed within the US for over 150 years. In the US, the first evidence of apparel developed specifically to aid in breastfeeding is illustrated with the acceptance of H. Wolf's patent for the Nursing Chemise in 1872 as cited in Linsay (2015) which featured access to the breast via a moveable flap.

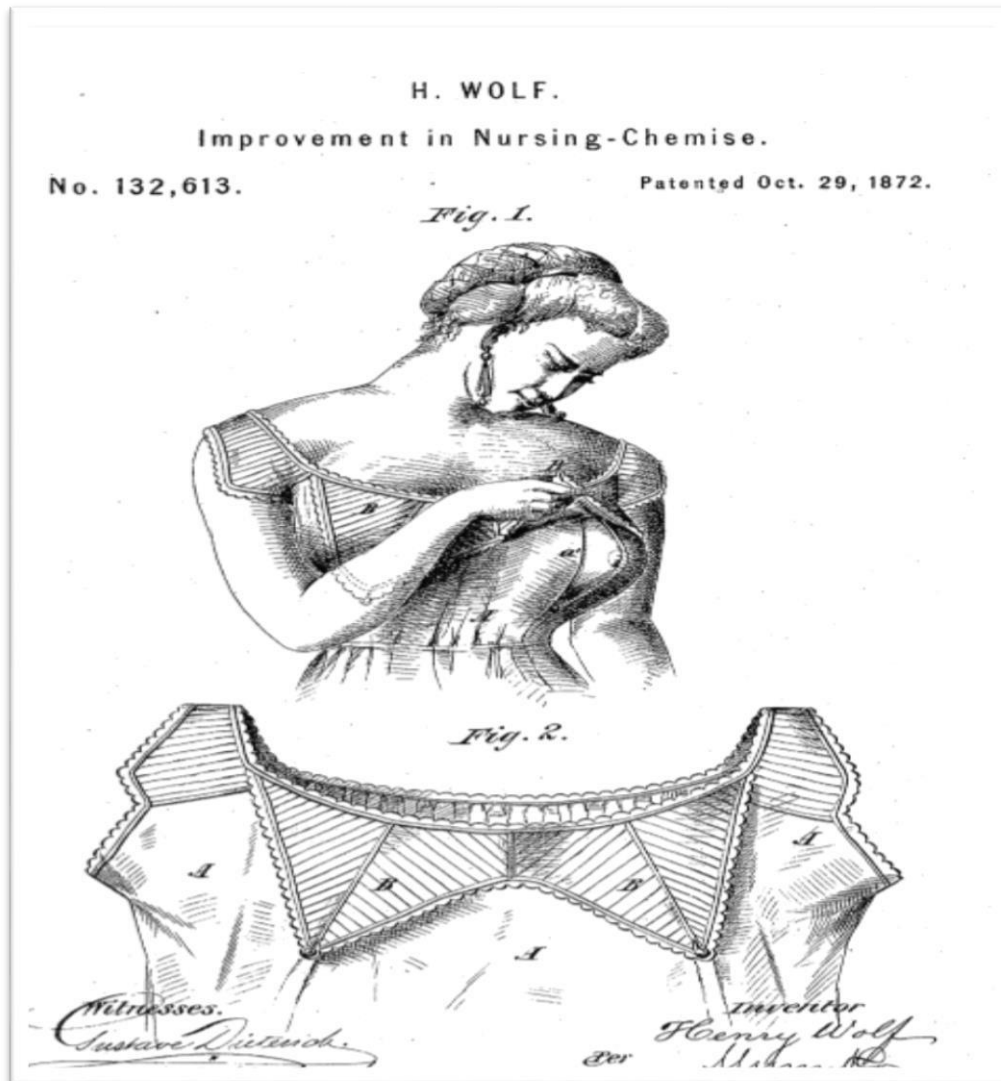


Figure 2.2: Example of 1872 nursing chemise.
(Source: Wolf 1872 as cited by Linsay 2015)

Over time, breastfeeding design details that allowed the wearer access to the breast for breastfeeding slowly progressed and developed into nursing brassieres (Linsay 2015).

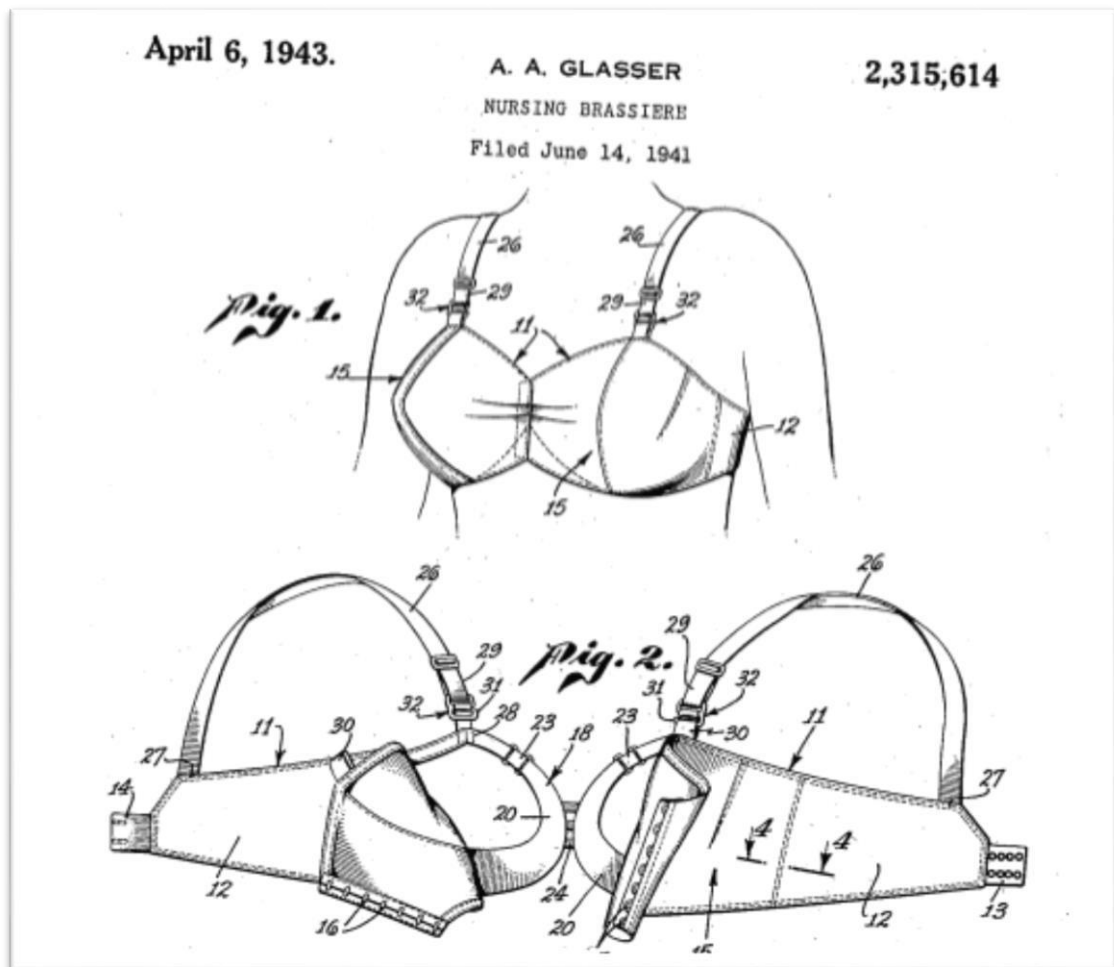
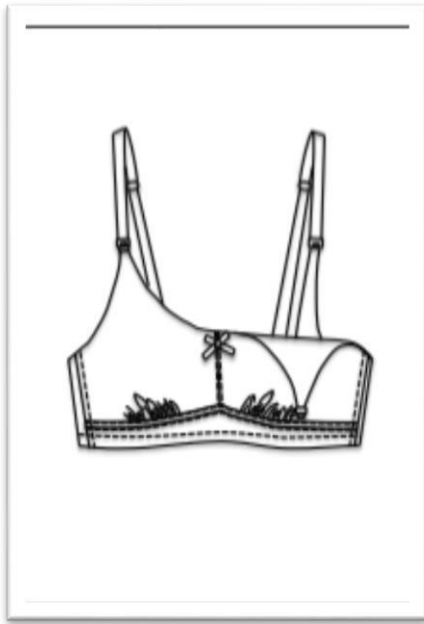
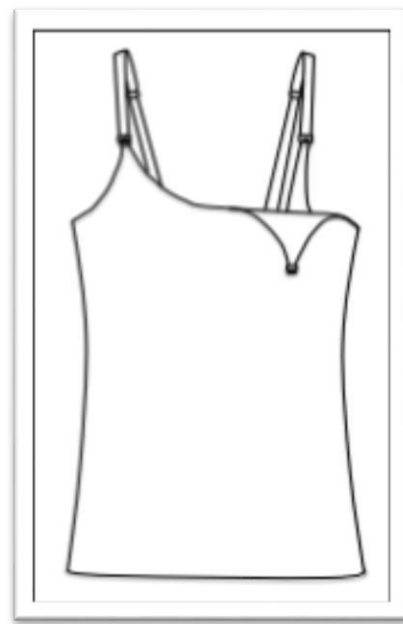


Figure 2.3: Example of 1943 nursing brassier.
 (Source: Glasser, 1943 as cited by Linsay, 2015)

Several apparel for breastfeeding featured an array of clothing such as nursing brassier and tanks, breastfeeding covers used by some women when breastfeeding in the presence of others, nursing tops, sleepwear's, blouses and dresses as well as wearable products that aided in the use of breast pumps. Examples of these are shown in figure 2.4 and 2.5 respectively

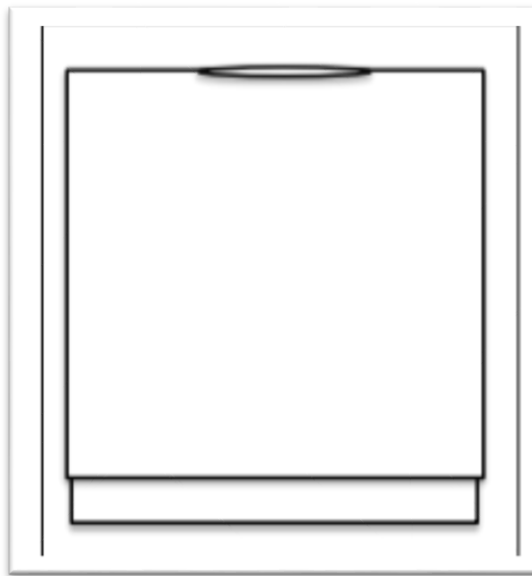


a.



b.

Figure 2.4: Illustrations of modern nursing brassier (a) and tank with straps (b).
(Source: Linsay 2015)



a.



b.

Figure 2.5 Illustrations of common poncho-style nursing cover (a) and the use of it (b) (Source: Linsay 2015)

Features of modern breastfeeding apparel include ease-of use elements such as clips on brassieres, material and neckline shape, (Linsay 2015). Specialized clips on the straps of brassieres can be undone to allow access to one or both breasts. Speciality knitted fabrics made from natural or synthetic fibres mostly used in breast feeding apparel have the

ability to stretch, hence accommodating breast size changes without constricting the breast. Woven fabrics for example, only have the stretch in the true bias whereas those sewn on the grain line lack the stretch ability. Hence, garment sewn in these kinds of fabrics need a form of opening to allow for easy wear and take off. Also, breast sizes in these fabrics ought to be sewn to the required style.

An important feature of breastfeeding apparel is the neckline. Scoop, V-neck, crossover necklines are typical because they allow for easy access to the breast by simply pulling the garment down or up depending on the apparel design (Choi, Choi & Kim 2000). In a research conducted by Khatri and Srivastava (2010), they found out that a greater percentage of lactating mothers were concerned about the size of neckline shapes of their garments. Some blouses, tank tops and dresses have ‘built in brassieres’ that allow the mothers to reduce the number of garments to be moved to enable breastfeeding. Linsay (2015) also found out that clothing offered for breastfeeding are limited to meet the needs of lactating mothers. However, functional properties added to breastfeeding apparel such as ease-of-use, fit and comfortability could eventually appeal to their usage.

Functional properties within apparels include components of fitness, material comfort, and visibility of design features, thermal balance, ease-of-use, mobility and droning on and off (Lamb & Kallal 1992). In view of this, Jeon and Kim (2000) researched maternity wear for breastfeeding mothers and found out that fit and comforts are important factors in apparel design.

2.5 Apparel Design Process

Design is a process through which ideas are transformed from a conceptual notion into the development of a workable solution ‘based on skills, knowledge, inspiration, experience and problem solving technique (Regan, Kincade & Sheldon 1998). Koberg

and Bagnall (1981) summed up the value of the design process as, ‘life is a process that has many spinoffs called product. Although it may be a product you seek, it must be involvement with the process that will eventually achieve it’. Regan et al (1998) asserted that, for an apparel product to be successful, it will depend on an effective apparel design process. Thus, an apparel design process would be a pre-requisite for the successful execution of an efficient *kaba* for the Ghanaian lactating mother.

Rooted in the engineering design process theory, the design process is developed through the collaboration of engineers, mathematicians, and behavioural scientists such that, the engineering design implements the identification of a need and develops a product to meet that need (Wilcox 1987). In view of this, the success of a design will largely depend on the problem identified and the processes used in solving that need. In order to establish the processes through which the solution was achieved, the engineering design process theory of seven stages was established. They included: problem recognition, problem identification, exploration of the problem, search for alternatives, evaluation and decision making, specification of solution and communication of solution (Lewis & Samuel 1989). Based on this, several other apparel design process has been derived including; Orlando (1979), Watkins (1988), and Lamb and Kallal (1992).

The New Design Process Model (Orlando 1979) is based on a design process created by Jones in 1973 which has three stages namely; divergence, transformation and convergence. In Ramirez’s (2014) explanation, divergence is the extension of the design boundary. Transformation is the stage that includes creative insight and ‘guesswork’ while Convergence is when the identification of variables and objectives occur. Orlando adapted these stages to develop an apparel design process model for functional apparel design. Hence, Orlando’s model included the following stages;

request made, design situation explored, problem structure identified, design criteria established, specification described, prototype developed and design evaluation.

In 1988, Watkins clarified the various stages of the apparel process established by Koberg and Bagnell (1981) in order to facilitate its implementation specifically within university curriculum for apparel design students. The stages reviewed and clarified were as follows; accept, analyse, define, ideate, select, implement and evaluate. Hanks, Belliston and Edward (1977) also established six design phases of the apparel design process as accept, analyse, define, ideate, implement and evaluate. Accept referred to the designer being motivated to find reasons to solve a problem. Analyse is the step where the designer finds all efforts to gather the necessary information peculiar to the problem. In defining the problem, the designer determines the most important part of the problem of which a solution has to address. The ideation aspect of the design process deals with the designer developing prototypes which could solve the problem.

In the additional step in Koberg and Bagnall, 'select', the designer chooses what is deemed right in solving the problem. The designer then takes immediate effort to try to implement the idea. Lastly, the designer evaluates the idea implemented and looks out for corrections to amend. Until the right idea from conception is achieved, the designer would go through the process again or make part correction until the solution is found (Ramirez 2014).

Lamb and Kallal (1992) developed an integrated apparel design framework through a problem solving approach that incorporated functional, expressive and aesthetic (FEA) principles to apparel design (Figure 2.6). It was intended to develop a framework that can be applied to develop design criteria regardless of who the user is. The FEA model was intended to have a number of selections in its application within apparel design. The main focus at the centre of this model is the intended user who is also known as the target

consumer. In order to begin the design process, the designer must create a profile of the user and target information on the demographics and psychographics, physical characteristics, activities, preferences and other relevant information related to the creation of the product which in this case is an apparel item.



Figure 2.6: FEA Consumer need model
(Source: Lamb & Kallal 1992)

2.5.1 Target Consumer

At the centre of Lamb and Kallal's (1992) model is the target consumer who happens to be the end user whom the designer directly targets the apparel to be made for. The consumer needs must be analysed in order for a designer to develop a profile of the user that can include demographics, psychographic information, physical characteristics, activities and preferences (Lamb & Kallal, 1992). The intention is to clarify the consumer needs and wants in terms of the situation in which the apparel is used

(Ramirez 2014). Therefore the lactating mother's need of style and design must not be affected just because she has the desire to feel comfortable while using her apparel.

Ghana is a country located in the western part of Africa. Her people have believed in

modesty most especially in what they wear. The *kaba* is one such apparel that is characterised by its multiplicity of designs and use. The lactating mother in this sense highlights her femininity and maturity through the apparel.

2.5.2 Culture

Culture can be seen as a social phenomenon that identifies and associates an individual to a group of people who believe in one philosophy that reflects in all facets of their lives including clothing and fashion (Dzrmedo 2009). Spradley (1972) summarizes culture as ‘what people know, feel, think, make and do. As people create structures for what they know, feel, think, make and do, meaning becomes attached to items such as clothing. These meanings are attributed to the social interactions an individual has with others (Blumer 1969). Dynamic as culture is, has seen a lot of changes in clothing over the years but not with a glimpse of its original concept within. This is further explained by Damhorst (2006) that even though the surrounding and society of an individual may evolve, the meaning of dress is created, maintained and modified. Kaiser (1997) also maintained that, the contextual perspective on the body and dress, stipulates the need for awareness of social, cultural and historical influence at any given time. This awareness is crucial in understanding dress and its meaning. In order to critically examine what an individual finds acceptable, especially in what they seek in their apparel item, their cultural ethics must be examined and understood (Ramirez 2005). These ethics will establish the requirements individuals seek in their apparel designs. In the case of the FEA design process, culture spells out what is considered an acceptable option for the purpose of a design problem and thus a designer must be aware of the culture of clients or target market when developing profiles as well as defining apparel design.

2.5.3 Functional Functions

The transformation of the human body as it goes through certain changes temporally or permanently tend to influence our preferences and behaviour towards the clothes we wear (Curteza, Cretu, Macovei & Poboronic 2014). They further posit that design of these functional clothing goes beyond the conventional boundaries. Gupta (2011) defined functional clothing as ‘all such types of clothing or assemblies that are specifically engineered to deliver a pre-defined performance or functionality to the user, over and above its normal functions’. The development of these functional clothes helps to improve upon the quality of life of their intended user whose body shape, size and mobility has been affected as a result of their predicament (Curteza et al 2014). These clothes are made out of advanced or creative use of materials or features intended to add value to the garment in solving the problem of the user. These include: sportswear, dinner wear, those that aid in the easy movement in the physically challenged or for special needs situation such as pregnancy and lactation. In considering functional properties within an apparel design, one must consider the product in terms of its utility, protection, thermal comfort, fit and ease of movement as some examples of functional requirements a designer must seek (Lamb & Kallal, 1992). Rosenbald Wallin (1985) highlighted the importance of considering the demand of a use situation in developing apparel product. In view of this, the *kaba* or apparel for lactation ought to go beyond its normal aesthetic and expressive appearance to improve upon the apparel to serve the need of the intended user.

2.5.4 Expressive Functions

The symbolic or communicative aspect of design are considered expressive. Clothing is considered a non-verbal source of communication in itself which makes it an important aspect for communication analysis. It provides a series of information about a wearer

without having to meet or talk to that person making it a very impressionable tool (Howlett, Pine, Orakcioghi & Fletcher, 2013). Research has shown that dress communicates a variety of messages about the wearer (Damhorst 1990). These could be messages of sex, status, occupation among others. Feinberg, Mataro and Burroughs (1992) identified three themes that stands out in clothing research. Firstly, individuals form impressions of others based on clothing. These impressions could be positive, negative, wealth or even poverty. Secondly, the observations of people towards an individual tend to differ because of the clothing they wear. In Gott's (2009) research on the Asante high-timers, she found out that *kaba* designs and choice of fabrics spoke much about the wearer, hence a woman's inability to possess a good number of them placed her 'out of fashion'. Also the value within a society in their cultural set up is exhibited in their dressing hence indecency or provocative dressing would be frowned upon within cultures that hold modesty in high esteem. Thirdly, individuals appear to prefer clothing that communicates similar images based on the image they have of themselves. What one sees of him or herself is portrayed in the way he dresses through which respect is accorded. People would therefore make their choice of clothing based on what they want to others to see of them.

2.5.5 Aesthetic Functions

Aesthetic consideration in apparel design deals with the human desire for beauty (Lamb & Kallal 1992). These would include the modification of features in the apparel as well as items used in making the apparel. The creative use of elements of design such as lines, dots, shape, texture or colour, using principles of design such as unity, rhythm, dominance, emphasis among others tend to give a pleasing effect to the garment as well as the wearer. Kaiser (1990) asserts that consumer's reaction to an apparel product depends on cultural standards of beauty which could change over time. Therefore just

as culture is dynamic, so does clothing tend to change over time and space which could largely depend on what is available within a particular period of time. The apparel ought to have a pleasing merger with the wearer such that there is a relationship between the garment and wearer. It therefore becomes out of place when people wear clothing without identifying their body preference to clothing. Figure faults are more accentuated when emphasis are put at their wrongful places while positive parts are flattered when elements of design are well applied.

Lamb and Kallal (1992) combined Koberg and Bagnall (1987) steps and Hank et al (1977) phases to develop their apparel design framework.

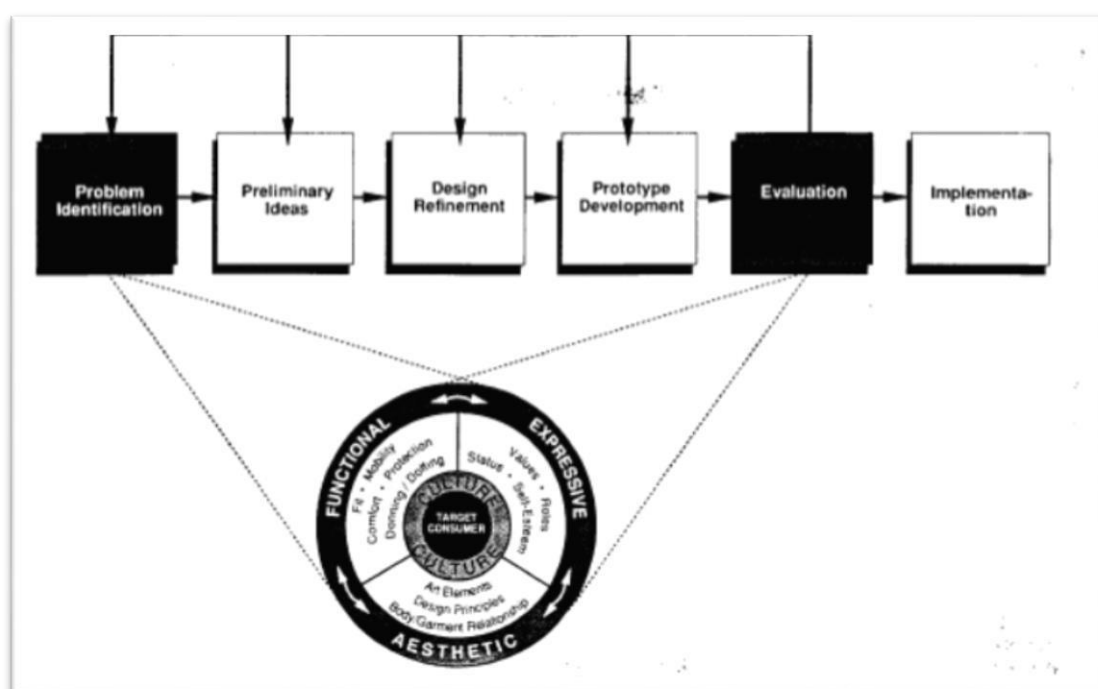


Figure 2.7: Apparel design framework
(Source: Lamb & Kallal 1992)

Lamb and Kallal's framework begins with the problem identification phase that incorporated Koberg and Bagnall's accept situation, analyse and define stages as well as Hank et al's accept, analyse and define phases. This process is initiated by the intended user or designer as they perceive, accept and seek solution to a specific apparel problem, in this case producing efficient *kaba* apparel for lactating mothers.

The problem then generates and seeks to find solution through the design process. The designer then identifies and defines the FEA criteria of the target within the context of the problem. Preliminary ideas compares with Koberg and Bagnall's ideation process as well as Hank et al ideate phase where creativity through brainstorming, research survey and questions are brought to bear. Varieties of ideas are wheeled out through effective additions and subtractions of design ideas.

Design refinement stage has preliminary ideas scrutinized for them to be made applicable. In order for this to be done, priorities established within the FEA are considered. Some preliminary ideas could be corrected, modified or discarded while others could be selected for further development. Hence the FEA criteria become applicable. Other issues such as pricing and role they play during the development process may arise. The results from this phase could be a limited set of ideas that can be executed and tested to solve the design problem. This stage corresponds with Koberg and Bagnall's "select" stage.

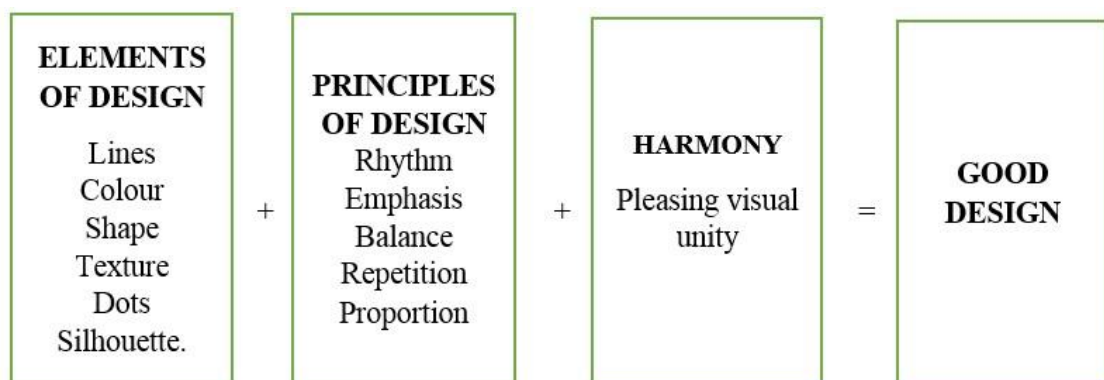
The prototype development stage correlates with Koberg and Bagnall (1981) implement stage and Hank et al (1977) analysis phase. Here, the selected ideas are then developed as initial samples of the main work. These would be done to ascertain the appropriate material selection, stitch selection, material handling requirement, compatibility of shell and interior fabrics and construction sequencing. The evaluation stage assesses the success of the prototype developed against the established problem identified. Subjective and objective forms of measurement are used as parameters to assess the FEA needs that were initially established. Designs may be modified, or rejected if specifications are not met, else the process could be entirely repeated or corrected within the design process. The implementation stage entirely has to do with

the final design brought to the market or user. Hence, this stage cannot commence until design specifications have been met for final use.

2.6 Elements and Principles of Design

Every apparel designer's goal is to create an aesthetically pleasing garment by manipulating design elements governed by design principles (Davis 1996). These design elements and principles are the building blocks and guidelines for every designer irrespective of their field. We knowingly or unknowing uses them without much recourse to them. Gbetodeme, Amankwa and Dzegblor (2016) agrees that, they are the simplest yet important feature used in planning a work of art. These basic design elements for apparel production is characterized by line, space, shape, form, light, texture and pattern and design principles as harmony, rhythm, contrast, emphasis, and proportion. These design elements are applied alongside with principles on a clothing item and then changed to preference as the apparel designer develops ideas. It sometimes could be difficult in trying to identify the kind of element and principle used owing to the complex nature of the design process. It is therefore undeniable that the successful use of elements and principles of design produces a better design effect. This is demonstrated below.

Table 2.1: Elements and principles of design



2.6.1 Elements of Design

Elements of design are the basic parts or qualities that are used in the design process (Amenuke, Dogbe, Asare, Ayiku & Baffoe 1999). Akwaboa (1994) also confirmed to this that, they are characteristics that come together to form a good design. These components or characteristics are lines, colour, shape, texture, dots, form and silhouette. According to Foster (2014), elements of design contribute to the overall design of a garment or article, hence it is pleasing to the eye.

2.6.1.1 Lines

Lines refer to the edge or the outline of a garment and the style line that divides the space within a garment (Gbetodeme et al. 2016). It is the simplest and the most important of the design elements. Created by a moving point, lines tend to create visual illusions when used skilfully (Tate 1998). Lines in design are horizontal, vertical, diagonal, zigzag, spiral, undulating or curved. These could also be thick, thin or even broken. In garment design, lines can be either structural or decorations. Structural lines are created during apparel production. They are formed by darts, seams, pleats, panel, princess lines, empire lines, yokes or even waist lines. These structural lines can be used conspicuously or inconspicuously depending on their usage to enhance the appearance of the apparel. Decoration lines come in as part of the fabric design or through the use of trimmings such as rows of buttons or ribbons. In addition to these, lines tend to create visual illusions of height in a short person when vertical lines are used while horizontal lines tend to create visual illusions of width in a slim person.

Lines are therefore a useful and versatile tool that can be created to function in both a visual and flexible way. The use of lines in breastfeeding apparel can be recognised in the soft, curved, sometimes irregular lines created during the design process which can

be obtained by the careful manipulation of design details such as darts, pleats and or empire lines

2.6.1.2 Texture

Texture is the characteristic structure as well as the surface quality of a material (Manmeet 2008). Texture describes the perceived quality of a surface, whether real or simulated (Nateman 1994). The texture of a fabric appeals to the eyes as well as to the sense of touch which also refers to the surface appearance and feel of a fabric. This is felt as a result of the raw material and the type of weave used in producing the fabric (Vanderhoff 1979). The texture of a fabric may be described as soft, rough, shiny, dull, bulky, filmy, transparent thick or smooth. These are dependent on the type of weave and yarn used in fabric production. The likes of satin, voile or silk fabrics are soft and shiny while tweed, denim or corduroy have bulk and are dull.

The design of the weave structure determines the texture of the fabric, hence the degree of stiffness or softness and the weight of the fabric will influence the drape which is why a soft fabric is able to drape well on a figure. The drape is an important factor that determines how well a particular fabric will hang on the body, thereby maintaining the shape of the wearer. A soft handle of a fabric is suitable for a garment with draped or flowing features and a stiff fabric becomes suitable for a tailored style.

2.6.1.3 Colour

Colour creates the most visual impact when seen from a distance. It is the most influential element that contributes to the overall nature of the garment (Burke 2011). According to Akwaboa (2001), it is the element of design that appeals to the consumer or client. Each individual has a colour that appeals to him or her and therefore has a personal preference for certain colours over others.

Colours have meaning; hence the choice of colour for apparel design and their usage cannot be overemphasized. Akwaboa (2001), denotes that colour symbolizes a very pivotal role in Ghana in the area of art, religion, politics and social activities. White has been a colour noted to symbolize victory, success, purity, happiness and festivities. That is why most people in victory moods are adorned in white not to mention women who have successfully come out of a painful labour. Other cool colours like green, blue and purple which suggest calmness and coolness are accompanying colours to white which depicts victory, fertility, vitality, freshness, love, sincerity, among others. These notwithstanding, warm colours such as red, orange and yellow gives an impression of advancement and increase. In choosing a colour for apparel design, clients are usually the people who make their choice with little or no influence from the designer. But it could be noted that colours of darker shades such as brown, green and purple are preferred by older people while the gay colours are preferred by the youth.

2.6.1.4 Shapes / Silhouette

According to Gbetodeme, et al. (2016), Silhouette can be described as the outline of an entire garment. Anon (2011), also confirms silhouette to be the general outline or shape of a costume. These outlines are derived from the human figure hence gives determines people's first impression when viewed from a distance. The shape or silhouette of a garment is therefore what consumers look at before any other element or detail is considered.

2.6.2 Principles of Design

Principles of design are the rules which guide the organisation of the elements into a design (Foster 2014). This means that without these guiding principles, design elements would appear haphazard, having no control, thereby causing confusion where ever they are used. Design principles are therefore the criteria through which elements would be

used in creating suitable designs in clothing by either emphasizing good parts or diminishing bad ones, making the individual look good and appealing making comfortability rest assured. These principles of design include the following: unity, rhythm, emphasis, balance, repetition and proportion.

2.6.2.1 Unity

A design has unity when the various elements and principles work together. The repetition of a design element throughout a garment creates a sense of unity (Anon 2011). In that, when a design has unity, the various parts of the garment tend to communicate with each other. For example, the choice of plain colour for a combination should communicate with its corresponding patterned fabric, so the use of lines and other elements agrees with each other in garment designing.



Figure 2.8: An apparel showing unity in design

2.6.2.2 Rhythm

In fashion design, rhythm is the flow of lines, shapes, textures and colours of a garment (Anon 2011). These elements are said to move from one point to another, either in equal measure by graduating to nothing. They involve the repetition of lines as in bias

or pleats arrangements, dots as in button arrangements, colours, trimmings or other embellishments in garment design.



Figure 2.9: An apparel showing rhythm

2.6.2.3 Emphasis

The emphasis is that focal point or part of interest in a garment. This part usually is meant to draw attention from an undesirable part of a more desirable part of the body. The use of lines, details, trimmings and colours are usually used to accentuate these parts.



Figure 2.10: Apparel showing emphasis

2.6.2.4 Balance

Balance in a garment gives a sense of stability that is, an agreement between both sides (left and right) of the garment. The design must therefore be balanced to create visually pleasing apparel. Designs can be either symmetrical or asymmetrically balanced. In symmetrically balanced apparel, style lines and details are evenly distributed on both sides of the garment (Burke 2011). That means an even distribution of weight of elements on both sides of the garment.

In asymmetrical design, details are unevenly divided from the centre, thus a more dramatic and interesting effect is achieved through an unbalanced visual impact (Anon 2011). The weight of elements used, though uneven on both sides is pleasing hence a balanced effect is created though the two sides are different.



Figure 2.11: Apparels showing asymmetric and symmetric balances

2.6.2.5 Repetition

Repetition is the repeated use of certain design elements, details or trims in a garment (Anon 2011). These could be done in a regular or irregular manner while creating a sense of unity among the elements used in the garment. Repetition also creates a sense

of movement by carrying the eye from one place to the other. Elements used for repetition include shapes, lines, dots or colour. Examples of repetition are in pleats, gathers, tucks or in button arrangement. These could also be created elsewhere in the garment to vary the form while unifying the design.



Figure 2.12: An apparel showing repetition in design

2.7 Etymology and History of *Kaba*

Ghanaians portray themselves with clothing that are symbolic depicting the cultural values and heritage of the country (Dzramedo, Ahiabor & Gbadegbe 2013). These are garments or costumes that have symbolic attachments to them such as the *fugu* to northern Ghana and the *kente* of southern Ghana. Migration within regions has led to acceptance and use of costumes among people of different ethnic groups. But common among these ethnic societies is the *kaba* apparel that is culturally and socially accepted largely because of the way the apparel is designed and worn.

The Ghanaian *kaba* is one of the three types of female apparels worn in the Ashanti region of Ghana (Gott & Loughran 2010). These are the *kaba* ensemble, *dansinkran* ensemble and dresses. The two piece *dansinkran* ensemble which was coined from the

English word, “dancing crown” as a result of the way the head is shaved according to the Ashanti custom. The two piece *dansinkran* ensemble known as the *atete* which is the cloth covering the body and the *ngusuo* which is the cloth covering the shoulder part of the body (Baidoo 2014) expresses the custom and cultural pride of the Ashanti’s. This ensemble is donned by queen mothers, elderly women and chief mourners in the Ashanti kindred. Hitherto, children and young ladies wear sewn dresses, skirt and or jeans trouser with blouses.



Plate 2.1: Queen mother sitting in state wearing the *dansinkran* ensemble
(Source: Gott 2009)

The three piece *kaba* ensemble sewn out of a half piece of cloth thus six yards, is made up of the *kaba* (blouse), *slit* (skirt) and the extra two yard cloth usually used as a stole, headgear, wrapped over the slit or used to carry babies at the back of the mother. This ensemble was and is a way of expressing modesty and chastity among Ghanaian women.

The *kaba* ensemble is applied to different dress styles stated by Gott and Loughran (2010) as the Ghanaian *kaba* ensemble, the *kaba* sloht dress of Sierra Leone and the

smocked *kaba* dress style of Cameroun. These styles developed from European inspired dress element such as the skirt and blouse. According to Gott and Loughran, the hybrid nature of the *kaba* apparel is reflected in the cross cultural origin of the term *kaba* a term which is believed to have originated from the word *to cover*. The blouse (*kaba*) was meant to cover the upper part of the women which was not covered by the one or two piece ensemble. The European Christian missionaries were therefore a great influence during the nineteenth century colonial era through the introduction of blouses and skirts to cover the barely naked breast/chest of the women which led to the development of the *kaba* ensemble (Condra 2013). The hybrid nature of the *kaba*, thus the sewn European inspired blouse with the customary one or two piece cloth gained popularity among the wealthy and prominent women living along the coast of Ghana.

By the end of the nineteenth century, the European inspired dress style was preferred by the humble women of the Christian community in Southern Ghana. It soon became a garment largely associated with the illiterates or women without education. However, halfway into the twentieth century, the image of the *kaba* ensemble rose dramatically as result of national sentiment that accompanied Ghana's independence in 1957. The *kaba* ensemble gained new prestige as a noble national costume, a status that has remained till date (Gott & Loughran 2010). This noble ensemble is not only worn and cherished here in Ghana, but across the West African regions and even in the diaspora.

2.8 Evolution of the *Kaba* Ensemble

Ghanaian fashion designers especially of the *kaba* apparel have over the years improved upon their creativity. This is greatly influenced by what comes in as clothing from the diaspora, magazines, fashion shows and iconic people. Yet these have not driven away the firm cultural beliefs of the Ghanaian woman pertaining to modesty.

The Ghanaian *kaba* ensemble is mainly designed with local or indigenous fabric such as *kente*, *Adinkra* or wax prints which are associated with the cultural beliefs and practices in Ghana (Kuma-Kpobee 2013). Kuma-Kpobee (2013) also opined that the fabrics used in the production of the apparel seemed not to have undergone much change, hence calling the ensemble as traditional, would not be out of place. Today, the apparel is sewn in a variety of fabrics including laces, sateen and even combinations of them depending on styles in vogue and wearer's choice.

Nonetheless, the researcher believes that it is the sewing of the apparel with wax prints, *Adinkra* and *kente* that makes the apparel traditional. This customary yet simple and stylistic apparel allows the wearer to have a sense of maturity, beauty and pride as it is mostly associated with our mothers, aunties and grandmothers. Today the apparel is equally donned by the young and old and has become a household garment with differences in style, design and colour of fabric. Kuma-Kpobee's (2013) findings revealed that, the *kaba* and *slit* have gone through significant changes in relation to design and usage largely because of western fashion influences through, magazines, fashion shows and technological advancement which have had their fair share in the change of form and fit of the traditional dress.

The three piece *kaba* was created by the addition of a sewn European inspired blouse to the traditional one or two piece wrapped cloths (Gott & Loughran 2010). This became a hybrid form of fashion substituting the European top/blouse and skirt for the *kaba* (blouse) and *slit* (skirt) of Ghanaian origin.

According to Richards (2016), "Chez Julie" introduced the sewing of the *kaba* ensemble with *kente* in the 1960's. The *kente* fabric then was not cut but draped on the shoulders or used as a stole. She again designed the *akwadzan* which mimicked the way the cloth is draped on the shoulders of the men.



Plate 2.2: Chez Julie kente designed kaba



Plate 2.3: Akwadzan

The advent of the wax prints demanded that the fabric be sewn to match the *slit* or wrapper thus, the Basel missions idea of including vocational training as part of the educational curriculum was beneficial in this regard (Sill 2010).

Kaba styles according to Gott (2009) are simple, fancy or complicated. Gott explained that, the simple styled *kaba* sewn out of the expensive, imported, quality wax prints were said to be modest and ladylike while the fancy and complicated styles were sewn out of less expensive wax prints because the styles are complex and complicated. Kuma-Kpobee (2013) agrees to the clear indication that culture is dynamic therefore its associated link to the world. Thus, the hybrid nature of the *kaba* and *slit* has led to the apparel's significant changes over the years.

The *kaba* (blouse) has evolved by virtue of the way the sleeve style and shape have been. Though some of those styles still remain today and mostly worn by the aged, young ladies are accustomed to wearing styles that cling to the body revealing the

wearer's silhouette and with smaller or no sleeves. Gott (2009) asserted that, the design of *kaba* was also characterized by low cut show-your-shoulders necklines now known as off-shoulders and big stiffened sleeves featured in the 1990's. The wide necklines and big sleeves suggest that, physical greatness was ideal for wealthy living and lifestyle among the *Akans*. She further added that, these big and wide sizes not only amplified their physical presence but also a superior social connotation. A fat stature was an ideal figure and a prerequisite for wearing *kaba*, which is why some women would want to be fat just to fit into their *kaba* apparel. Below are some *kaba* styles.



Plate 2.4: Woman in a loose sewn *kaba*



Plate 2.5: Woman in a *kaba* with small sleeves



Plate 2.6: *Kaba* with big sleeves

The second part of the ensemble known as the *slit* or skirt is also sewn with two yards of the six yardages or half piece cloth depending on the figure. This is the traditional part of the hybrid nature of the ensemble. It replicates the wrapped part of the *dansinkran* ensemble. It then became a sewn skirt matching up with the blouse. The *slit* opening usually found at the back of the skirt allows for easy movement hence the name *slit*. It used to be sewn without cutting the cloth which the researcher presumes is because, the women may like to recover the cloth for another style or use as a wrapper or cover cloth should the style be out of date or tight. This *slit* has also evolved to be sewn to fit in styles such as “fish” or into the panel derivatives.



Plate 2.7: Front *slit* opening



Plate 2.8: Panelled *slit*

Crowning the ensemble is the two yard fabric which is used to carry the babies at the back, used as a cover on apparel, used as a stole or preferable as a headgear. Therefore the entire ensemble is comprised of the blouse, *slit* and cover cloth. This cover cloth does not only assist in carrying the baby but also helps in covering up the baby when it is placed on the laps or when breastfeeding in public places.



Plate 2.9: Cloth used to back a child



Plate 2.10: Cloth used as headgear



Plate 2.11: Cloth used as stole



Plate 2.12: Cloth used as cover on apparel

During 1990's, Richards (2015) reported that, the Ghanaian *kaba* had undergone a recovery where Ghanaian women especially those in government position wore elaborate *kaba* designs meant to encourage other Ghanaian women to do same. This was aimed at promoting the garment in a variety of ways. Prime among them was the wife of the then president Nana Konadu Agyemang Rawlings who through her ardent

love of the traditional ensemble championed the wearing of the apparel adorning it with the tying of the cloth into a turban.

According to Gott (2009), attainment of motherhood among the Ashanti's was a distinct occasion where a mother displayed her personal wealth through the number of African print fabrics she had. New born mothers especially in smaller towns and villages of the Ashanti region were smeared with white clay in the past as a way of expressing their joy and victory after a successful birth as well as ritual purity.



Plate 2.13: An Ashanti new mother smeared with white clay and holding her baby
(Source: Gott 2009)

Fashionable *kaba* ensemble made out of white African print fabrics replaced the use of white clay. This means that, a woman must have a substantial number of African print fabrics before thinking of giving birth to avoid being a laughing stock to her colleagues. Gott (2009) further added that though the young unmarried women would generally wear dresses (*ataadee*), they would rather work to acquire African prints to wear upon marriage and particularly after childbirth. This clearly indicates how much the *kaba* ensemble was and has been cherished by women. The new mother's ability to wear and

acquire good quality wax prints for *kaba* attests to her readiness for the financial responsibilities associated with motherhood.



Plate 2.14: A mother dressed in her white African cloth attending post-natal clinic
(Source: Gott 2009)

Today, the *kaba* ensemble is worn by every Ghanaian female, both young and old as a symbol of being African, Ghanaian and modest. The *kaba* ensemble therefore remains the most sought apparel among women in Ghana. Dressmakers and designers alike are creating varieties of the apparel resulting in the promotion of dynamism and of complex designs. This is evident in the proliferation of *kaba* magazines; calendar's and catalogues for various occasions. These attest to the ingenuity of *kaba* designers and the rapid pace at which the styles are adapted and designed.

CHAPTER THREE

METHODOLOGY

3.1 Overview

In working out any purposive research, a systematic methodology is needed in achieving results. In this chapter, therefore, the research design used, study population and sampling technique, collecting the data and data analysis plan were discussed.

3.2 Research Design

A research design is considered as a ‘blueprint’ for research dealing with at least four problems, namely; what problem to study, what data is relevant, what data to collect and how to analyse the results (Research Design 2011). Opoku (2005) also opines that a serious research must have a carefully thought out design before data is collected in order to save valuable time and effort. Thus the research design adopted for this study was the qualitative research approach.

Qualitative research involves an interpretive, naturalistic approach to the world. Implying that, qualitative researchers study things in their natural settings attempting to make sense of, or to interpret the phenomenon in terms of the meanings people bring to them (Denzim & Lincoln 2000). Creswell (1994) also stated that, qualitative research is an investigative method of understanding a social or human problem in a natural setting and reporting detailed views of informants based on building a complex holistic picture formed with words. Hence, in order to gather relevant data to solve the issue at hand, the problem ought to be viewed or tackled from its natural settings. Since it would not be easy moving from house to house seeking after breastfeeding women, it was expedient to use the weighing centres of the selected hospitals because it was the place where most breastfeeding mothers would visit every month to have the infant’s growth and wellbeing checked. Most often than not, the babies cry and mothers breastfeed,

which was the motivation for the choice of weighing centres. Therefore, the processes or ways by which these breasts are accessed for feeding the infants were described and recorded as they occurred at the research sites. Furthermore, a qualitative researcher is being referred to as an instrument because of his or her ability to make sense of what he or she sees (Leedy & Ormrod, 2005). Accordingly, the researcher personally went to the *Manhyia*, KNUST and *Asokwa* hospitals and interviewed, gathered and observed events as they unfolded as well as recorded information that answered the research questions. In view of this, the researcher adopted the descriptive research method under the qualitative research design.

3.3 Descriptive Research Design

Leedy and Ormrod (2005), asserts that descriptive research design is the identification and observation of possible events between two or more phenomena. They further explained that descriptive research also examines a situation as it is, for it does not involve changing or modifying the situation under investigation. The researcher used descriptive research to describe the various categories of *kaba* styles, types and fabrics used in constructing the apparel. In addition to this, the research also described the various challenges the mothers undergo from the observations and interview conducted so as to reach a possible solution to the underlying problem. This led to a thorough description of the construction procedure of the apparel in enhancing an efficient and comfortable breastfeeding process.

3.4 Experimental Research Design

Contrary to the descriptive research method discussed, experimental research focuses on identifying and evaluating something to uncover its truth (Okpattah 2010). Clarke (2005) points out that, experimental research design is trying to isolate and control every relevant condition which determines the event investigated so as to observe the

effects when conditions are manipulated. Experimental research therefore would deliberately and in a controlled manner, modify conditions through the observation and interpretation of the changes that occur in the cause of the event. In this study, therefore, the researcher used the experimental research design to test and evaluate the effectiveness of the newly constructed *kaba* for efficient and comfortable breastfeeding process geared to solving the problem of over exposure of the breast during breastfeeding. The apparels were also assessed for their suitability for breastfeeding and acceptability by the selected users to serve as a generalization for breastfeeding women.

3.5 Population

Population is a group of elements that share a common trait or characteristics (Depoy & Gitlin 1998). Okpattah (2010) also postulated population to be a specified mass of elements of common characteristics, behaviours or parameters that the researcher is interested in to solve an underlying problem. Thus, in this study the population included all breastfeeding mothers in Ghana as well as designers of apparel.

There are two types of population, namely, the target population (theoretical population) and accessible population (study population).

The target population includes the overall group of people that the generalization of the conclusion would affect. In this study, breastfeeding mothers within the Ashanti region of Ghana were the target population. Designers and dressmakers of the apparel were also involved because they are particularly involved in making the design decision most of the time for the mother.

The accessible or the study population is the population that has the results of the conclusion applied to. This happens to be the subset of the target population, with regards to this the accessible population to this research are postpartum mothers sampled from

three selected hospitals of three metropolises in Kumasi. These are; *Manyhia*, KNUST and *Asokwa* children's hospitals and its environs in the Ashanti region. The postpartum group of mothers' were used because they had to deal with the day to day activities of exclusively breastfeeding their babies to meet the goal of the World Health Organisation (WHO). Also because, they are those who mostly are adorned in beautiful white *kaba* ensemble as a sign of their victory usually looking all dressed up and ready to go. It is therefore to this group of people that the sample size was selected from. Dressmakers and designers were also sampled from in and around some selected metropolises in the region which includes Tech Junction and *Asafo*.

3.6 Sampling

Latham (2007) described sampling as the portion of population which is the representation of the population. A right sampling method affords the researcher an opportunity to reduce cost, labour and also conduct an efficient work at greater accuracy. In view of this the purposive sampling technique was used to collect a meaningful size of the population for the study.

Purposive sampling according to Leedy and Ormrod (2005) is selected based on specific purposes of a study. Saunders, Lewis and Thornhill (2009) also opined that purposive sampling is selected to enable one select cases that best enable you to answer your research questions. Thus, in sourcing lactating mothers for the study, "weighing centres" were chosen because it was a place where mothers would send their infants on regular basis to be immunised and have their health checked. The three metropolises were also chosen due to their accessibility and also presented to be one of the well-attended centres in the metropolis. The accessible population at the *Manhyia*, KNUST and *Asokwa* "weighing centres" and its environs therefore saw lactating mothers sampled for data collection. An estimated number of one hundred and fifty (150)

respondents were drawn from the daily patronage at the various units. The set of apparels designed were given to three breastfeeding mothers thus one each from the selected hospitals for evaluation. The accessible population for the research under study were the postpartum mothers selected from the three centres identified. Since the population of the study was made up of breastfeeding mothers from different metropolises, the stratified sampling method was used. Stratified sampling according to Given (2008) is a process that first divides the entire population into separate subgroups and then creates a sample by drawing from each of those subgroups. Although purposive sampling in this research was used in sampling out the venue for the study, stratified sampling was necessary to segment the accessible population so as to ensure that the data gathered embraced cases from each of the categories relevant to the problem under study. The accessible population was therefore grouped into three strata's thus breastfeeding mothers from *Manhya* RCH one hundred and fifty (150), KNUST Public Health Centre one hundred (100) and *Asokwa* Children's Hospital fifty (50). In all, three hundred (300) breastfeeding mothers were sampled for the study out of which three users were selected to be given the apparel to use for evaluation. Twenty (20) dressmakers were also sampled from Tech Junction and *Asafo* to enquire on the design of the *kaba* apparel. The table 3.1 below shows a schematic diagram of sampled respondents.

Table 3.1: Schematic overview of sample design

TARGET POPULATION	Stratum (ST) 1 Breastfeeding Mothers at <i>Manhya</i> RCH	150
	Stratum (ST) 2 Breastfeeding Mothers at KNUST Public Health Centre	100
	Stratum (ST) 3 Breastfeeding Mothers at <i>Asokwa</i> Children's Hospital	50
	Stratum (ST) 4 Dressmakers from Tech Junction and <i>Asafo</i>	20
Equalization of Sampled Population	ST 1 ST 2 ST 3 ST 4 150 + 100 + 50 + 10 = 320	
Random Sample (60%)	60 ——x 100	ST 1 ST 2 ST 3 150 + 100 + 50
Random Sample of Dressmakers (100%)	100 ——x 100	ST 4 20
Total Randomised Stratified Sample of Breastfeeding Mothers	90 + 60 + 30 = 180	
Total Randomised Sample of Dressmakers	20	
Data Level	200	

3.7 Instruments for Data Collection.

Every qualitative research has the aim of gathering data to answer its research questions. Leedy and Ormrod (2005) opines that qualitative research makes use of multiple forms of data in the study using tools (instrument) such as observation, interviews, objects, written documents, audio visual materials, electronic documents or anything that could help the researcher answer research questions. In this study observation, interviews, the library, computer and its study resources and software's

were employed as instruments used in collecting its primary data and secondary source of data.

3.7.1 Interviews

Interview is one of the mostly employed form of data collection used in a qualitative research. Interview affords the researcher the opportunity to delve into a participants experience and also to further investigate their response (McNamara 1999). Interviews comes in three different forms namely, structured, semi structured and unstructured forms of interview. Semi-structured form of interview was used in this research to collect information from breastfeeding mothers and dressmakers as it created room for an interactive discussion making it easier especially for breastfeeding women to express themselves. Flexibility in such nature with qualitative interview gave the researcher the opportunity to converse with respondents most especially with leading questions. The researcher also had the opportunity to carry out discussions in a more detailed manner ensuring viability and reliability. This instrument leads much more into a conversation mode rather than a question and answer mode.

3.7.2 Observation

Leedy and Omrod (2002) defined observation as the selection and recording of events in all its complexities as they occurred using the sense of vision. This method provides first-hand information through their natural occurrences without relying on secondary sources of information. This research used both participant and non-participant forms of observation. According to Saunders et al (2005) participant observation has the researcher attempting to fully participate in the lives and activities of the subjects. Lofland and Lofland (1984) also asserted that participant observation enables the researcher to establish and maintain a many sided and relatively long term connection with a human association in its natural setting with the aim of developing a scientific

understanding of that association. In this kind of observation, the researcher intended to juxtapose her experience as a mother who has not long ago weaned off her baby to the experiences of the new mothers as they go along their duties in handling of their babies and breastfeeding. How they carried themselves and manipulated their apparel to breastfeed. By observing participants in their natural setting or situation without their knowledge eliminate any form of biases that would affect the process itself (Osuala 2005). In addition, the researcher also used the non-participant form of observation. In this instance breastfeeding mothers would not have to hide off themselves but express their frustrations as they truly are. Hence the process of breastfeeding infants and its effects pertaining to the *kaba* apparel were captured. Garments worn by breastfeeding mothers were also captured to ascertain the trend of garments worn by breastfeeding women. An observational guide was prepared to record data that were relevant to the study through the use of digital camera, tablet and mobile phone.

3.7.3 Library Research

For a credible and relevant material to be used during the literature and the project work, the KNUST main library, faculty of Art library and the Kumasi Technical University library were visited to source for information for the study. Secondary data such as books, journals and thesis were reviewed to support and establish theoretical underpinnings for the study. Also included were magazines, newspapers, catalogues and garment calendars. Primary data gathered were the first hand information collated from lactating mothers and dressmakers. The computer and its internet were also used to source for secondary data while reviewing relevant and related literature.

3.8 Data Collection Procedure

This research was directed by three objectives. Firstly, the identification of *kaba* and its related problem. Secondly, the design and construction of a functional *kaba* apparel

suitable for lactating mothers and thirdly, the evaluation of the constructed apparel for lactation. To effectively carry out the design and construction of the *kaba* apparel, relevant related literature on lactating apparel and the apparel design process that involved itself with the construction of a problem solving apparel from the internet, books and interview conducted guided the cause of the research. Okpattah (2010) deduced evaluation to be gathering information from a person and or process while trying to form judgement about the effectiveness of what is being evaluated. Herein it was necessary to evaluate the effectiveness of the constructed apparel based on components of comfort, fit, suitability and acceptability.

While qualitative research design concerns itself with observable occurrences that happen in their natural settings the researcher concerned herself by visiting the weighing centre at the mentioned metropolises. There, the researcher observed the way the women came into these centres carrying their babies, the kind of apparel they wore and the way they tried to access the breast to feed their infants.

The second session was the interview carried out with the nursing mothers. A general talk was given under written permission at the centres to enable the mothers understand the need for this research and give credible information in order to give credible results. The questions were asked personally in English and *Twi* which is the local dialect among the people of the Ashanti region.

The next phase of data collection was with the designers of the apparel and dressmakers within the selected areas in the Kumasi metropolis such as KNUST, *Asafo* and *Atonsu*. Some of the designs sewn by these people were also observed and noted. An interview guide was used to solicit information, thus an interview guide was designed in four sections namely, the biodata of respondents, what challenges are affecting breastfeeding mothers with regards to their *kaba* apparel, and how can the *kaba* be

designed for breastfeeding purposes and the evaluation of the use of the apparel. During the interview, observations were also made regarding the style of garment worn by the women, the way they came into the centres and the way they had to manipulate the garment to breastfeed.

3.10 Data Analysis Plan

In the qualitative research design, events are observed in their natural settings through observations and interviews. The results were analysed and presented in the discussion. In this research, data collected from the field and graphic work were transcribed and assembled in the form of description, table's, graphs and pictures. These were interpreted to give an idea on the construction process of the new apparel to be produced for the lactating mothers. 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 were made based on the styles of *kaba* that are designed and the outcome of the redesigned apparel for lactation. The results received from the mothers who used the apparel helped in appreciating the *kaba* apparel designed for lactation purpose. Details of these have been provided in chapter four.

CHAPTER FOUR

PRESENTATION AND DISCUSSION OF FINDINGS

4.1 Overview

This chapter discusses the data obtained through observations and interviews on the various garments worn by breastfeeding mothers, the process of breastfeeding infants and its effects pertaining to the *kaba* apparel worn. The processes involved in redesigning and constructing the *kaba* apparel for lactating and the results of the evaluation of the data collected were also discussed.

4.2 Identification of *Kaba*

In solving the study problem, the first objective was to identify the various forms of *kaba* apparels and their related problems to lactating mothers. Various forms of *kaba* were identified based on the style/type and fabric used.

4.2.1 *Kaba* Style/Type

The *kaba* ensemble has been apparel designed and worn decades ago by the elderly expressing their sense of maturity through them. Today, by virtue of the colour and name of fabric, the apparel is sewn to suit many occasions as well as naming ceremonies. In Ghana and elsewhere within the African continent, *kaba* is designed to suit the choice of the wearer and occasion but not as a problem solving apparel. As stipulated by Gott (2009), *kaba* styles were characterised by their huge stiffened sleeves and wide necklines to accentuate greatness. *Kaba* can be seen in various designs which can be characterised by the way their sleeves are cut, their necklines, shaping or in the design of the apparel.

4.2.1.1 Raglan Sleeve *Kaba* (blouse)

Raglan sleeve is that kind of sleeve that extends to the neckline creating a diagonal line from the armhole to the neck thus having part of the shoulder as part of the sleeve. It is also known as off-the-shoulder because of the sleeves ability to fall or slip down from resting on the shoulder bone. Raglan sleeves for *Kaba* styles could be gathered to form puffs, straight cut or in a cape form. Raglan sleeves come in an array of styles depending on what the client wants or based on the creativity of the designer.



Plate 4.1: Puff raglan



Plate 4.2: Straight raglan



Plate 4.3: Cape form of raglan

4.2.1.2 Set-In Sleeve *Kaba* (blouse)

Set in sleeve by virtue of the name are prepared and inserted into the armhole of an apparel. The design or look of a set in sleeve comes in an array of designs such as puff, straight sleeve, cap or flare. Examples of set-in sleeves of *kaba* (blouse) styles are shown in plate 4.4 and 4.5 below.



Plate 4.4: Set-in sleeve of wrist



Plate 4.5: Set-in sleeve (Puff)

4.2.1.3 Sleeveless *Kaba* (blouse)

Sleeveless styled apparels are those whose armholes have been neatened and finished off via bias binding, facing or self-neat. It could also be raglan styled, but finished off using straps as attachment for the arm. Examples of sleeveless styled *kaba* (blouse) as in plate 4.6 to 4.8.



Plate 4.6: Sleeveless *kaba*



Plate 4.7: Strap styled *kaba*



Plate 4.8: Sleeveless *kaba*

4.2.1.4 Necklines

Kaba blouse necklines come in various shapes and designs. These are either decided on from the client's facial frame and or neck size. The necklines come in various shapes

such as round, Vee neck, square, sweetheart or even boat neck line shapes. Some necklines are also determined by the kind of sleeve used.



Plate 4.9: Vee neckline



Plate 4.10: Sweetheart neckline



Plate 4.11: Square neckline



Plate 4.12: Boat neckline



Plate 4.13: Round neckline



**Plate 4.14: Neckline by sleeve
(Off-the-shoulder)**

4.2.1.5 Kaba Shaping

Shaping of the *kaba* blouse largely depends on how the wearer wants the apparel to hang on her body. It also depends on the physique of the wearer based on which part of the body you would flatter or conceal. Some *kaba* shaping includes the straight or fitted shaping (plate 4.15), loose *kaba* (4.6) and peplum attachments (plate 4.17)

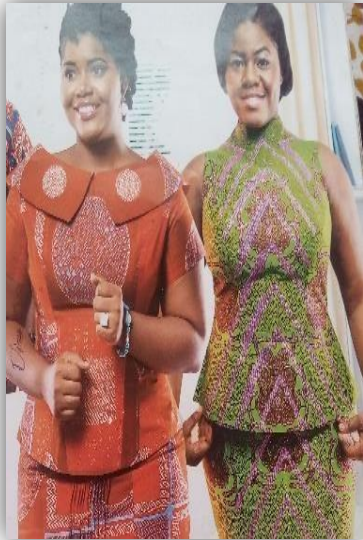


Plate 4.15: Fitted *kaba*



Plate 4.16: Loose *Kaba*



Plate 4.17: Peplum styled *kaba*

4.2.1.6 Fabrics Used in Sewing *Kaba*

Materials or fabrics usually used for the construction of the apparel are the wax prints. These wax prints were the results of the advent of mummy cloths brought to the Gold Coast during the colonial era (Amankwa & Howard 2013). Today, wax prints are designed and printed in Ghana by the country's textile manufacturing companies thus Ghana Textile Prints (GTP), Akosombo Textile Limited (ATL) and Printex (Plate 4.18). These printed fabrics are today combined with other fabrics such as plain or coloured fabric and or lace to come out with beautiful designs for the wearer. The

locally woven *kente* cloths (Plate 4.19) as well as lace fabrics (Plate 4.20) are not left out in the design of beautiful outfits.



Plate 4.18: African print designed *kaba*



Plate 4.19: *Kente* designed *kaba*



Plate 4.20: Lace designed *kaba*

4.3 Biodata of Respondents

In order to gather data for the research under study, some mothers were interviewed to ascertain the difficulty they go through in breastfeeding their infants wearing the *kaba* apparel. Table 4.1 and 4.2 shows the age and occupational distributions of the respondents respectively.

Table 4.1: Age Distribution of respondents

Category	Manhyia RCH	KNUST Public Health Unit	Asokwa Children's Hospital	Total	Percentage (%)
Age Range	Frequency				
18-25	27	16	9	52	29
26-33	36	22	16	74	41
34-41	18	18	5	41	23
42 and above	9	4	-	13	7
TOTAL	90	60	30	180	100

The table indicated that majority of the breastfeeding mothers were between the ages of 26 to 33 representing 41% of respondents and 18 to 25 representing 29% of respondents are considered young adults. Based on the interview conducted with these age groups the researcher realised that these mothers preferred ready to go outfits because of the flexibility in them when dealing with their day to day activities than they do in the *kaba*. They would rather wear the apparel to church and other related functions probably because of the nature of design and fabrics used for the apparel. The remaining 34 to 41 age ranges and those who are 42 and above representing 23% and 7% respectively can be said to be adults. The researcher also realised with these groups of people that majority of them attended the centre wearing the *kaba* ensemble. This

confirms Gott (2009) statement that women would usually acquire wax prints for marriage and especially for childbirth which is emblematic of female maturity. This is even more obvious in our mothers, grandmothers and aunties who are more prone to wearing *kaba* than the young ladies.

Table 4.2: Occupational distribution of respondents

Category	Manhyia RCH	KNUST Public Health Unit	Asokwa Children's Hospital	Total	Percentage (%)
Occupation	Frequency				
Employed	35	23	15	73	41
Self-Employed	30	27	10	67	37
Housewife	25	10	5	40	22
TOTAL	90	60	30	180	100

The table above indicated that 73 respondents who are employed represented 40%, while 67 of those who are self-employed represented 37%. The remaining 22% represented 40 of those who are not working or are housewives. From the interview conducted with these groups of people, the researchers realized that those who are employed do not wear *Kaba* to work, probable because their jobs have a required form of identification which is the uniform. But that withstanding, the introduction of the Friday wear which was meant to be a sewn apparel made out of African print introduced by the Government of Ghana, are mostly sewn into the *kaba* ensemble hence employed breastfeeding mothers have the opportunity to wear the apparel to work. For the self-employed, the choice of wearing *kaba* would be dependent on the nature of their work, age and choice. Those considered as housewife's may not be bothered about breastfeeding in public as they are

always at home but since they are not confined to being at home and would have to go out in one way or the other, there is a need to wear apparels that would conform to the place they may be visiting. A few dressmakers were selected to answer questions based on the kind of *kaba* styles they sew and how they helped solving problems pertaining especially to breastfeeding.

4.4 The Identified *Kaba* (blouse) and its Related Problems to Breastfeeding Mothers

Following Lamb and Kallal's (1992) apparel design process, the researcher found that lactating women go through a lot of challenges trying to breastfeed their babies most especially in public.

In an attempt to make breastfeeding comfortable for the mother, the researcher needed to identify and analyse the garments they mostly wear. The choice of *kaba* in this case was because, it was found to be associated with most Ghanaian breastfeeding women. Yet the ability of the women to confidently breastfeed without bearing their chest and tummies were excluded from the makeup of the garment. The graph below shows the comfortability level of the mothers with regards to their apparel and breastfeeding.

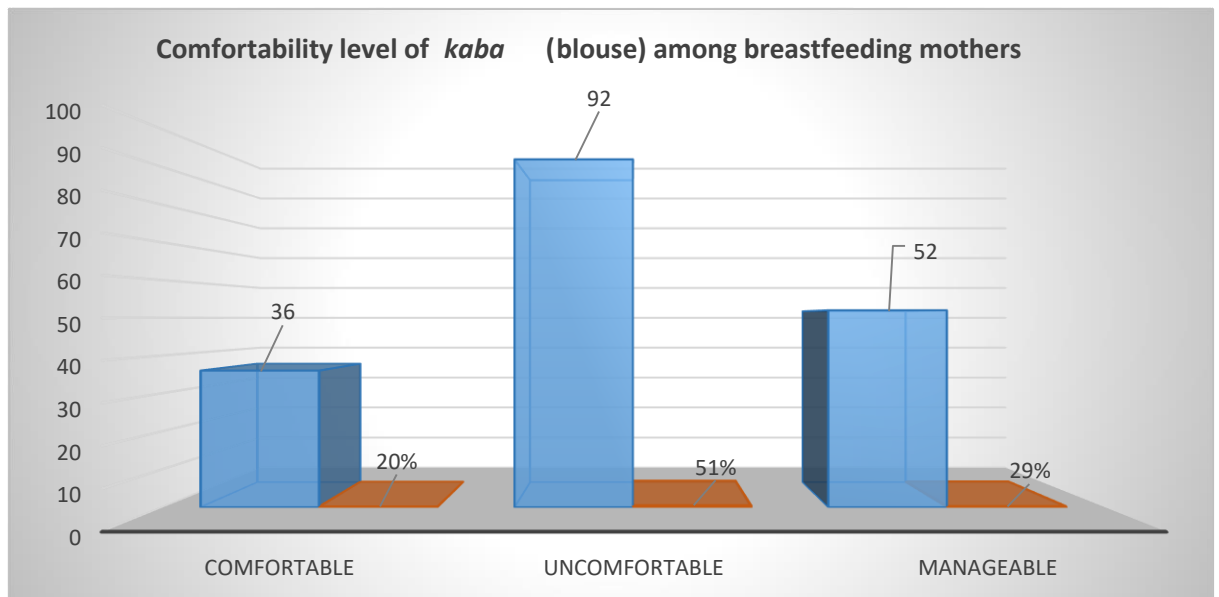


Figure 4.1: Bar chart representing comfortability level of the *kaba* (blouse) among breastfeeding mothers

From the bar chart above, 92 representing 51% of respondents claimed they felt uncomfortable breastfeeding in their *kaba* styles while 52 respondents representing 29% claimed they have been managing with their apparel though they felt uncomfortable breastfeeding in them. These responses have left most of them putting aside the apparel so as to enable them breastfeed in other forms of clothing. This finding refutes Gott (2009) that, young ladies would save money just to acquire a number of African prints to sew the *kaba* ensemble after marriage and particularly after childbirth. The remaining 36 respondents representing 20% said they were satisfied with their kind of *kaba* style and breastfeeding.

The interview conducted at the three hospitals identified, the researcher observed that most mothers rather wore much of knitted clothing's than they did of the woven fabrics with the exception of *Manhyia* which was dominated by Moslem patients. Knitted clothing was preferred as casual clothing because it was easier drawing down the necklines without the opening of back zippers unless otherwise provided. This casual choice may be as a result of the fact that they are easy to manipulate for breastfeeding

purposes and also return to shape after pull. Despite this advantage of knits, their shape gets distorted also after prolonged pull as experienced by the researcher. The Moslem women at *Manhyia* preferred the *alata* with the wrapped cloth and the loosely sewn dresses designed to ankle level. Also the veil according to them helped to cover up the breast and baby during breastfeeding hence were not much bothered about breast exposure in public yet would like to use them since *kaba* was also part of clothes worn during other important functions.

Another interviewee who happened to be a secretary and a mother of five said though she loved to wear the apparel, the un-comfortability of wearing them and breastfeeding led her to abandon them whenever she had a baby. This she explained that, the exposure of breast and sometimes the complexities of some of the style lines made it impossible to use considering the pressure in moving around and with a baby “only if there could be some kind of zip at the breast area can I be convinced to constantly wear the apparel”. “The choice of *kaba* make us feel matured and feminine not only during lactation but in our daily use, but we interchange them with other clothing because constant washing fades the fabric and makes them out of use early”, this was also said by another interviewee. The fabrics fading could be as a result of the harsh detergents used in washing them and their exposure to the harsh radiation of the sun. The researcher observed that the style-lines of most of the *kaba* worn by the breastfeeding mothers were those of a low cut neckline with an off-the-shoulder sleeve as compared to high necklines with set-in sleeves. The breast in the former is said to be easier to access by slightly pulling down one sleeve without opening zipper depending on style than that of the latter.

Most of the women interviewed complained that being a new mother affected their *kaba* styles as some of them said they had to entirely change their wardrobe for new ones. This

is because of the added weight after delivery and the increased bust attained. They further explained that some of the style lines are somehow complex to use for breastfeeding which the researcher thinks may be because of some trimmings used, the shape and size of sleeve and the necklines that could affect breastfeeding. For those who could not afford new clothes had no choice but to manage with the *kaba* styles they have or express the breast-milk to bottle-feed their babies. These changes tend to increase the expenditure of the mother after birth as one has to take care of her wardrobe as well as that of the baby even though she may have some clothing to manage. The design of the *kaba* apparel was therefore constructed with weaning in mind where the mother could continue using the apparel even if she stops breastfeeding. The design of the apparel capitalized mainly on dart manipulation. Though the apparel was designed for breastfeeding purpose, it would be difficult for a second person to see the opening unless the mother is breastfeeding through them. The re-designed apparel can therefore be used even after weaning. This consideration came because of the mothers' apprehension that it would only contain exclusive features for breastfeeding alone.

Mothers are sometimes caught in between breastfeeding and not breastfeeding in public transport. This was where one woman confessed she was humiliated in public transport by other passengers because she failed to breastfeed her child when she was crying. This she felt uncomfortable to do because of the high neck garment she wore and the people sitting by her. In this case, her zip needed to be opened which would render her partially naked just to breastfeed. More so, the fear of believing that someone could affect the child with ailments would leave mothers refusing to breastfeed in situation like this. The uncontrollable cries of the infant could make the child develop a rise in temperature and further make the child refuse to feed when you are ready to do so leading to total rejection which could eventually lead to malnutrition.

Though the necklines enhanced the beauty of the apparel, the study revealed that, lactating mothers had challenges withdrawing their *kaba* necklines to breastfeed. Their continual drawing down distorted the shape of some necklines especially if a softer kind of fabric is used. The necklines also become easily dirty because of constant friction between fabric and body. Furthermore, some other attachments added during construction such as trimmings and other embellishments made it difficult to use when breastfeeding. The fastenings used at the back enabled easy on and off donning, yet easy access to the breast meant opening of the back zipper which invariably allow the shoulders and other parts of the body to be exposed. Though some fastenings such as buttons and zippers are placed in the centre front of the *kaba* blouse, accessing the breast through them meant that almost half of their chest would be revealed when these fastenings are undone. In effect, their placement did nothing to solve the problem of the over exposure of some body parts with regards to breastfeeding. In solving these problems majority of the respondents suggested the use of zippers at the breast area as an easy measure to solve the stated problem. The plates below indicates some of the problems mothers undergo when breastfeeding their infants in their apparel.



Plate 4.21: Breastfeeding mother bearing a shoulder to breastfeed



Plate 4.22: Opening zippers to breastfeed



Plate 4.23: Raising apparel at hem to breastfeed

4.5 Construction of the Suitable *Kaba* (blouse) for Lactating Mothers

This section describes the process involved in the redesign and construction of the suitable *kaba* apparel for the Ghanaian breastfeeding mother using Lamb and Kallal's apparel design process.

4.5.1 Preliminary Ideas

This is the creative phase of the project. In this project, a mood board was created with pictures of the existing *kaba* designs. This made way for the adaptation and modification of design from existing ones.



Plate 4.24: Mood board of existing *kaba* designs and fabrics used.

4.5.2 Refinement Stage

In this stage, much emphasis was placed on dart manipulation so as to ascertain the right positioning of dart through which the breast could be accessed. The placement of openings and fastenings around the breast areas and into some dart positions were carefully analysed while considering its functionality in the apparel. These were made conspicuous and inconspicuous depending on the style line involved. Also, their placements were well scrutinized so as not to affect or hurt the baby in any way.

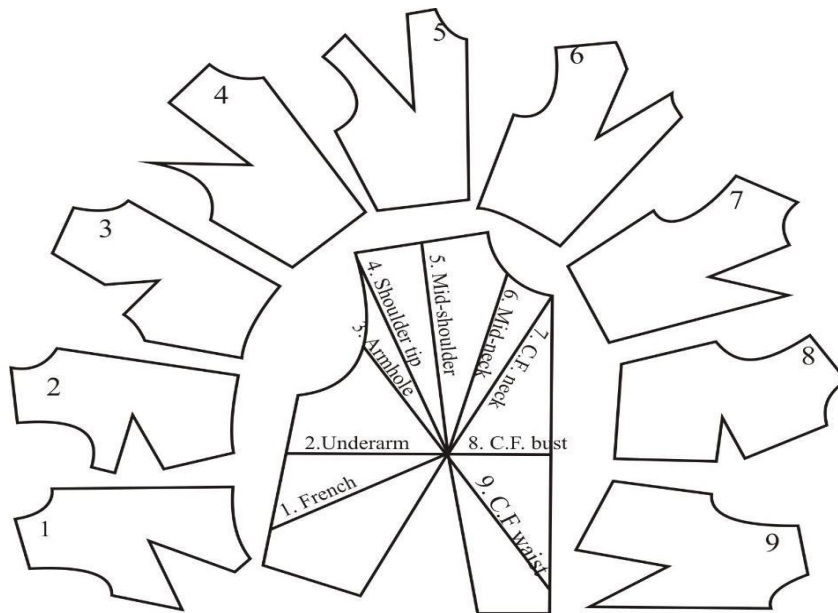


Figure 4.2: Dart positions on the bodice block

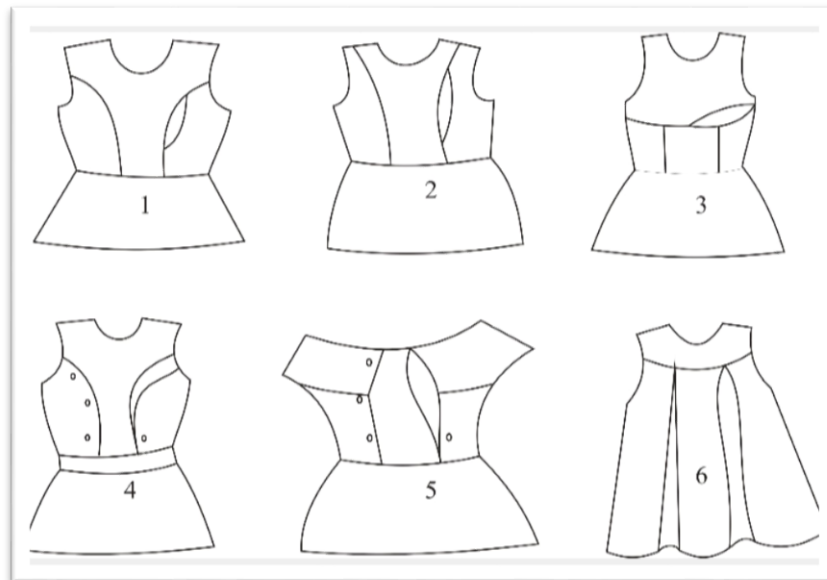


Figure 4.3: Preliminary sketches of zipper positions

The following (Figure 4.4, 4.5, and 4.6) were the prototypes developed from sketches 1, 3 and 5 of the preliminary sketches.



Figure 4.4: Prototype 1



Figure 4.5: Prototype 2



Figure 4.6: Prototype 3

4.5.3 Prototype Development

The prototypes produced were chosen from existing *kaba* designs based on discussions with respondents. The fastenings that were used in designing the apparel were tested at this stage to ascertain their feasibility in the designed garment. Materials used have been discussed below.

4.5.4 Materials and Fasteners Used

The following are the materials used in the construction of the apparels.

4.5.4.1 African Print fabrics

African print fabrics or wax prints were used in the construction of the *kaba* apparel. These are prints made on cotton fabrics some of which are woven and printed here in Ghana by the textile manufacturing companies. Cotton fabrics are noted for their absorbent, comfortable and water retention property which would be much more convenient for the sewing of the apparel especially for lactating mothers because the fabric has the tendency of absorbing breast milk should it accidentally leak out. Secondly the ability of the mother to be comfortable in her apparel is of paramount interest to the wearer hence the fabrics breathability which enables it to absorb sweat from the body and deposit it on the fabric surface. The bright colours used in printing the fabric together

with their names is symbolic as it is a form of non-verbal communication to the mother announcing her joy to the public though not all fabrics have names. Two yards of fabric was used to sew the *kaba* blouse based on the measurement taken of the respondents. Samples of fabrics used have been shown in plate 4.25



Plate 4.25: Samples of African print fabric

4.5.4.2 Plain and Lace Fabrics

Plain and lace fabrics were used in combination to the printed fabrics to enhance the aesthetic value of the apparel. The colours were selected based on the colours used in the printing of the cloth. In this work, a plain polished cotton fabric (plate 4.26) was used as well as a designed lace fabric (plate 4.27).



Plate 4.26: Plain fabrics



Plate 4.27: Lace fabric

4.5.4.3 Linings

Plain polyester fabrics were used as an inner layer fabric to the main fabric. This allowed for the apparel to drape and hang perfectly on the body. It also concealed all raw edges of the apparel making the wrong side appealing.



Plate 4.28: Lining fabrics

4.5.4.4 Vilene

Vilene, a non-woven fabric, was used as an interfacing to support and stiffen the edges such as necklines, hems and bust areas to prevent them from stretching.



Plate 4.29: Vilene

4.5.4.5 Fasteners

Fasteners such as zippers and buttons were used in closing up the openings by carefully manipulating it through the dart and other openings created. The researcher decided to use zippers and button and buttonholes because they were much safer, easier to manipulate and also capable of completely closing up the opening without them being evident of other people.



Plate 4.30: Zippers



Plate 4.31: Covered buttons

4.5.4.6 Trimmings

A bias strip was used to create a decorative effect on the frontal view of the apparel.



Plate 4.32: Bias strip

4.5.5 Pattern Drafting

In the construction of the *kaba* apparel, flat patterns were created from the measurements taken in order to have accurate measurement so as not to waste fabric and to identify the style outline before cutting out. Armstrong (2010) defined flat pattern as a system of patternmaking that depends on previously prepared patterns. These previously developed patterns are the basic blocks. The blocks were made with brown papers using rulers, French curves and pencil and included the basic front and back bodice and sleeve blocks. The patterns were created using the measurements taken from some selected nursing mothers sampled from the accessible population.

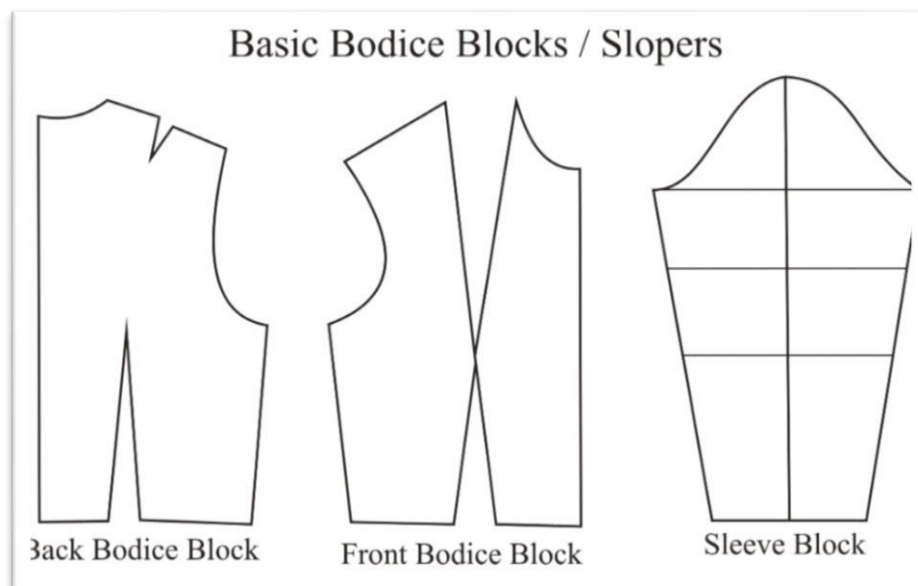


Figure 4.4: Basic bodice blocks

Basically, darts were explored for the garment designed. Darts were manipulated from their original position on the basic block thus from the shoulder and waist positions depending on the style line. Darts is a method of arranging fullness by way of taking-up excess fabric to provide shape for a perfect fit. It can also be used to make innovations in the style of garments. Before the commencement of making patterns and construction of the *kaba*, measurements were taken of the sample respondents. Though there exists standard body measurements for the various body weights and heights, there was a need

to use the traditional form of body measurements, were measurements are taken directly from the wearer of the apparel. This is to ascertain fit and reduce the possibility of alterations should the apparel fail to fit properly on sample respondents. The patterns created were then laid on the fabrics with allowances added and then cut out for sewing. The following measurements were taken from the sample for the construction of the *kaba*: Bust, Waist, Hip, and Shoulder to Waist, Shoulder to Nipple, Across Back, *Kaba* Length, Sleeve Length, and Around Arm.

Table: 4.3: Body measurements of prototype users

Part of Body Measured	Prototype One (cm)	Prototype Two (cm)	Prototype Three (cm)
Bust	112	92	102
Waist	92	76.5	87
Shoulder to Nipple	27	24	25
Shoulder to Waist	41	38	38
Across Chest	36	33	36.5
Across Back	40.5	38	40
<i>Kaba</i> Length	59	56	59
Sleeve Length	31	33	26
Around Arm	31	26	29

4.5.5.1 Prototype One

As stated earlier, patterns were drafted in order that darts would be well manipulated to conform to the design specification. The front bodice block was constructed using the samples across chest, shoulder to nipple, bust, waist and shoulder to waist measurement as shown in plate 4.33. Since the design of the apparel was motivated by moving darts, the shoulder dart was transferred into the underarm by first marking out the new dart position of 7 cm in the underarm as in plate 4.34 below and then closing the shoulder dart

for it to open out in the underarm as in plate 4.35. Since the zipper opening is to be placed in a horizontal position across the bust, the pattern needed to be cut through as indicated in plate 4.36 separating the front bodice blocks. In order to do away with bulkiness at the waist area also, the waist dart was removed from the pattern giving three pattern pieces for the front blouse. This is indicated below in plate 4.37 and 4.38 respectively.



Plate 4.33: Front bodice block buttons



Plate 4.34: Covered



Plate 4.35: Shoulder dart transferred to armhole



Plate 4.36: Cutting through bodice



Plate 4.37: Removing waist dart



Plate 4.38: Three patterns obtained for front bodice

Seam allowances were added to the patterns for stitching. Seam allowance is an extra measurement other than the body measurement added to the fabric or pattern to allow for stitching and ease. (Since the problem identified was to solve the difficult pertaining to the *kaba* and breastfeeding, with the breast being in front of the woman, emphasis has been placed in the construction of the front bodice in this research. The back remains same with zipper opening for easy on and off donning). The Table 4.4 below shows the measurement/allowances added to the patterns to allow for stitching as well as the final pattern pieces shown in figure 4.5.

Table 4.4: Allowances on patterns.

<i>Part of Pattern</i>	<i>Allowance added in Centimetres (cm)</i>
<i>Side seam</i>	5
<i>Neck</i>	1
<i>Waist</i>	1
<i>Bust zipper extension</i>	2.5
<i>Back zipper extension</i>	2.5

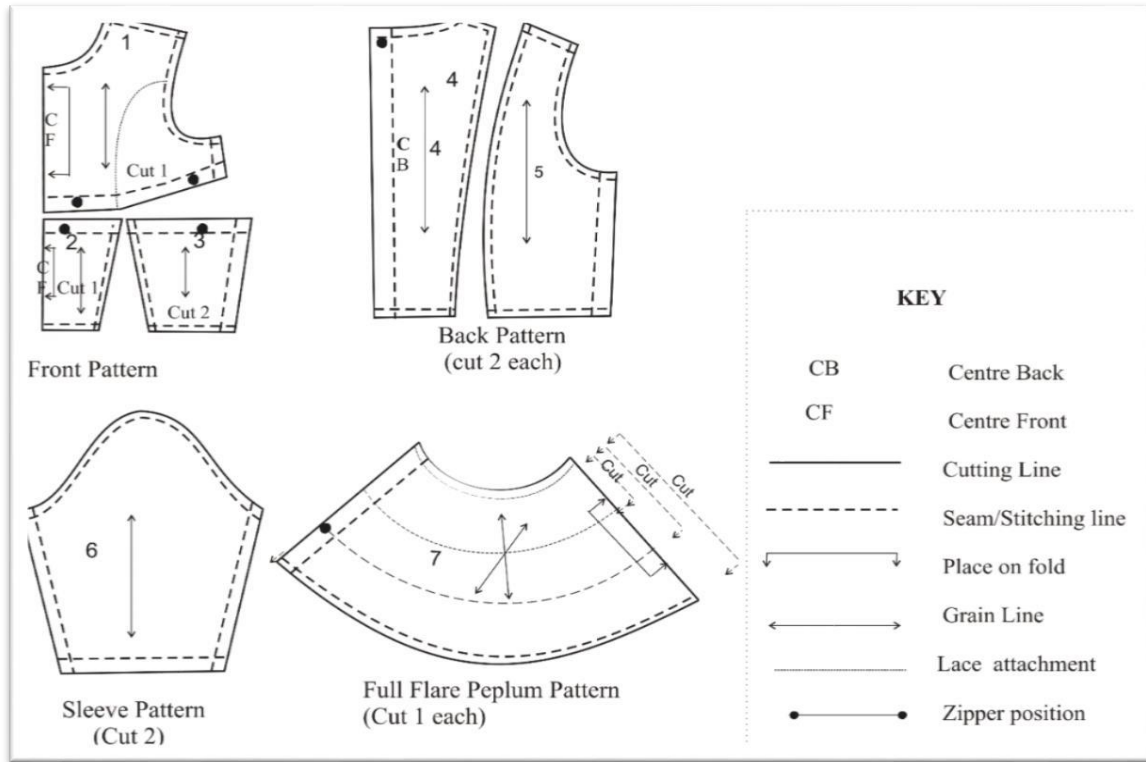


Figure 4.5: Final patterns of prototype one

According to Amankwa and Howard (2013) there is no hard and fast rule as to how African print fabrics are cut mainly because of how the motifs are arranged on the fabric. Though it is indicated on the patterns to lay them along the grain, the patterns are cut across the grain so as not to distort the motifs in the fabric and to be able to use the cloth in the width wise direction for the purpose of carrying the infant at the back. For that purpose, the fabrics were folded and cut in the crosswise direction as shown in plate 4.39.

The pattern pieces were laid out on the fashion fabric (African print cloth) and cut out. This was replicated on polyester lining fabric and cut out as well. The lace fabric which was used as embellishment was also cut out for the frontal blouse decoration. These are indicated in plates 4.40, 4.41 and 4.42 respectively. Lace embellishment was used to draw out a new style line other than the zipper opening and to illusively draw away attention from the zipper opening.



Plate 4.39: Folding of fabric



Plate 4.40: Laying and cutting out of fabric



Plate 4.41: Cutting out



Plate 4.42: Cutting out lace

Vilene was cut to neckline shape and fused unto the neck of front and back lining as shown in plate 4.43. This is to strengthen the neck of the blouse and to prevent neck from further stretch. The fashion fabric was then joined together with lace embellishment and lining fabric at the neck and stitched. To allow the pieces to lie flat, the allowance at the neck was snipped to allow for easy turning of lining and under stitched. The second part of front bodice was also prepared by joining side pieces to centre piece as indicated in

plate 4.44. Zipper extension was then turned on and pressed at bust area as indicated in plate 4.45.



Plate 4.43: Fused Vilene



Plate 4.44: Two parts of front *kaba* (blouse)



Plate 4.45: Pressing zip extension

An 8 inch invisible zipper was used to join the two fabric pieces as shown in plate 4.46 to obtain breast opening as shown in plate 4.47. The back bodice piece was then prepared and joined at the shoulders. The bust and waist measurement of user was used to shape the apparel and a three tier peplum prepared and joined at the waist. The sleeves were also prepared using the lace fabric to synchronize between the other lace parts and

fashion fabric. Finally, a zipper fastening was again stitched at the centre back to allow for easy on and off donning.

Plate 4.48 and 4.49 shows the front and back view of the finished apparel. This was worn with a six panelled slit style by the sample user. Plate 4.50 and plate 4.51 also shows the opening and the apparel in use for breastfeeding.



Plate 4.46: Stitching invisible zip at bust



Plate 4.47: Openings at bust for breastfeeding



Plate 4.48: Front of Design 1



Plate 4.49: Back of Design 1



**Plate 4.50: Opening in Design 1
Design 1**



Plate 4.51: Breastfeeding in

4.5.5.2 Prototype Two

Using the front basic bodice as shown in plate 4.33, a new dart position was located in the armhole of the pattern using a French curve as shown in plate 4.52 below. The shoulder dart is again closed and it is opened at the armhole as shown in plate 4.53



**Plate 4.52: Marking out armhole
dart**



**Plate 4.53: Closed shoulder dart
opened at armhole**

The waist dart is also closed and it opens out again at the armhole making the opening much bigger as shown in plate 4.54 below. This new dart when stitched would prevent the breast from being flattened and therefore create a room for the accommodation of the breast. A new style line is created 3 cm towards the centre front line. This line is cut through separating the pattern as shown in plate 4.55. This separated piece would be brought back by the insertion of the zipper which would create the opening for breastfeeding. The final pattern pieces are shown in figure 4.6.



Plate 4.54: Closing of waist dart



Plate 4.55: Separated front block

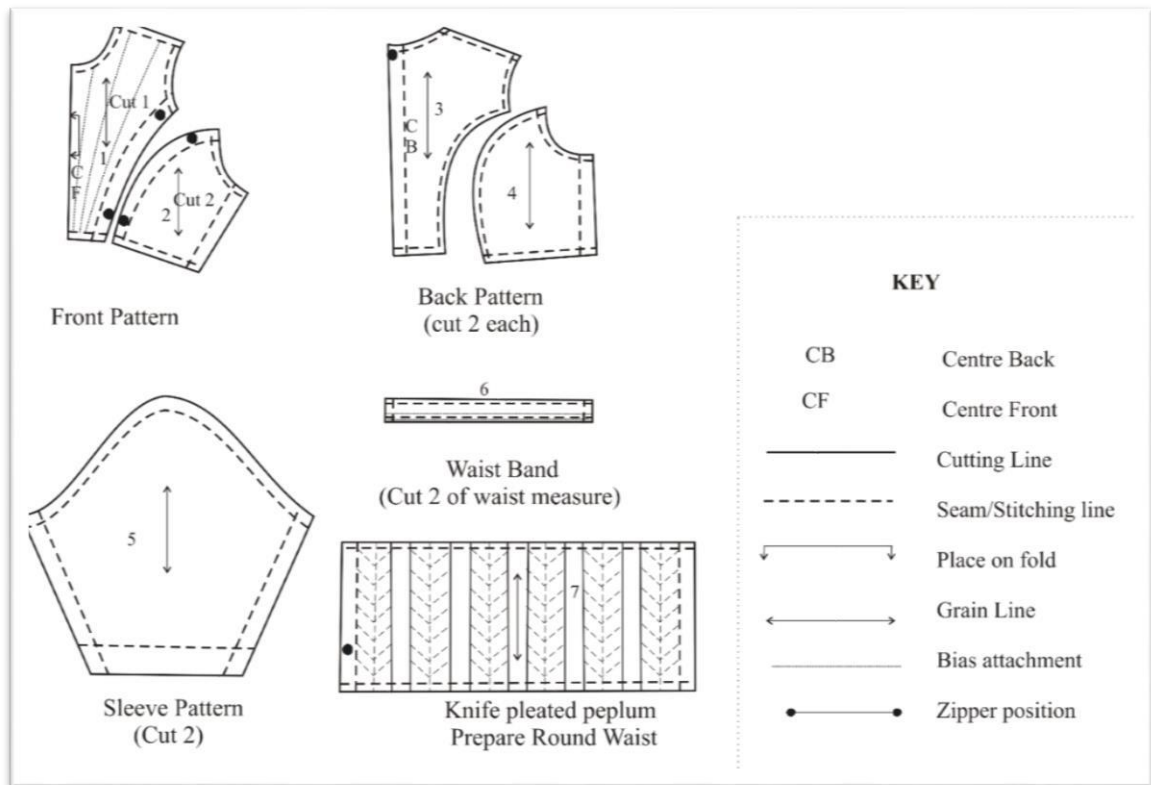


Figure 4.6: Final patterns of prototype two

Making up the apparel, the following process were used. The pattern pieces were laid and cut and as was done in plate 4.40. The lining fabric was also cut in the same way. Bias binding was stitched unto front piece considering the direction of underarm dart as bias was used to draw away attention from opening as shown in plate 4.56. Vilene was again attached at neckline of lining as shown in plate 4.43 and stitched together with fashion fabric at the neckline. Invisible zipper was fixed by joining the underarm of side piece to the centre front piece as shown in plate 4.57 to obtain the breast poke or breast accommodation as shown in plate 4.58. The back pieces were prepared and joined together with the front at the shoulder then shaped out using the bust and waist measurement of sample user. A band of 5 cm which joins the upper bodice to the peplum was prepared by stitching on strips of bias binding to add on some aesthetics. This was attached to neaten off raw edges of upper part of bodice as shown in plate 4.59.



Plate 4.56: Stitching of bias binding



Plate 4.57: Fixing of Invisible zip



Plate 4.58: Breast poked at bust



Plate 4.59: Attaching band at waist

Peplum was then prepared by folding rhythmical series of knife pleats which was attached to blouse at the waist and then the sleeves fixed into the armholes.

The plates below show the front and back views of the apparel, the opening in the dart at the breast and the use of it.



Plate 4.60: Front of design 2



Plate 4.61: Back of design 2



Plate 4.62: Opening in design 2



Plate 4.63: Breastfeeding in design 2

4.5.5.3 Prototype Three

Prototype three adopted the raglan sleeve style where the shoulder forms part of the sleeve. This style too depended on the basic bodice block to adapt it. In the adaptation, the shoulder and the waist dart were closed and transferred into the armhole as shown in plate 4.64.

In plate 4.65, a new neckline was marked in order to cut away the shoulder, which is 10 cm from the original neckline. Because it is impossible to close up buttons on a curve using button and button hole, there was the need to mark out a line towards the new neckline as it is done in plate 4.66 below. The dart that was closed at the waist is separated making sure that the waist dart is transferred into the armhole. This then gives three front pattern pieces as shown in plate 4.67.



Plate 4.64: Shoulder and waist dart



Plate 4.65: Marking out new neckline



Plate 4.66: Marking out button opening



Plate 4.67: Front pattern pieces

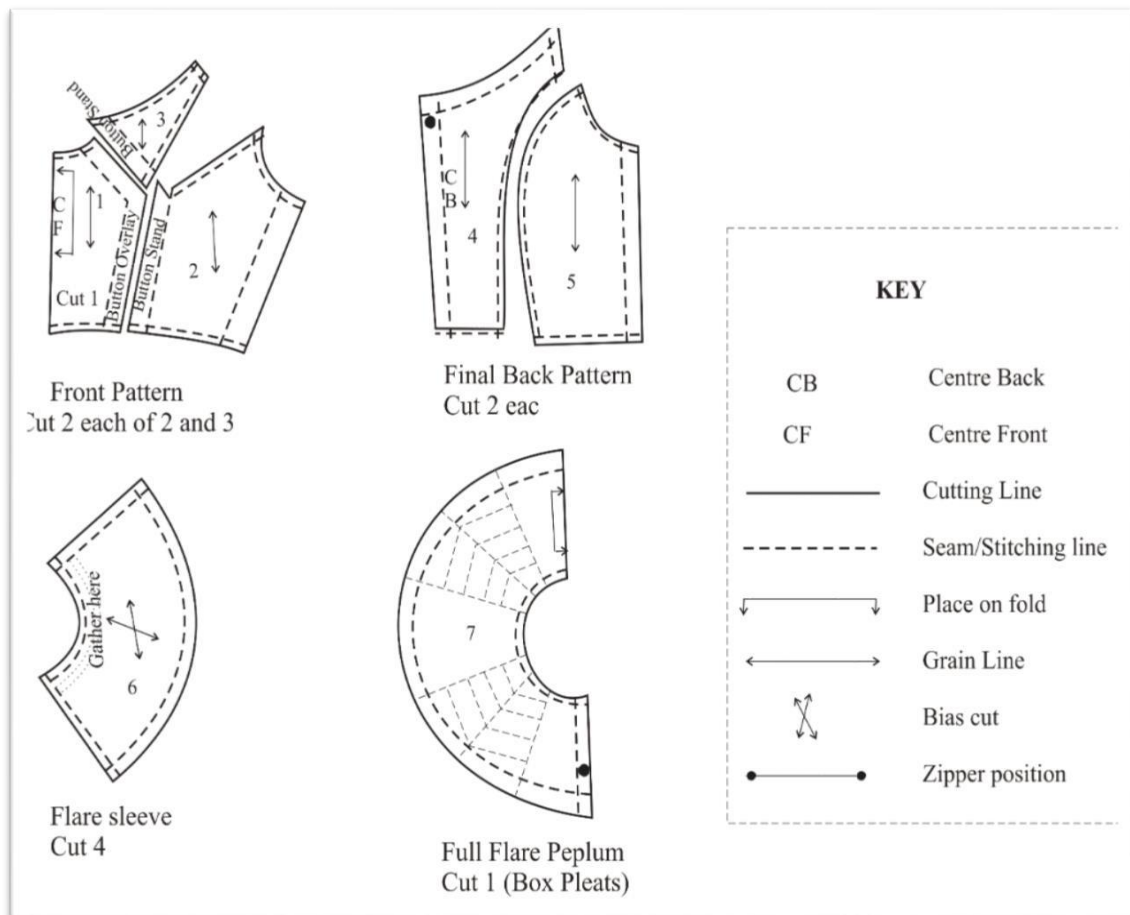


Figure 4.7: Final patterns of prototype three

Making up the apparel, the following process were used.



Plate 4.68: Layout of pattern pieces



Plate 4.69: Joined front pieces



Plate 4.70: Overlapping of button extension



Plate 4.71: Attached peplum at waist

The pattern pieces were laid out on the fashion fabric and the lining fabric was cut out in the same way as shown in plate 5.67. The triangular pieces were then joined to the side piece as shown in plate 4.68, and the vilene applied to the neck facing and button and button extension to reinforce it. Plate 4.69 shows the overlapped button extension which poked up because of the transferred dart held at the armhole.

The back pieces were joined and together with the front parts and shaped at the sides using the users' bust and waist measurements. Four box pleated peplum was prepared at regular intervals and then joined to the shaped bodice as shown in plate 4.70. The armhole was finished off using the fabric as bias for the binding. A raglan flap was prepared by pulling up gathering on one side and attaching the gathered side together with neck binding.

Plate 4.71 and 4.72 shows the front and back view of designed apparel while plate 4.73 and 4.74 shows the opening that the mothers use for breastfeeding.



Plate 4.72: Front of design 3



Plate 4.73: Back of design 3



**Plate 4.74: Opening in design 3
design 3**



**Plate 4.75: Breastfeeding in
design 3**

4.6 Difference between Existing *Kaba* and the Redesigned *Kaba* (Blouse) for Lactating Mothers

Though the existing *kaba* (blouse) and the redesigned *kaba* (blouse) is similar in construction and identifiable in appearance, the newly constructed apparel is different in

objective such that it is meant to aid in efficient breastfeeding and prevent the overexposure of breast especially in public places hence the creation of openings with fastenings at the breast areas. Again, the redesigned apparel may be seen to resemble the usual in appearance but differ because of the use of invisible zippers in design one and two which makes it more deceptive as zippers are hidden in construction and seen only during breastfeeding. The use of buttons in design three though facilitates its functionality, also adds on to its aesthetic beauty that serves as a form of decorative apparel. Also, the constructed *kaba* still maintained its shape as the mothers still had their form and shape flattered. This meant that the *kaba* does not end up being one-time apparel but can be used even after the baby is weaned off the breast. The difference in use of the *kaba* (blouse) has been shown below.



Plate 4.75: Breastfeeding in existing *kaba*



Plate 4.76: Breastfeeding in redesigned *kaba*

4.7 Execution Process for Research Objective Three

In executing the third objective for this project, Lamb and Kallal's fifth design process was continued with.

4.7.1 Evaluation:

In ascertaining the efficacy of the redesigned apparel, the prototypes of the apparel were sewn and evaluated based on the problems identified. From the observations and interview conducted, it was found out that the comfortability of the *kaba* apparels were paramount to effective breastfeeding. The functionality of the apparel was assessed based on their suitability for breastfeeding in solving the mentioned problems and their acceptability by the users. The users were subjected to questions founded on constructional features such as size, shape and fit of *kaba* as well as the effectiveness of fasteners used as closures. Furthermore, comfort was also assessed based on ease of use of apparel and their ability to fasten on and off effectively.

A set of the *kaba* ensembles constructed were given to each mother representing a maternity/weighing centre used for the study to use for two weeks after which the researcher evaluated the success of use of the apparel using the set questions. The effectiveness of the apparel were assessed through observation and interview concerning the use of apparel in order to draw conclusions on the findings.

4.7.2 Comfortability Assessment

Comfortability in relation to this research is how the nursing mother felt during the use of the apparel without much exposure of certain body parts. Also, comfortability in how external pressures influenced the process of breastfeeding such as inability to breastfeed in the presence of others or calling for help in unzipping the *kaba* before one can breastfeed. In view of this, comfortability assessment was based on ease of use of apparel and ease to fasten on and off.

4.7.2.1 Ease of use of apparel

Ease of use of apparel dealt with how easy and comfortable the mother felt while using the apparel for breastfeeding.

All three users confirmed their confidence has improved while using the apparel such that user one assessed “the first time I used design one was on a Sunday. People looked and wondered how I was able to breastfeed my crying daughter in church because there was no body exposure and no indication of an opening in the *kaba* I wore.” She added “it is the unzipping at the back of *kaba* and letting down sleeves that draws people’s attention to the fact that you are breastfeeding.” According to user two, she loved the fact that the apparel has been made easy to use especially for breastfeeding regardless of the position of the mother or how she holds the baby. “The creation of the apparel has brought great satisfaction because of the breast zips” said user three. She added that, she is able to control the amount of breast that comes out of the garment most especially in prototype two. The researcher observed that the problem of soiling the apparel with breast milk could be handled easily and controlled as user one tried to control leaking milk while using the apparel. Since engorged breast could eventually lead to leaking, the opening created granted easy access that helped place pads in the brassieres to soak up the breast milk so as not to stain the fabric. This could also be an easy way to equally express the breast milk should the baby be bottle-fed. The researcher also observed that the mothers continually opened the breast zippers and buttons apparently with one hand as the infants head rested on the other hand. This is indicative of the fact that proper placement of fastenings and openings where at their rightful places which goes a long way to alleviate people’s frustrations in the use of the apparels. When asked how comfortable the baby felt while latching on the breast, the respondents said the babies had no problem latching on since they were able to hold and control the breast as the infants fed. With prototype three, it was observed that the infant’s cheek rested on the button which is a clear indication that the size, shape and texture of button used should be considered when such fastenings

needed to be used. This could go a long way in compromising on the comfortability of the infant as it latches unto the breast.

4.7.2.2 Ease to fasten on and off

The ability of the mother to easily open and close up her *kaba* apparel during breastfeeding made it worthwhile to delve into this research. The designs according to the respondents were very easy to fasten on and off such that it did not create any form of inconveniences to them. User one and three felt that the use of zippers to produce design one and two was much easier to open and close than the use of buttons when one seems is in a hurry to open and close up after breastfeeding while user two felt otherwise. User two applauded the fact that there was no need for a third person to help unzip when it comes to breastfeeding either at home or in a public place.

In conclusion, comfortability assessment revealed that the designs used by the lactating mothers have been found to be comfortable and that mothers were able to breastfeed comfortably and confidently especially in public places. The openings were easy to fasten on and off making it easier to respond to the child. Additionally, the apparels have also been seen to serve additional purpose by helping the mothers to control the leakage of an engorged breast in addition to expressed possibilities.

4.7.3 Suitability Assessment

Suitability assessment examined how suitable the overall design of the apparel was for breastfeeding. It delved into the success of the constructional features of the apparel.

4.7.3.1 Constructional Features

To the breastfeeding mothers, the apparels were very suitable for breastfeeding such that the placement of zippers went a long way to help breastfeed confidently. Constructional features such as the darts, zipper openings in the horizontal and vertical directions, button

openings, sleeves, peplums, necklines and shape of the apparel were attributed to suitability. User one suggested that though the necklines seemed normal and satisfactory, the neckline could have been higher than it is as the breast openings created did not need the neckline to be pulled anymore since the breast can easily be accessed without crumpling the apparel design. Though necklines are an important feature in lactating apparels as stipulated by Choi, Choi and Kim (2000) they can also be worn out of choice if the right approach is used in solving the stated problem. Neckline shapes only become important when that is the only access to breastfeeding. But that can be changed by zipper usage for those who would like to maintain a polo or high neckline. When asked if the apparel compromised on breastfeeding in any way, the users said breastfeeding was not compromised since it did not come with so much embellishment that could impede breastfeeding. "It looked simple and much more appropriate for anyone breastfeeding" said user one. One of the respondents claimed she had always wanted apparel that would help her breastfeed without opening zipper at the back or centre front. "These apparels are just right for me, just what I wanted" she said. Innovatively, zippers inserted into the darts were seen by most dressmakers interviewed as impossible. According to user three the horizontal underarm darts opening in design one, was a bit restricting as she felt it was not large enough to afford her enough exposure as compared to design two and three. That notwithstanding user one felt comfortable with the length of opening as it was just what she wanted. This therefore means that in designing the opening, its length must be sought for from the mothers as to how much more they would have it opened. Another suggestion could also be that, the length be made longer for the mothers to decide on how much to open as done with the diagonal direction of design two and button design of design three.

Fitness in the overall design of the apparel is to conform to the shape of the wearer. How well an apparel fits largely depends on comfort and fashion. To the respondents though

they had their own perception of style and fashion, the produced concept goes a long way to help mothers to implement such in their line of fashion. The use of dart as openings for the breast was also to maintain the shape of the wearer so as not to deviate from the fitting features of the Ghanaian *kaba* ensemble. A mother ought to breastfeed comfortably and fitness as a feature in apparel design confirms Jeon and Kim (2000) assertion that fit and comfort are very important factors in apparel design for breastfeeding mothers.

In conclusion, all the designs were seen to be very suitable for breastfeeding with much preference for the diagonal direction of design two and three. Furthermore inferences drawn from the redesigned *kaba* apparels by the breastfeeding mothers could be used in redesigning other forms of apparels trying out other types of fastenings for breastfeeding.

4.7.4 Acceptability Assessment

The success of any designed product is the ability of the product to be accepted by its intended users if they are to be implemented. The acceptability of the redesigned *kaba* apparel therefore delved into whether or not the apparel was appropriate as well as its recommendation to be implemented. This was a key to the successful promotion of the redesigned apparel for the purpose of lactation.

The users felt that the idea of assisting lactating mothers' breastfeed comfortably was great and are ever ready to accept its implementation. They saw the apparel as a novelty in designing *kaba* and are ready to embrace it. They admitted the apparel was aesthetically pleasing though it may differ from person to person yet the intent of the apparel was duly understood. The mothers liked the fact that the apparel could be used even after breastfeeding and said that unlike maternity wears that are abandoned after delivery, this design concept can even be used beyond breastfeeding since the openings were made invisible enough and the buttons, though serving a purpose, formed part of the

design. They admitted that the process of replication can be made easily through knowledge in dart manipulation though it was their first time of hearing it.

4.8 Outcome of Interview with Dressmakers

Based on the interview conducted with the various dressmakers it was noted that, the design and construction of apparels are mostly done upon the client's request. Most often catalogues and magazines are given to the clients to choose from with little or no questioning as to the functionality of the apparel. The apparel sewn are lined usually with polyester fabrics depending on colour of the background fabric which is intended to add body to the apparel as well as provide a neat inside finish by covering up the interfacing and other constructional details.

Before the cutting and sewing of the apparel, pattern or motif arrangements is a distinct feature most of the dressmakers consider while others look at the wearer's figure type. Some clients are seen to be difficult to handle hence their preference is what is given in design irrespective of whether it suits the figure type or not. According to the dressmakers, what a client needs the apparel for is not a concern to them as cloths to them are meant to cover up ones nakedness and for aesthetics needs.

Provision for style lines for breastfeeding mothers was to give the apparel a low cut neckline other than a high neck so as to make possible the easy removal of the breast from the neckline to feed. The front of the apparel is made free of designs according to the proprietor of Anne's creation to avoid interruptions during breastfeeding and sometimes, an opening is created in the centre front of the apparel. In response to this, one mother said, the centre front openings tends to shift half of the front part of the apparel to one side when breastfeeding. Though one does not need help to do this, she does not prefer it. Nonetheless, most women bring in their cloth with their own designs and not much can be done by the dressmaker. Making garments functional for

breastfeeding purpose was new to dressmakers since they focused on the aesthetics and fitness of the *kaba* styles selected by the clients. The researcher before setting off to undertake the construction of the apparel, approached some dressmakers to find out if it could be possible to redesign the *kaba* for lactation purposes but was disappointed as most of them found it impossible especially with the manipulation of darts in all direction on the bodice as well as the insertion of fasteners while maintaining the shape of the *kaba*.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Overview

This chapter captures the main issues raised in the course of the study in the summary and draws conclusions from the discussions based on the objectives raised with the recommendations made.

5.2 Summary

Breastfeeding come with a lot of the clothing challenges because of the difficulty involved in finding conducive clothing to breastfeed in, irrespective of the design of which the Ghanaian *kaba* ensemble is not an exception. This cannot be over emphasized as some mothers could be seen frustrated when it comes to choice and design of their *kaba* apparels that would enable them breastfeed comfortably especially in public places. To help solve these challenges mothers undergo, three objectives were set, thus to identify *kaba* and its related problems to breastfeeding, design and construct functional *kaba* apparel suitable for breastfeeding and assess the efficacy of the redesigned apparel for breastfeeding. The scope of the study was limited to *kaba* (blouse) and breastfeeding mothers within some selected metropolises in the Ashanti region of Ghana, namely: *Manhyia* Reproductive and Child Health (RCH), KNUST Public Health and *Asokwa* Children's Hospital.

The study adopted the qualitative research method using descriptive and experimental methods. A total sample size of two hundred (200) respondents were interviewed which comprised of ninety (90) breastfeeding mothers from *Manhyia*, sixty (60) from the KNUST Post Natal clinic and thirty (30) from *Asokwa* Children's Hospital. Twenty (20) dressmakers were also sampled for their view on the apparel from Tech Junction and *Asafo*. Three (3) breastfeeding mothers were sampled and the redesigned *kaba* ensemble

given to them to use for a period of two weeks. Observations were also used as instrument to gather primary data for the study. Permission was sought at the various child health centres where the mothers had come for “weighing”. Interview and observation guides were designed to guide the process of data collection. Data were collected, analysed and interpreted to draw conclusions and also make recommendations. In relation to the data analysed, the following findings were drawn:

1. The study confirmed that the *kaba* which is the blouse part of the ensemble comes in a variety of styles and designs prime among which are the way their necklines are cut, shaping made, fabrics used and the way their sleeves are prepared and attached. Their necklines which are usually cut low for breastfeeding enable the mothers to assess the breast from the neckline. But managing such styles only lead to the necklines constantly becoming dirty and gapped. These styles, though confirms Choi et al (2000) that necklines are important feature in breastfeeding apparels was rather found to expose other parts of their bodies making them feel uncomfortable breastfeeding especially in public places. This led to the creation of openings in the breast area to enable easy access to the breast.
2. To address these challenges, darts were manipulated into the underarm and armhole. These new dart positions served as openings through which the zip (prototype one and two) and buttons (prototype three) were used as fasteners to close the openings created. These openings came in the horizontal, vertical and diagonal direction in the breast area while maintaining the wearer’s shape and fitness through the apparel. With regards to the choice of fastenings, it was necessary to consider their shape, style and size so that their use does not end up making the breastfeeding baby uncomfortable.

3. The use of the constructed apparel by the mothers revealed that there was a feeling of confidence and comfortability while breastfeeding in the redesigned *kaba* apparel as openings at breast areas were easy to undo as well as the infants latching on the breast without difficulty. The length of the opening also allowed the mother the opportunity to open enough for the infant to breastfeed making the design suitable for breastfeeding. Furthermore, the redesigned apparel was acceptable as it was seen to be easy to replicate, aesthetically pleasing and conforming to its intended purpose.

5.3 Conclusions

With regards to the data obtained and analysed, the findings drawn was that, the *kaba* which is the blouse part of the Ghanaian ensemble needed to be modified to make the breastfeeding mother comfortable in breastfeeding while dealing with her day to day activities without thinking of a style to wear or to enable her breastfeed, which was the premise for the thesis, the redesign of *kaba* as a functional apparel suitable for today's lactating mothers.

The possibilities concluded were that, the darts which is a feature in garment construction can be manipulated to serve as openings to perform a functionality considering the various locations on the bodice block. Closures can be inserted into them for use in the case of breastfeeding. The use of invisible zippers in some of the designed prototypes made the openings invisible, which also means the apparel can be used even after breastfeeding.

Furthermore, the designed and constructed apparel is acceptable as it is directly related to its intended purpose of comfortability and fitting features.

5.4 Recommendations

Based on the findings obtained and the conclusions drawn from the study, the following recommendations have been made for consideration:

Irrespective of the various styles and designs identified, it is necessary to identify with an apparels functionality besides its normal use. The researcher believes that it would be expedient to collaborate with the weighing centres at the various hospitals towards the need for breastfeeding mothers to be aware of these design ideas to help them breastfeed confidently and comfortably.

1. The incorporation of openings and fastenings at the breast areas becomes more appropriate for use by breastfeeding mothers. Introducing these design features will help enhance the apparels functionality while maintaining style and shape. Designers should therefore produce breastfeeding apparels by trying out the manipulation of darts to create openings to enhance breastfeeding. Other forms of fasteners such as press studs, lacing and Velcro can be explored to see their effectiveness bearing in mind that these forms of fastenings do not make the infant uncomfortable while breastfeeding.
2. Inferences drawn from the findings suggested that the design created can be replicated on other garments by trying out other kinds of openings and fastenings. This could enable dressmakers go beyond the design of a onetime apparel such that the apparel can be used even after its intended purpose is over and done with. This will go a long way to promote the local garment industry as well prevent mothers from having to put away their breastfeeding *kaba* apparels when the act is over if the opening and fastening used is concealing. Information obtained from this research could be used to produce magazines

and charts for dressmakers in order to produce apparels of this nature for breastfeeding mothers.

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APPENDIX 1

INTERVIEW GUIDE

Interview guide used in interviewing breastfeeding mothers within the *Manyhia*, KNUST, *Asokwa* Children's Hospitals maternity unit and its environs in the Ashanti region.

SECTION A: BIODATA OF THE RESPONDENTS

Instruction: Tick the one applicable to you

1. Age (in years): a. 18-25 (), b. 26-33 (), c. 34-41 (), d. 42 and above ()
2. Occupation: a. Employed (), b. Self-Employed (), c. Housewife ()

SECTION B:

WHAT CHALLENGES ARE AFFECTING BREASTFEEDING MOTHERS WITH REGARDS TO THEIR *KABA* APPAREL?

1. How often do you breastfeed your baby?
2. Do you often go out with the baby?
3. What type of clothing do you prefer to wear because of breastfeeding and why?
4. How comfortable are you when breastfeeding in your clothing?
5. How do you feel when breastfeeding in public?
6. How do you overcome the gazes of people when breastfeeding in public?
7. Does *kaba* apparel form part of your wardrobe after safe delivery?
8. What challenges do you have accessing the breast during breastfeeding in *kaba*?
9. Does breastfeeding affect your *kaba* styles (comfortability)?
10. How would you have your *kaba* sewn for you during lactation?
11. What fasteners would you have used in them?
12. How often would you use the *kaba* if designed for the purpose of breastfeeding?

HOW CAN THE *KABA* APPAREL BE REDESIGNED AND PRODUCED TO SUIT BREASTFEEDING MOTHERS? (DRESSMAKERS)

1. How often do you sew *kaba* for breastfeeding mothers?
2. What do you consider when designing the apparel?
3. Do you look at need areas of clients before designing their apparel for them?
4. How do you make provisions for designing for breastfeeding women?
5. Do you have any idea about making garments functional?
6. What kind of procedure do you follow when designing apparel?

EVALUATION ASSESSMENT

COMFORTABILITY ASSESSMENT

1. How did you feel breastfeeding in the apparel?
2. How did the fastening used in the apparel aid in breastfeeding?
3. Comparing this idea to the usual *kaba*, what would you say about breast exposure?
4. What would you say about the type and length of opening?
5. How easy is it trying to open up to breastfeed and close after breastfeeding?
6. Which of the apparels is more comfortable breastfeeding in?
7. Was it difficult using the apparel for the purpose of breastfeeding?

SUITABILITY ASSESSMENT

1. How suitable is the designed apparel towards breastfeeding?
2. Does the design features pertain to that of your choice *kaba*?
3. What feature of *kaba* would compromise on breastfeeding?
4. Is there any feature that would compromise on breastfeeding in the designed *kaba*?

5. What do you say about the shaping the apparel gives to the body despite the fact that the openings are imbedded in them?
6. How does the fit of the apparel affect breastfeeding?
7. How does the direction of opening affect breastfeeding?
8. How does the length of opening affect breastfeeding?

ACCEPTABILITY ASSESSMENT

1. How did you see the apparel?
2. Has it been designed for intended purpose?
3. How has it been able aid breastfeeding?
4. Will the design be accepted if implemented in the market?
5. Does the idea affect the apparels aesthetic appeal?
6. Would you recommend its use to other people?
7. Can it be used even after breastfeeding?
8. Do you think the idea is easy to replicate
9. Can it be applicable to other types of apparel?
10. What do you say about the overall appearance of the apparel in relation to the *slit*?

APPENDIX 2

OBSERVATION CHECKLIST

1. How are mothers dressed when they come to the weighing centres?
2. How do they carry their infants to the centres?
3. How do they respond to their baby's cry?
4. Do they hid themselves to breastfeed?
5. How do they bring out the breast to breastfeed?
6. Do they cover themselves of any sought?
7. What is their reaction during feeding?
8. What kind of dresses do they wear to the centres?
9. What do they carry along when out and about from what is seen at the centres?